Preliminary & Detailed Site Investigation

34 Wyndella Road, Lochinvar NSW

NEW23P-0216-AA
28 November 2023

Qualtest
LABORATORY (NSW) PTY LTD

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Document prepared for:

AEP Developments Pty Ltd
PO BOX 236
Baulkham Hills NSW 1755

Document prepared by:
Qualtest Laboratory (NSW) Pty Ltd
ABN 98 153 268 896
2 Murray Dwyer Circuit
Mayfield West, NSW 2304
T 02 4968 4468
W www.qualtest.com.au

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Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Preliminary and Detailed Site Investigation (PDSI) on behalf of AEP Developments Pty Ltd, for the site located at 34 Wyndella Road, Lochinvar NSW (the site).

The site is zoned RU2 Rural Landscape and currently contains a residential dwelling in the eastern portion of the site. It is understood that the site is proposed to be developed into Manufactured Homes Estate (MHE) and that the PDSI Is required to assist with the Development Application (DA).

It is noted that Qualtest have carried out a geotechnical assessment on the site in conjunction with the PDSI (ref: NEW23P-0216-AB). Information on subsurface conditions from the geotechnical investigation have been included in this report.

The objectives of the works were to:

- Assess former and current site uses and/or activities, that have the potential to cause contamination;
- Assess the location and extent of potential soil and surface water contamination on the site (if any); and,
- Provide recommendations on the need for further assessment, management and/or remediation (if required).

In order to achieve the above objectives, Qualtest carried out the following scope:

- Desktop and site history assessment;
- Collection of soil samples from 34 surface sample locations, 18 stockpile samples from 5 stockpiles, and a surface water sample;
- Laboratory analysis of selected soil samples for the Contaminants of Potential Concern (COPC); and
- Data assessment and preparation of a Preliminary and Detailed Site Investigation Report.

The site history review showed the site has been used for grazing farm land since the early 1900s until at least 1991. A residence and associated sheds and swimming pool were constructed on the site between 1991 and 2001. Five stockpiles of fill material were observed on the site, ranging in size from 5m^3 to 230m^3. Materials/equipment are stored on the site around the dwelling and associated sheds. Two dams are also present on the site.

Three Areas of Environmental Concern (AECs) were identified based on the site history and site observations:

1. Agricultural practices, potential use of pesticides – Potential for pesticide use and other farming related contamination;
2. Storage of vehicles, equipment and waste materials: Potential leaks and spills and flaking of metals etc; and
3. Filling on the site: Use of fill of unknown quality and origin.

To provide an assessment of potential soil contamination, 34 surface soil sampling locations, 18 stockpile soil samples, and one surface water sampling location were carried out across the site. The sampling locations targeted the AECs identified.

The laboratory results reported concentrations of arsenic and copper above the HIL/EIL in one surface soil sample location (SS01A), and asbestos (FA and ACM) above the HSL in one

stockpile, SP01. The surface soil sample was located under waste materials adjacent to a shed in the eastern portion of the site. Stockpile SP01 is also located in the eastern portion of the site.

Other than stockpiled materials, fill material was not identified on site in test pits excavated as part of the geotechnical assessment.

Based on the preliminary and detailed assessment completed, it is considered that the site can be made suitable for the proposed residential development, provided the following recommendations are implemented:

- Preparation of a Remediation Action Plan (RAP) will be required to outline the remediation for the soil contamination identified, including the arsenic and copper in surface soils, and asbestos (FA and ACM) in stockpile SP01, above the adopted criteria in the eastern portion of the site. Based on the proposed development, it is likely that remediation will comprise excavation and offsite disposal. The RAP will include assessment of remediation options, and information on what management plans are required;
- Preparation of an Asbestos Removal Control Plan to be implemented during remediation and earthworks. The plan should outline the procedures for the handling and removal of soils containing asbestos. Care must be taken to prevent spreading asbestos onto other areas of the site. It is envisaged that the ARCP would be prepared by the contractor undertaking the removal works; and
- Preparation of an Unexpected Finds Procedure to manage potential unexpected finds of contamination during earthworks and construction for the proposed development.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013). The report comprises a stage 1 and 2 assessment in accordance with SEPP (Resilience and Hazards) 2021, Chapter 4.

Table of Contents:

Attachments:

1.0 Introduction

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It is noted that Qualtest have carried out a geotechnical assessment on the site in conjunction with the PDSI (ref: NEW23P-0216-AB). Information on subsurface conditions from the geotechnical investigation have been included in this report.

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1.1 Objectives

The objectives of the works were to:

- Assess former and current site uses or activities, that have the potential to cause contamination;
- Assess the location and extent of potential soil and surface water contamination on the site (if any); and,
- Provide recommendations on the need for further assessment, management and/or remediation (if required).

1.2 Scope of Works

In order to achieve the above objectives, Qualtest carried out the following scope:

- Desktop and site history assessment;
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2.0 Site Description

2.1 Site Identification

General site information is provided below in Table 2.1. The site location is shown in Figure 1, Appendix A.

Table 2.1: Summary of Site Details

Site Address:	34 Wyndella Road, Lochinvar NSW
Approximate site area and dimensions:	Approx. 10 ha Approx. 130m wide (north to south) by 800m long (east to west) at its widest and longest points
Title Identification Details:	Lot 225 DP246447 within the Maitland local government area
Current Zoning	RU2 Rural Landscape
Current Ownership:	David Troy Heien Gail Alison Heien
Current Occupier and Land Use:	Rural Residential
Previous Landuse:	Rural Residential, agricultural (grazing land)
Proposed Landuse:	Proposed Manufactured Homes Estate
Adjoining Site Uses:	North – Rural residential land East – Low density residential South – Rural residential land leading to New England Highway West – Rural residential land
Site Coordinates for approx. centre of site:	32°41'52.51"S 151°28'08.02"E

2.2 Topography and Drainage

Reference to the NSW Land and Property Information Spatial Information Exchange website (https://six.nsw.gov.au/wps/portal/) indicated the elevation of the site was approximately 40m AHD in the western portion with a gentle incline to 50m AHD in the eastern portion.

The site was observed to be on south to west facing gentle slopes of a locally prominent hill formation, rising to the north of the site.

The ground surface consisted of grass with a dwelling in the eastern portion of the site, and dams in the central and western portions of the site. Rain falling on the site would be expected to infiltrate into the site surface. Excess surface water is expected to flow west into the site dams. During high rainfall, excess surface water would flow into stormwater drains on Wyndella Road and then into Lochinvar Creek located about 1km west of the site.

2.3 Regional Geology

The 1:100,000 Newcastle Hunter Area Coastal Quaternary Geological Maps indicates that the site is underlain Permian aged Dalwood Group: sandstone, lithic sandstone, conglomerate, siltstone, basalt.

2.4 Hydrogeology

Groundwater beneath the site is anticipated to be present in a semi-confined aquifer within residual soils/weathered rock at depths greater than 5m below ground surface (bgs).

Groundwater flow direction is anticipated to flow to the north-west discharging to the Hunter River located about 3km north-west of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were three bores within this radius. A copy of the search is provided in Appendix B.

Table 2.4 – Groundwater Bore Search

Bore ID	Installation Date	Purpose	Approx. Distance and Gradient from Site	Final Depth (m)	Water Bearing Zones (m)
GW022693	01/01/1865	Stock, Irrigation, Monitoring bore	450m, down gradient	12.2	-
GW072724	31/12/1992	Stock, Domestic, Farming	250m, down gradient	70	-
GW071829	01/10/1992	Town Water Supply	250m, down gradient	16	16

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil online database from State of NSW and Department of Planning, Industry and Environment, 2021(espade.environment.nsw.gov.au) the site is located in an area of 'no known occurrence' of acid sulfate soils.

3.0 Site History Review

A site history review was undertaken as part of the PCA, and included:

- A review of historical ownership of the site (Lot 225 DP246447);
- A review of aerial photography from the past 47 years;
- A review of Section 10.7 Certificate from Maitland City Council;
- Search of the NSW EPA's list of contaminated sites applying to the site and nearby properties; and

- A site walkover to help identify current and previous activities carried out on the site, identify surrounding land uses, and assess Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (COPCs).

The information provided from the above reviews is summarised in the sections below.

3.1 Historical Titles Search

A search of historical titles for Lot 225 DP246447 was undertaken by Advanced Legal Searchers Pty Ltd. A list of past registered proprietors for the site dating back to 1909, was obtained. The results of the search are included in Appendix C. A summary of ownership is presented below in Tables 3.1

Table 3.1: Summary of Historical Titles – 34 Wyndella Road (Lot 225 DP246447)

Date	Owner
23 Dec 1988 todate	David Troy Heien Gail Alison Heien
21 Dec 1979 to 23 Dec 1988	Dino Cosmo, cellarman Edda Cosmo, his wife
6 Feb 1974 to 21 Dec 1979	Jones Nominees Pty Limited
14 Jul 1958/ 20 Feb 1959 to 6 Feb 1974	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier
16 May 1955 to 14 Jul 1958/ 20 Feb 1959	Winifred Elizabeth Fuge Capp, widow Norman Edward Weeks, solicitor
19 Apr 1945 to 16 May 1955	Roy Lyle Capp, grazier
31 Aug 1943 to 19 Apr 1945	William Hooke Mackay, grazier John Julian Augustus Mackay, grazier Francis Keith Mackay, grazier
23 May 1940 to 31 Aug 1943	William Hooke Mackay, (jnr) grazier / trustee John Julian Augustus Mackay, grazier / trustee Francis Keith Mackay, grazier / trustee William Hooke Mackay, estate
30 Sep 1909 to 23 May 1940	William Hooke Mackay, grazier

The historical title search indicated that the site has mainly been owned by private individuals (graziers) from 1909 to date. The Jones Nominees Pty Ltd owned the site from 1974 to1979. The current site owners, the Heien family, purchased the site in 1988.

3.2 Aerial Photograph Review

Aerial photographs of the site from 1976, 1984, 1991, and 2001 were obtained from the NSW Government Spatial Portal (https://portal.spatial.nsw.gov.au/), and satellite images from Google Earth for 2015 and 2023, were assessed by a Qualtest Environmental Scientist. The results of the aerial photograph review are summarised below in Table 3.2. The aerial photographs are presented in Appendix D.

Table 3.2: Aerial Photograph Review

Year	The Site	Surrounding Land
1976	The site appears to consist of vacant cleared agricultural land, with a single dam in the central portion of the site.	The surrounding land uses appear to consist of cleared agricultural land in each direction. The New England Highway appears to the south with some rural residential properties. Saint Joseph's College is present to the south west of the site.
1984	Potential eroded soil appears in north-western portion of the site. Remainder of the site appears relatively similar to 1976 aerial photograph.	Rural residential dwellings appear on the bordering northern and southern allotments of the site. Three dams have been excavated to the north of the site and an additional dam to the south. Continued residential development to the south and south-east around the New England Highway. The remaining surrounding area appears relatively unchanged from the 1976 aerial photograph.
1991	Two small structures/pieces of equipment appear stored in the eastern and western portions of the site. The remainder of the site appears relatively similar to the 1984 aerial photograph.	Low density residential dwellings appear to the north east of the site. The remaining surrounding area appears relatively unchanged from the 1984 aerial photograph.
2001	The small structures/pieces of equipment appear to have been removed. A residential dwelling, gardens and small sheds appear in the north eastern portion of the site. A Dam has been excavated in the north-western portion of the site.	Continued residential development to the north-east. The remaining surrounding area appears relatively unchanged to the 1991 photograph.
2015	The site appears similar to the 2001 aerial photograph.	Continued residential development to the north-east and east. The remaining surrounding area appears relatively unchanged from the 2001 aerial photograph.
2023	The site appears similar to the 2015 aerial photograph.	Large increase in residential development to the north-east, east, and south.

3.3 Site Observations

A Qualtest Environmental Scientist visited the site on 2 and 6 November 2023. Selected site photographs are presented in Appendix E. The location of site features are shown on Figures 3A and 3B, Appendix A. A summary of the site features is outlined below:

- A residential dwelling constructed of brick with corrugated tin roof was observed in the north-eastern portion of the site. Vehicles were parked on the western side of the dwelling, and equipment (fuel drums, boat motors, power tools, gardening tools etc) were observed on the southern and eastern sides of the dwelling (see Photographs 1 and 2).
- A fenced off area was observed on the north-eastern side of the dwelling which encompassed a paved area with a pool and garden shed (Shed 3), which contained gardening equipment and chairs (see Photograph 3).
- A shed (Shed 1) was observed to the north-east of the dwelling, with a timber frame, corrugated tin roof and earthen floor. The shed contained an old tractor and some possible oil staining was present (see Photograph 4).
- A shed (Shed 2) was observed east of the dwelling, constructed of corrugated metal with a concrete floor. The shed contained gardening equipment including a lawn mower, gardening equipment, bikes, hoses, cement mixer, ladders, timber fencing, and tyres. An IBC was observed on the northern side of Shed 2 (see Photographs 5 to 8).
- A storage area was observed north-east of the dwelling, and comprised timber, plastic, plastic tanks (IBCS, and drums (full and empty, contents unknown), metal drums, scrap metal, farm equipment, bricks, batteries(x2), water tanks, bathtubs, ash pile, and tyres (see Photographs 9 to 14).
- Metal, timber and tyres were observed on the northern boundary of the site, west of the dwelling (see Photographs 15 and 16).
- Water tanks were observed to the east of the dwelling with tarps and hoses also placed on top of them. A septic tank was observed to the east of the water tanks. (see Photographs 17 and 18).
- A cubby house was observed to the east of the dwelling, constructed of timber (see Photograph 19).
- A stockpile (Stockpile SP01, approx. 230m^3) was observed west of the dwelling, with exposed concrete and brick on its western edge (see Photographs 20 and 21).
- A dam (Dam 1) was observed in the north-western portion of the site with tyres beneath the water surface (see Photograph 22).
- A dam (Dam 2) was observed in the central portion of the site. A stockpile (SP02, approx. 200m^3) was observed north of Dam 2, and a stockpile (SP03, approx. 200m^3) was observed south-west of Dam 2. The stockpiles possibly comprised material excavated to construct Dam 2 (see Photographs 23 and 24).
- A stockpile and stone wall (Stockpile SP04, approx. 125m^3) was observed to the north-east of Dam 1 in the north-western portion of the site and was comprised of concrete, asphalt, timber, vegetation and brick (see Photographs 25 to 27).
- A road crossing was observed in the central portion of the site on the southern boundary, constructed with brick and concrete. The drainage line to the north of the road crossing had been partially filled in with asphalt and concrete (see Photographs 28 and 29).
- A stockpile (Stockpile SP05, approx. 5m^3) was observed on the southern boundary comprised of gravel and asphalt (see Photograph 30).

3.4 NSW EPA Records & Environment Protection Licenses

Contaminated Land Records

A search of the NSW EPA database of notices issued under the Contaminated Land Management Act, 1997 (CLM Act) revealed there were no properties listed as having current and/or former notices within the Lochinvar suburb.

A search of sites that have been notified to NSW EPA as contaminated (as of 9 November 2023) was also carried out. The search identified no properties within the Lochinvar suburb which have been notified to the NSW EPA as being contaminated.

A copy of the above searches is provided in Appendix F.

Environment Protection Licenses (EPLs)

The Protection of the Environment Operations (POEO) register under Section 308 of the POEO Act 1997, was searched for Environment Protection Licenses (EPLs) for the suburb of Lochinvar NSW. The search revealed no properties within the suburb of Lochinvar which had current and/or former EPLs.

A copy of the above search is provided in Appendix F.

NSW EPA PFAS Investigation Program

Based on a review of the NSW EPA Government PFAS Investigation Program (ref: https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program), there are no properties in the suburb of Lochinvar that have been identified as a site that is likely to have used large quantities of PFAS.

NSW EPA Former Gasworks Sites

Based on a review of the NSW EPA website (ref: https://www.epa.nsw.gov.au/your-environment/contaminated-land/other-contamination-issues/former-gasworks-sites), there were no former gasworks identified in the suburb of Lochinvar.

3.5 Anecdotal Information

The site is currently leased to tenants, and no one was available to interview about the site history. Based on the information obtained via historical titles, aerial photographs and publicly available information, it is considered that the absence of an interview does not affect the outcome of the assessment.

3.6 Section 10.7 Certificate

A Section 10.7 Certificate for the site was obtained from Maitland City Council, and is presented in Appendix G.

Relevant information is summarised below:

Contaminated land	a) The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. b) The land to which this certificate relates is NOT subject to a management order within the meaning of the Contaminated Land Management Act 1997. c) The land to which this certificate relates is NOT the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.

	d) The land to which this certificate relates is NOT the subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997. e) Council has NOT been provided with a site audit statement, within the meaning of the Contaminated Land Management Act 1997, for the land to which this Certificate relates.
Loose fill asbestos insulation	If the land includes residential premises, within the meaning of the Home Building Act 1989, Part 8, Division 1A, that are listed on the Register kept under that Division, a statement to that effect. There are no premises on the subject land listed on the register.

3.7 Previous Reports

Qualtest has not been provided with, or been made aware of any previous contamination assessments conducted on the site.

3.8 Summary of Site History

The assessed uses of the site, based on the site history review, have been summarised below:

- Aerial imagery and historical titles indicate the site was vacant farmland (grazing) until at least 1991.
- A residential dwelling was constructed in the eastern portion of the site between 1991 and 2001. The site remained relatively similar from 2001 onwards with the addition of a variety of different machinery/equipment (tractor, boat gardening equipment, lawnmowers, vehicles) stored around the dwelling.
- Five stockpiles of soil/material were observed on the site ranging in size from 5m^3 to 230m^3.

3.9 Potential Offsite Sources of Contamination

No potential offsite sources of contamination have been identified.

3.10 Gaps in the Site History

Whilst the site history is reasonably comprehensive there are some gaps identified in the review as follows:

- The uses of the site prior to the early 1900s is not known, but given the historical titles search of owner occupations being grazier, it is likely the land was cleared land used for cattle grazing;
- Whether previous buildings were located on the site prior to the 1970s is not known;
- The extent of fill material on the site, and the origin and quality of fill materials is not known; and
- The potential agricultural practices conducted on the site and use of pesticides.

3.11 Areas of Environmental Concern

Table 3.11 (below) shows the areas of environmental concern (AECs) and associated Chemicals of Potential Concern (COPCs) identified for the site.

Table 3.11 – Areas of Environmental Concern and Chemicals of Potential Concern

AEC	Potentially Contaminating Activity	Potential COCs	Likelihood of Contamination
1. Agricultural practices, potential use of pesticides	Potential for pesticide use and other farming related contamination	TRH, BTEX, PAH, OCPs, metals	Low
2. Storage of vehicles, equipment and waste materials	Potential leaks and spills, flaking of metals etc	TRH, BTEX, PAH, OCPs, metals, asbestos (CoPCs dependent on material/waste type)	Low to medium
3. Filling on the site	Use of imported fill of unknown quality and origin	TRH, BTEX, PAH, OCPs, metals, asbestos	Low to medium

4.0 Data Quality Objectives

4.1 Step 1 – State the Problem

There is a potential for soil and surface water contamination to exist from past site uses. Three AECs were identified for the site, as described in Table 3.11, above.

4.2 Step 2 – Identify the Decisions/Goal of the Study

The decisions to be made based on the contamination assessment are:

- Is the site characterisation sufficient to provide adequate confidence to make decisions regarding remediation and or management?
- Are the concentrations of COPCs above the adopted landuse criteria?
- Do potential risks associated with contamination exist, and if so, what are they?
- Will the site require remediation, and if so, what level and type of remediation will be required to make the site suitable for the proposed land use, from a contamination perspective?

4.3 Step 3 – Identify the Information Inputs

Inputs into the decisions are:

- Have samples been collected in the required areas of the site (the identified AECs)?
- Have samples been collected at the required frequencies and adequately represent the conditions on site?
- Is the data set adequate to perform statistical analysis, if required (i.e. calculate 95% UCL)?
- Have the samples been analysed for the COPCs identified?
- Have concentrations exceeding the adopted criteria been reported in the samples?

- If concentrations exceeding adopted criteria have been reported, will these areas require remediation and/or management?

The informational inputs into the decision are:

- Field observations and field screening results;
- Laboratory results (concentrations of contaminants in soil);
- QA/QC documentation and data;
- Adopted assessment criteria (see Section 6); and,
- Relevant NSW EPA endorsed Guidelines.

The media to be sampled and analysed is:

- Soil; and
- Surface water.

4.4 Step 4 – Define the Boundaries of the Study

The study boundary is defined laterally as the site boundary, Lot 225 DP246447, within the Maitland City local government area. The site is located at 34 Wyndella Road, Lochinvar NSW and covers an area of approximately 10ha (refer to Figure 1, Appendix A). Vertically, the study boundary will be defined by the depth of fill, anticipated to be a maximum of 2m bgs.

Temporally, the study boundary is the date of sampling, 2 and 6 November 2023.

4.5 Step 5 – Develop the Analytical Approach

The analytical approach can be defined as: -

- If the laboratory quality assurance/ quality control data are within the acceptable ranges, the data will be considered suitable for use;
- If the COPCs are reported above the adopted criteria and/or at elevated levels (where no criteria are available) then it will be considered whether further assessment, remediation and/or management measures are required;
- Where practical and/or appropriate, the 95% Upper Confidence Limit (UCL) of the validation samples will be calculated. If the 95% UCL is above the adopted criteria, then it will be considered whether further assessment, remediation and/or management measures are required; and,
- Where concentrations are below the assessment criteria, then no further assessment, remediation and/or management of that contaminant, in that area, in that media, is required. This is provided samples have been collected at the required frequencies (as per NSW EPA guidelines) and adequately represent the conditions on site, if not, additional sampling may be required.

4.6 Step 6 – Specify Performance or Acceptance Criteria

There are two types of errors:

- Type 1 – finding that the site is contaminated, when it is not;
- Type 2 – finding that the site is uncontaminated, when it is.

To reduce the potential for errors, the following will be applied:

- Appropriate field sampling methodologies and collection of field data (including sampling frequency);

- Robust QA/QC assessment of field procedures and laboratory data;
- Appropriate sampling and analytical density;
- Use of statistics (i.e. 95% UCL) to assess arithmetic average of COPCs. Use of statistics will also take into account:
    - No sample should report a concentration more than 250% of the adopted criteria; and,
    - The standard deviation of a sample population should not exceed 50% of the adopted criteria.

The adopted criteria are shown in Section 6 below.

4.7 Step 7 – Develop the Plan for Obtaining Data

The methodologies presented in this report are designed to meet the nominated DQOs. Optimisation of the data collection process will be achieved by:

- Working closely with the analytical laboratories and sampling equipment suppliers so that appropriate procedures and processes are developed and implemented prior to and during the field work and that sampling, handling, and transport to, and processing by, the analytical laboratories is appropriate.
- Conduct sampling in accordance with industry best practice and Standard Operating Procedures (SOPs) for the type of sampling being conducted.

5.0 Field and Laboratory Investigations

5.1 Sampling Plan

The site is about 10 ha in area. The NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines recommends a minimum of 131 soil sampling locations for a site up to 11.0ha. As the majority of the site is vacant grazing land, a reduced sampling plan, targeting the Areas of Environmental Concern, was adopted.

Borehole and test pit locations were also completed as part of the geotechnical assessment, and are included below as they provided information on subsurface conditions across the site.

The following sampling was completed. The sampling locations are shown on Figure 4A and 4B, Appendix A.

Area	**Sampling Locations**
Dam 1	SW01
Dwelling including pool area and shed and car park, approx. 1,000m^2	SS19, SS21 to SS25
Shed 1, approx. 20m^2	SS07 to SS10
Shed 2, approx. 60m^2	SS11 to SS18
Shed 3, approx. 5m^2	SS20
Waste/Material Storage Areas, approx. 150m^2	SS01 to SS06, SS01A, SS26 to SS28

Area	Sampling Locations
SP01, approx. 230m^3	SP1-1 to SP1-10
SP02 (approx. 200m^3, appeared to be natural material excavated from Dam 2	SP2-1
SP03 (approx. 200m^3, appeared to be natural material excavated from Dam 2	SP3-1
SP04, approx. 125m^3	SP4-1 to SP4-5
SP05, approx. 5m^3	SS30
Fill in road crossing, approx. 5m^2	SS31
Fill in drainage line leading to Dam 2, approx. 100m long	SS32, SS3
General site coverage	SS29, SS34
Geotechnical test pits and boreholes across the site	TP01 to TP05, TP09 to TP11, BH06 to BH08, BH12 to BH14. No environmental samples collected from geotechnical locations.

5.2 Soil Sampling

Soil sampling was carried out on 2 and 6 November 2023 under the full-time attendance of an environmental scientist from Qualtest.

Samples from stockpiles SP01 to SP04 were collected using an excavator. The test pits were excavated to depths between 0.5m to 1.0m terminating in natural soils.

Surface samples (SS01A, and SS01 to SS34) were collected using hand tools or with the assistance of an excavator.

Gravimetric asbestos sampling was carried out each surface sample locations, and each stockpile sample. Gravimetric sampling comprised collection of a 10L soil sample, which was sieved through a 6.7mm sieve, and potential Asbestos Containing Material (ACM) fragments weighed. The results of the gravimetric testing are included in Section 8.3, below.

The soil samples were placed into 250mL laboratory supplied glass jars and zip locked bags for laboratory analysis. Each sample was collected using a clean pair of nitrile gloves. Each soil sample was placed directly into an ice-chilled esky and remained chilled during fieldwork and transportation to the laboratory.

5.3 Surface Water Sampling

One surface water sample (SW01) was collected from Dam 1 in the western portion of the site.

The surface water sample was collected directly into laboratory supplied jars and bottles. Each sample was placed directly into an ice-chilled esky and remained chilled during transportation to the laboratory.

Field water quality readings for pH, electrical conductivity (EC), dissolved oxygen (DO), redox potential and temperature, were taken using a handheld water quality meter.

5.4 Laboratory Analysis

The samples were dispatched to the NATA-accredited Eurofins laboratory under chain of custody conditions. Soil samples were selected for analysis based on field observations, and providing a spread across the site. The soil samples were analysed for the following:

- Total Recoverable Hydrocarbons (TRH) – 12 primary samples;
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) – 12 primary samples;
- Polycyclic Aromatic Hydrocarbons (PAHs) – 12 primary samples;
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) – 52 primary samples;
- Asbestos (%w/w) – 26 soil samples;
- Organochlorine Pesticides (OCPs) – 5 primary samples; and
- Cation Exchange Capacity and pH – 2 primary samples.

The surface water sample was analysed for the following:

- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury); and
- Organochlorine Pesticides (OCPs) – 5 primary samples.

6.0 Investigation Criteria

6.1 Soil

6.1.1 Health and Ecological Investigation and Screening Levels

To assess whether the material is suitable for re-use on-site, the laboratory results were compared to the health and ecological investigation levels for soil, presented in the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013*, Canberra (referred to as ASC NEPM 2013).

ASC NEPM (2013) provides health and ecological investigation and screening levels for different exposure scenarios based on a proposed land use. They are adopted as concentrations of a contaminant above which either further appropriate investigation and/or evaluation will be required, or development of an appropriate management strategy (including remediation).

Health Investigation Levels (HILs) and Health Screening levels (HSLs) are applicable for assessing human health risk via relevant exposure pathways. The HILs were developed for a broad range of metals and organic substances. These are generic to all soil types. The HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via inhalation and direct contact with soil and groundwater. The HSLs depend on specific soil physicochemical properties, building configurations, land use scenarios and the depth that groundwater is encountered.

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) are applicable for assessing risk to terrestrial ecosystems under residential, open space and commercial/industrial land use scenarios. They apply to the top 2m of soil, which corresponds to the root zone and habitation zone of many species.

The EILs are associated with selected metals and organic compounds. The EILs are site specific and are determined by calculating an Ambient Background Concentration (ABC) and an

Added Contaminant Limit (ACL) for the site, which are added together to get the EIL. In the absence of ambient background concentration data, a generic ACL, based on the soil's pH, Cation Exchange Capacity (CEC) and clay content, has been adopted. Background levels have been adopted from Olszowy et al (1995) Trace Element Concentrations in Soils from Rural and Urban Areas of Australia.

The ESLs are associated with petroleum compounds and fractions and are dependent on specific soil physical properties (i.e. coarse and fine-grained soil).

Based on the proposed site use the investigation and screening levels for Residential land use have been adopted, and are shown in Table 6.1.3 below.

6.1.2 Asbestos Materials in Soil

The assessment of known and suspected asbestos contamination in soil is based on:

- ASC NEPM (2013); and
- *WA DoH (2009) Guidelines of the assessment and management of asbestos contaminated sites in Western Australia, WA Department of Health and Department of Environment and Conservation*.

Schedule B1, Section 4 ASC NEPM (2013) provides guidance on the assessment of both friable and non-friable forms of asbestos in soil. This guidance is based on the WA DoH (2009) Guidelines that presented risk based screening levels for asbestos in soil under various landuse scenarios.

For the purpose of assessing asbestos impacts in soil, three groups are recognised:

- Asbestos Containing Material (ACM) – *which is in sound condition although possibly broken or fragmented and the asbestos is bound in a matrix. This is restricted to material that cannot pass through a 7mm x 7mm sieve;*
- Fibrous asbestos (FA) – *friable asbestos material, such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products;*
- Asbestos fines (AF) – *includes free fibres of asbestos, small fibre bundles and also ACM fragments that pass through a 7mm x 7mm sieve.*

The health screening levels for asbestos in soil for residential land use have been adopted.

6.1.3 Adopted Soil Investigation Criteria

The adopted soil criteria are presented in Table 6.1.3 below.

Table 6.1.3 – Adopted Soil Criteria

Contaminant	HIL / HSL^ A (mg/kg)[1]	EIL / ESL A[2]
Arsenic	100	100
Cadmium	20	-
Chromium Total	100	640*
Copper	6000	270*
Lead	300	1100
Nickel	40	630

Contaminant	**HIL / HSL^ A (mg/kg)[1]**	**EIL / ESL A[2]**
Zinc	400	2,000*
Mercury	7400	-
Benzene	0.7	50
Toluene	480	85
Ethylbenzene	NL	70
Xylenes	110	105
Naphthalene	5	-
TRH C6-C10	-	180
TRH C6-C10 minus BTEX	50	-
TRH >C10-C16	-	120
TRH >C10-C16 minus naphthalene	280	-
TRH >C16-C34	NL	1,300
TRH >C34-C40	NL	5,600
Benzo(a)pyrene (CRC Care)	-	0.7
Benzo(a)pyrene TEQ	3	-
Total PAHs	300	-
4.4'-DDT	-	180
DDD+DDT+DDE	240	-
Aldrin & dieldrin	6	-
Chlordane	50	-
Endosulfan	270	-
Endrin	10	-
Heptachlor	6	-
Hexachlorobenzene	10	-
Methoxychlor	300	-

Contaminant	HIL / HSL^ A (mg/kg)[1]	EIL / ESL A[2]
Toxaphene	20	-
Bonded ACM %	0.01%	-
FA and AF %	0.001%	-
All forms of asbestos	No visible evidence for surface soil (top 10cm)	-

Notes:
^ Based on a pH of 8, a CEC of 71meq/100ml, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic, 25% percentile.
1 – ASC NEPM (2013) – Health Investigation Levels- HIL A
2 – ASC NEPM – Soil Health Screening Levels for Vapour Intrusion, Residential, Clay 0m to <1m
3 – ASC NEPM (2013) – Ecological Investigation and Screening Levels, Urban Residential/Public Open Space, Fine textured

6.2 Surface Water

For assessing surface water quality, it is first necessary to assess the beneficial uses of surface water for the site and down gradient of the investigation area being assessed. Potential beneficial uses are considered to include:

- Aquatic ecosystems - discharge to surface water bodies with the nearest water bodies being the Lochinvar creek, located approx. 1km to the west of the site. The Lochinvar creek is expected to flow to the north and discharge to the Hunter River, located 3km to the north-west of the site. Lochinvar Creek and the Hunter River sustain freshwater ecosystems;
- Stock watering – Use of dams located on the site to water stock (cattle); and
- Irrigation – Potential for the dams to be used for irrigation purposes on site.

Given the above, the potential beneficial use of surface water is considered to be sustaining aquatic ecosystems, stock watering and irrigation.

The applicable guidelines are:

- ANZECC (2000) Australian and New Zealand Guidelines on Fresh and Marine Water Quality (Primary Industries – Stock Watering and Irrigation;
- ANZECC (2018) Australian and New Zealand Guidelines on Fresh and Marine Water Quality; and
- National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (ASC NEPM, 2013).

The trigger values for freshwater species presented in the ANZECC (2018) and ANZG (2018) (and ASC NEPM, 2013) are considered applicable for the protection of aquatic ecosystems of the receiving waters, as Lochinvar Creek and Hunter River are freshwater ecosystems.

The short-term trigger values (up to 20 years) for agricultural irrigation water have been adopted, as irrigation is not expected to occur for longer than 20 years.

ASC NEPM (2013) has adopted the trigger values for the protection of 95% of aquatic ecosystems, except where contaminants are potentially bio-accumulative in which case the trigger values for protection of 99% of species are used.

7.0 Quality Assurance/Quality Control

Sampling activities were undertaken in accordance with normal, industry accepted practices and standards. The assessment of field and laboratory quality assurance / quality control (QA / QC) procedures is provided below, and a data validation report is presented in Appendix J.

In order to assess field quality assurance / quality control (QA/QC) procedures, the following quality control samples were collected and analysed:

QC Sample	Type	Lab	Analysis
D.6.11.23	Duplicate of SS01	Eurofins	TRH, BTEX, PAH, Metals

Primary duplicate samples were analysed by the NATA-accredited Eurofins laboratory.

Table 5, Appendix I, presents the relative percentage differences (RPDs) between the primary and duplicate sample. A review of the Qualtest QA / QC results indicates that RPDs were within the acceptable range. It is noted that low concentrations can exaggerate the percentage differences with respect to small total concentrations, therefore where results for primary and duplicate sample were less than 10 time the LOR, the RPDs have been disregarded.

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Laboratory blank samples were free of contamination;
- Matrix spike recoveries were within the laboratory control limits;
- Laboratory duplicate RPDs were recorded within the control limits, with exception for a range of metals, PAHs, and TRH for duplicate sample were outside control limits. The lab quoted Q15 which states "*The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report*". Based on this the duplicate RPDs are not considered to affect data usability.
- Surrogates and laboratory control samples were within the laboratories acceptable range

Based on the above, and the data validation report in Appendix J, it is considered that the field and laboratory methods for soil sampling are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

8.0 Results

8.1 Subsurface Conditions

The soils observed during test pitting and surface sampling are summarised below in Tables 8.1.1, 8.1.2, and 8.1.3. The test pit logs are presented in Appendix H.

Table 8.1.1 – Summary of Geotechnical Units and Soil Types

Unit	Soil Type	Description
Unit 1A	TOPSOIL	CLAY – medium to high plasticity, dark grey, dark brown, grey-brown, brown, root affected.
Unit 1B	TOPSOIL - FILL	Sandy CLAY – low to medium plasticity, brown to grey-brown, fine grained sand, root affected.
Unit 2A	FILL	Gravelly Sandy CLAY – medium plasticity, brown to orange-brown, fine to coarse grained sand, fine to medium grained angular to sub-angular gravel.
Unit 2B	COLLUVIUM/ POSSIBLE FILL	Silty Sandy GRAVEL – fine to coarse grained, angular to sub-angular, grey-brown, fine to coarse grained (mostly fine to medium grained) sand, fines of low plasticity, trace angular cobbles.
Unit 3A	RESIDUAL SOIL/ COLLUVIUM	CLAY – medium to high plasticity, dark brown, dark grey, grey-brown, brown. Sandy CLAY – medium to high plasticity, dark grey to grey-brown. CLAY – medium to high plasticity, grey-brown
Unit 3B	RESIDUAL SOIL/ EXTREMELY WEATHERED ROCK	Sandy CLAY – low to medium plasticity, pale grey-white and pale orange, fine grained sand. Silty CLAY – low to medium plasticity, pale grey-white, pale brown, trace orange. Gravelly Clayey SAND – fine to coarse grained, orange, and pale grey, trace red-brown, fines of low plasticity.
Unit 4	EXTREMELY TO SLIGHTLY WEATHERED ROCK	Sandy SILTSTONE with soil properties: breaks down into Silty Sandy CLAY – low to medium plasticity, pale grey-white and pale orange, fine grained sand. ANDESITE: breaks down into Sandy Gravelly CLAY, Clayey Sandy GRAVEL, Sandy CLAY, Clayey Gravelly SAND, dark grey, brown, pale brown, red-brown, grey

Table 8.1.2 – Summary of Geotechnical Units Encountered at Each Test Pit Location

Location	Unit 1A - Topsoil	Unit 1B – Topsoil - Fill	Unit 2A - Fill	Unit 2B – Colluvium/Possible Fill	Unit 3A – Residual Soil/Colluvium	Unit 3B – Residual Soil	Unit 4 – Weathered Rock
	Depth in metres (m)						
TP01	0.0-0.3	-	-	-	0.3-0.7	-	0.7-2.8
TP02	0.0-0.1	-		-	0.1-0.8	-	0.8-1.5
TP03	0.0-0.1	-	-	-	0.1-0.8	-	0.8-2.1
TP04	0.0-0.15	-	-	0.15-0.5	-	1.4-2.3	0.5-1.4
TP05	0.0-0.1	-	-	-	0.1-0.6	-	0.6-1.0
BH06	0.0-0.1	-	-	-	0.1-0.8	0.8-1.5	1.5-3.5
BH07	0.0-0.1	-	-	-	0.1-2.6	-	-
BH08	0.0-0.1	-	-	-	0.1-0.6	0.6-0.8	0.8-1.4
TP09	-	0.0-0.15	0.15-1.2	-	1.2-2.3	2.3-2.6	2.6-3.3
TP10	-	0.0-0.15	0.15-0.7	-	0.7-2.3	-	2.3-3.5
TP11	0.0-0.15	-	-	-	0.15-2.0	-	2.0-2.6
BH12	0.0-0.1	-	-	-	0.1-1.0	-	1.0-1.75
BH13	0.0-0.1	-	-	-	0.1-0.5	-	0.5-3.5
BH14	0.0-0.1	-	-	-	0.1-0.6	-	0.6-2.5

Table 8.1.3 – Summary of Soils in Surface Samples

Sample ID	Material Description
SS01, SS03 to SS05, SS07 to SS25, SS31 to SS34	Sandy CLAY – Low to medium plasticity, brown to red-brown, fine to coarse grained sand, root affected.
SS01A	Sand – fine grained, pale yellow-grey.
SS02	Sandy CLAY - Low to medium plasticity, brown to red-brown and pale yellow-brown, fine to coarse grained sand, root affected.
SS06	Clayey SAND – fine to coarse grained, pale yellow-brown with some red-brown, fines of low plasticity, root affected.
SS21	SAND – fine to coarse grained, pale yellow-brown, root affected.
SS26 to SS28	Sandy CLAY – low to medium plasticity, dark brown, fine to coarse grained sand, root affected.
SP05/SS30	Sandy GRAVEL – fine to coarse grained angular to sub-angular, grey to grey-brown, fine to coarse grained sand, with some asphalt.
SP01	Clayey Gravelly SAND/ Gravelly Sandy CLAY – fine to coarse grained, brown to pale brown, and pale red-brown, fine to coarse grained angular to sub-angular gravel, fines of low plasticity, with some brick, concrete, plastic, wire, asphalt, metal, ACM.
SP02 and SP03	Sandy CLAY – medium to high plasticity, dark brown to dark grey-brown, fine to medium grained sand, root affected.
SP04	Sandy CLAY – low to medium plasticity, brown to red-brown and dark brown, fine to coarse grained sand, with some fine to coarse grained angular to subangular gravel, with some concrete, brick, asphalt, root affected.

Anthropogenic materials including; concrete, bricks, metal, wire, asphalt, and plastic were observed in SP01 to SP04 during excavation. Fragments of PACM were observed in SP01 during gravimetric asbestos testing. The gravimetric testing results (%w/w ACM) are presented in Section 8.2 below, and Table 3, Appendix B.

8.2 Surface Water Field Parameters

The surface water quality parameters are summarised in Table 8.2 below.

Table 8.2 – Summary of Surface Water Quality Parameters

Sample Location	**SW01** (Dam 1 – western portion of the site)
Dissolved Oxygen (mg/L)	0.63
Redox potential (mV)	117.1
Electrical conductivity (µS/cm)	218.1
pH	8.03
Comments	Yellow tinge, no odour

The field water quality readings indicate the water is fresh, neutral to slightly alkaline, and aerobic.

8.3 Laboratory Results

Soil Analytical Results

Soil analytical results for the contamination assessment are summarised in Tables 1, 2, and 3, Appendix I. The laboratory analytical reports are also included in Appendix K.

The soil laboratory results were compared to the investigation levels described in Section 6.1. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria, with the exception of:

- Concentration of Arsenic exceeded the adopted HIL and EIL (100mg/kg) in sample SS01A (760mg/kg);
- Concentrations of Copper exceeded the adopted EIL (270mg/kg) in sample SS01A (570mg/kg);
- Fibrous Asbestos (FA) exceeded the adopted HSL (0.001%) in sample SP1-7 (0.13%); and
- Bonded ACM exceeded the adopted HSL (0.01%) in samples SP1-2 (0.019%), SP1-6 (0.06%), and SP1-8 (0.02%).

Surface Water Results

The surface water analytical results were compared to the investigation levels described in Section 6.2. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria.

9.0 Conceptual Site Model

Based on the results of the preliminary and detailed contamination assessment carried out on the site, a Conceptual Site Model (CSM) has been developed.

Table 9.1 – Conceptual Site Model

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling Completed	Potential & Complete Exposure Pathways
1. Agricultural practices, potential use of pesticides. • Potential for pesticide use and other farming related contamination	Metals, OCPs TRH, BTEX, PAH	• Top-down leaks/spills, flakes/fibres onto soil. • Leaching of soil contaminants to surface water and groundwater	• Soils • Groundwater • Surface water • Sediments	• Current site visitors • Future construction workers & site users • Soil biota/plants and transitory wildlife • Surface and ground water depended ecosystems • Offsite surface water and groundwater – Lochinvar Creek, located 200m to the south-west of the site.	• Direct dermal contact with contaminated soil or surface water • Ingestion of contaminated soil or surface water • Inhalation of contaminated soil (as dust) • Leaching of soil contaminants to surface water and/or groundwater • Surface water and groundwater discharge to Lochinvar Creek.	SS29, SS34, SW01	• Incomplete exposure pathway for current site visitors, future construction workers, site users, and ecological receptors, as no contamination identified. • Incomplete exposure pathway for soil contaminants to leach to surface water, as no contamination identified in soil or surface water. • Incomplete exposure pathway for soil contaminates to leach to groundwater due to depth of groundwater (>5m bgs), likely clayey subsoils, and no contamination identified.
2. Storage of vehicles, equipment, and waste materials. • Potential leaks and spills, flaking of metals etc	TRH, BTEX, PAH, Metals, Asbestos, OCP (CoPCs dependent on material/waste type)	• Top-down and to depth of fill • Leaching of contaminants from waste material into underlying soils • Leaching of soil contaminants to groundwater	• Surface soil • Fill soils • Underlying soils • Surface water • Groundwater	• Current site visitors • Future construction workers & site users • Soil biota/plants and transitory wildlife • Ecosystem in Lochinvar Creek, located 200m to the south-west of the site. • Offsite groundwater discharge point – Lochinvar Creek, located 200m to the south-west of the site.	• Direct dermal contact with contaminated soil • Ingestion of contaminated soil • Inhalation of asbestos fibres, or contaminated soil (as dust) • Inhalation of hydrocarbon vapours • Leaching of soil contaminants to surface water and/or groundwater • Groundwater discharge to Boatman Creek.	SS01A, SS01 to SS28	• Complete exposure pathway for current site visitors and users and, future construction workers due to arsenic contamination within surface soils at SS01A. • Complete exposure pathway for ecological receptors, due to arsenic and copper contamination within surface soils at SS01A. • Likely incomplete exposure pathway for soil contaminants to migrate to surface water via run-off, due to localised nature of contamination (around buildings), distance to onsite dams and Lochinvar Creek from contamination sources (>200m), and no contamination identified in surface water. • Likely incomplete exposure pathway for soil contaminants to migrate to groundwater due to top-down nature of contamination, depth of groundwater (>5m bgs), and clayey sub-soils.

AEC	COPC	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling Completed	Potential & Complete Exposure Pathways
3. Filling on the site. • Use of imported fill of unknown quality and origin.	Metals, TRH, BTEX, PAH, Asbestos, OCP	• Leaching of contaminants into underlying soils • Leaching of soil contaminants to groundwater	• Fill Soils • Underlying soils • Surface water • Groundwater	• Current site visitors • Future construction workers & site users • Soil biota/plants and transitory wildlife • Ecosystem in Lochinvar Creek, located 200m to the south-west of the site. • Offsite groundwater discharge point – Lochinvar Creek, located 200m to the south-west of the site.	• Direct dermal contact with contaminated soil • Ingestion of contaminated soil • Inhalation of hydrocarbon vapours • Leaching of soil contaminants to surface water and/or groundwater – Boatman Creek • Groundwater discharge to Boatman Creek.	SP01 to SP05/SS30, SW01, SS31 to SS33	• Complete exposure pathway for current site visitors and users, and future construction workers receptors due to asbestos (FA and ACM) contamination in stockpile SP01. • Incomplete exposure pathway for ecological receptors, due to no contamination identified in fill above adopted criteria. • Incomplete exposure pathway for soil contaminants to migrate to surface water via run-off, due to localised nature of contamination (SP01), and distance to onsite dams and Lochinvar Creek from contamination source (>100m) , and no contamination identified in surface water. • Incomplete exposure pathway for soil contaminants to leach to groundwater, due to no leachable contamination identified, likely depth of groundwater (>5m bgs), and clayey sub-soils.

10.0 Conclusions and Recommendations

The site history review showed the site has been used for grazing farm land since the early 1900s until at least 1991. A residence and associated sheds and swimming pool were constructed on the site between 1991 and 2001. Five stockpiles of fill material were observed on the site, ranging in size from 5m^3 to 230m^3. Materials/equipment are stored on the site around the dwelling and associated sheds. Two dams are also present on the site.

Three Areas of Environmental Concern (AECs) were identified based on the site history and site observations:

1. Agricultural practices, potential use of pesticides – Potential for pesticide use and other farming related contamination;
2. Storage of vehicles, equipment and waste materials: Potential leaks and spills and flaking of metals etc; and
3. Filling on the site: Use of fill of unknown quality and origin.

To provide an assessment of potential soil contamination, 34 surface soil sampling locations, 18 stockpile soil samples, and one surface water sampling location were carried out across the site. The sampling locations targeted the AECs identified.

The laboratory results reported concentrations of arsenic and copper above the HIL/EIL in one surface soil sample location (SS01A), and asbestos (FA and ACM) above the HSL in one stockpile, SP01. The surface soil sample was located under waste materials adjacent to a shed in the eastern portion of the site. Stockpile SP01 is also located in the eastern portion of the site.

Other than stockpiled materials, fill material was not identified on site in test pits excavated as part of the geotechnical assessment.

Based on the preliminary and detailed assessment completed, it is considered that the site can be made suitable for the proposed residential development, provided the following recommendations are implemented:

- Preparation of a Remediation Action Plan (RAP) will be required to outline the remediation for the soil contamination identified, including the arsenic and copper in surface soils, and asbestos (FA and ACM) in stockpile SP01, above the adopted criteria in the eastern portion of the site. Based on the proposed development, it is likely that remediation will comprise excavation and offsite disposal. The RAP will include assessment of remediation options, and information on what management plans are required;
- Preparation of an Asbestos Removal Control Plan to be implemented during remediation and earthworks. The plan should outline the procedures for the handling and removal of soils containing asbestos. Care must be taken to prevent spreading asbestos onto other areas of the site. It is envisaged that the ARCP would be prepared by the contractor undertaking the removal works; and
- Preparation of an Unexpected Finds Procedure to manage potential unexpected finds of contamination during earthworks and construction for the proposed development.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013). The report comprises a stage 1 and 2 assessment in accordance with SEPP (Resilience and Hazards) 2021, Chapter 4.

11.0 Limitations

This report has been prepared by Qualtest for AEP Developments Pty Ltd based on the objectives and scope of work list in Sections 1.1 and 1.2. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to their particular situation.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Qualtest has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

In preparing this report Qualtest has relied on information contained in searches of government websites and has not independently verified or checked the data contained on these websites.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. The conclusions reached in this report are dependent on the limitations inherent in all subsurface investigations where horizontal and vertical variation in contaminant concentrations can occur. No subsurface assessment can accurately predict the contaminant concentration at all points.

Site conditions may change after the date of this Report. Qualtest does not accept responsibility arising from, or in connection with, any change to the site conditions.

12.0 References

NSW Department of Primary Industries (Office of Water) Registered Groundwater Bore Map, accessed from http://allwaterdata.water.nsw.gov.au/water.stm.

NSW Land and Property Information, Spatial Information eXchange (SIX) Maps - Topographic Map, accessed from https://maps.six.nsw.gov.au/.

State of NSW and Department of Planning, Industry and Environment Acid Sulfate Soil online database, accessed from https://www.environment.nsw.gov.au/eSpade2Webapp

NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

NSW EPA (2022) Sampling Design Part 1 – Application, Contaminated Land Guidelines

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), Canberra (ASC NEPM 2013).

WA DoH (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, WA Department of Health and Department of Environment and Conservation.

WA DoH (2021) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, WA Department of Health and Department of Environment and Conservation.

APPENDIX A:
Figures

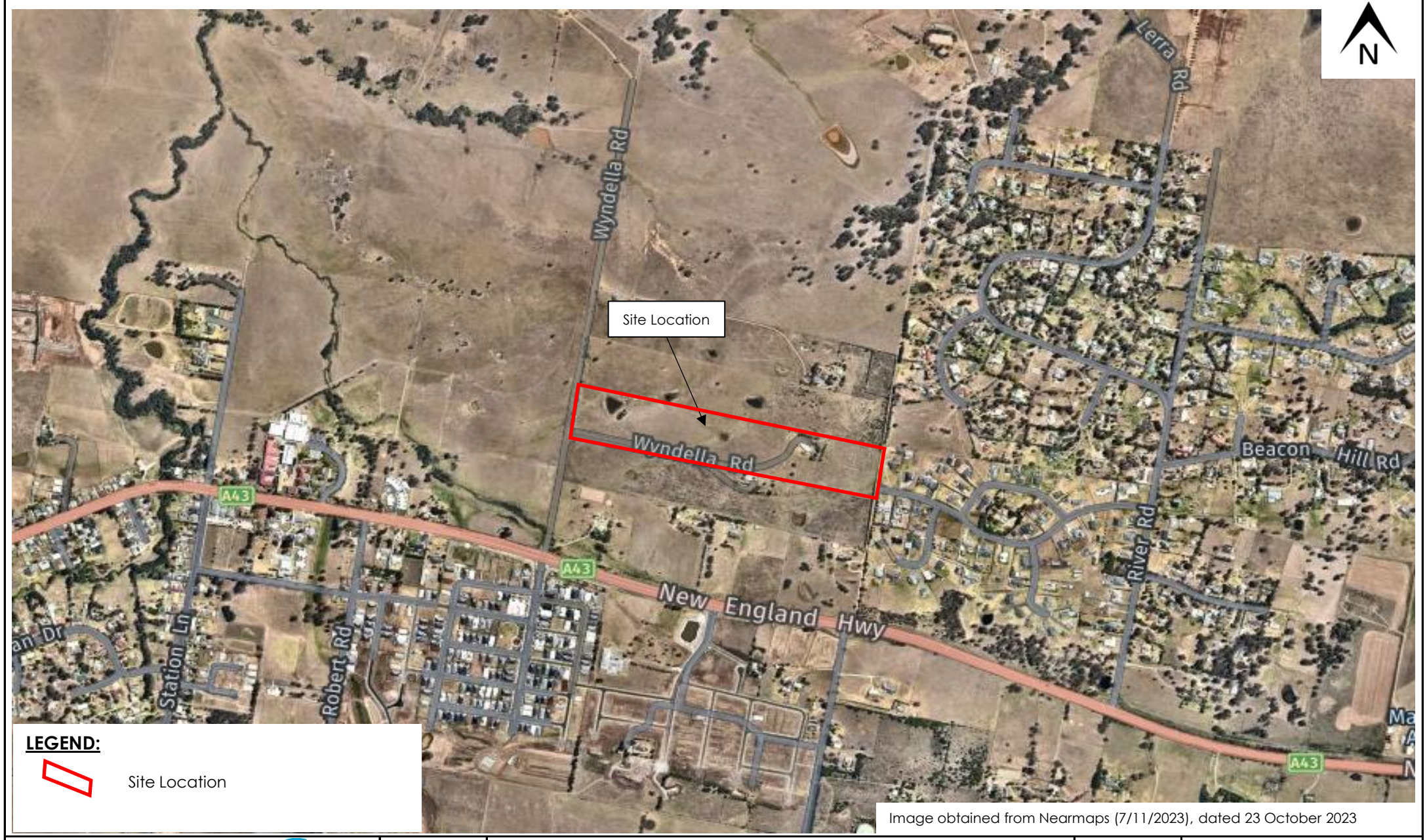
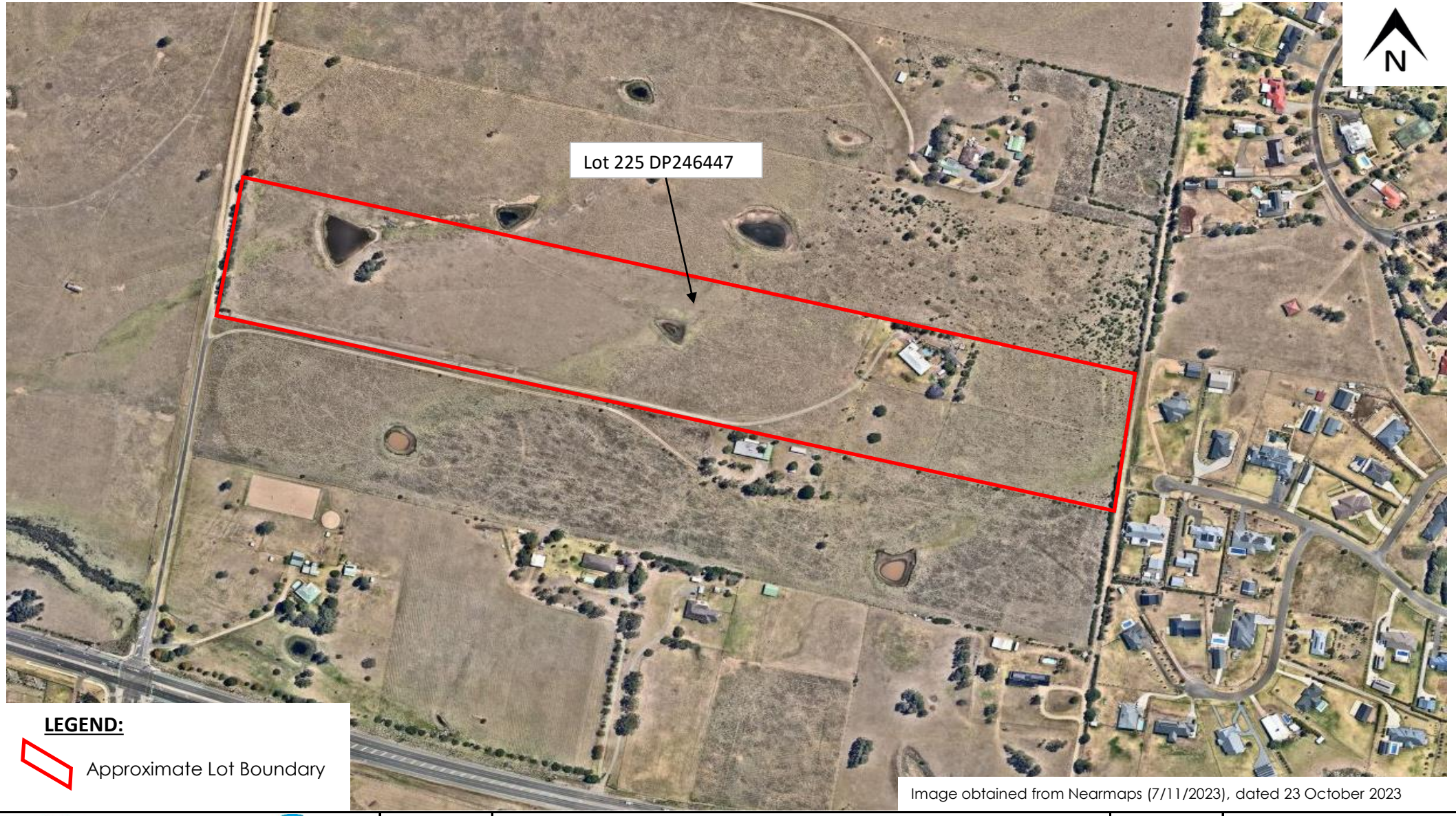


Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 1
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Site Location Plan	Date:	7/11/2023

Qualtest LABORATORY (NSW) PTY LTD



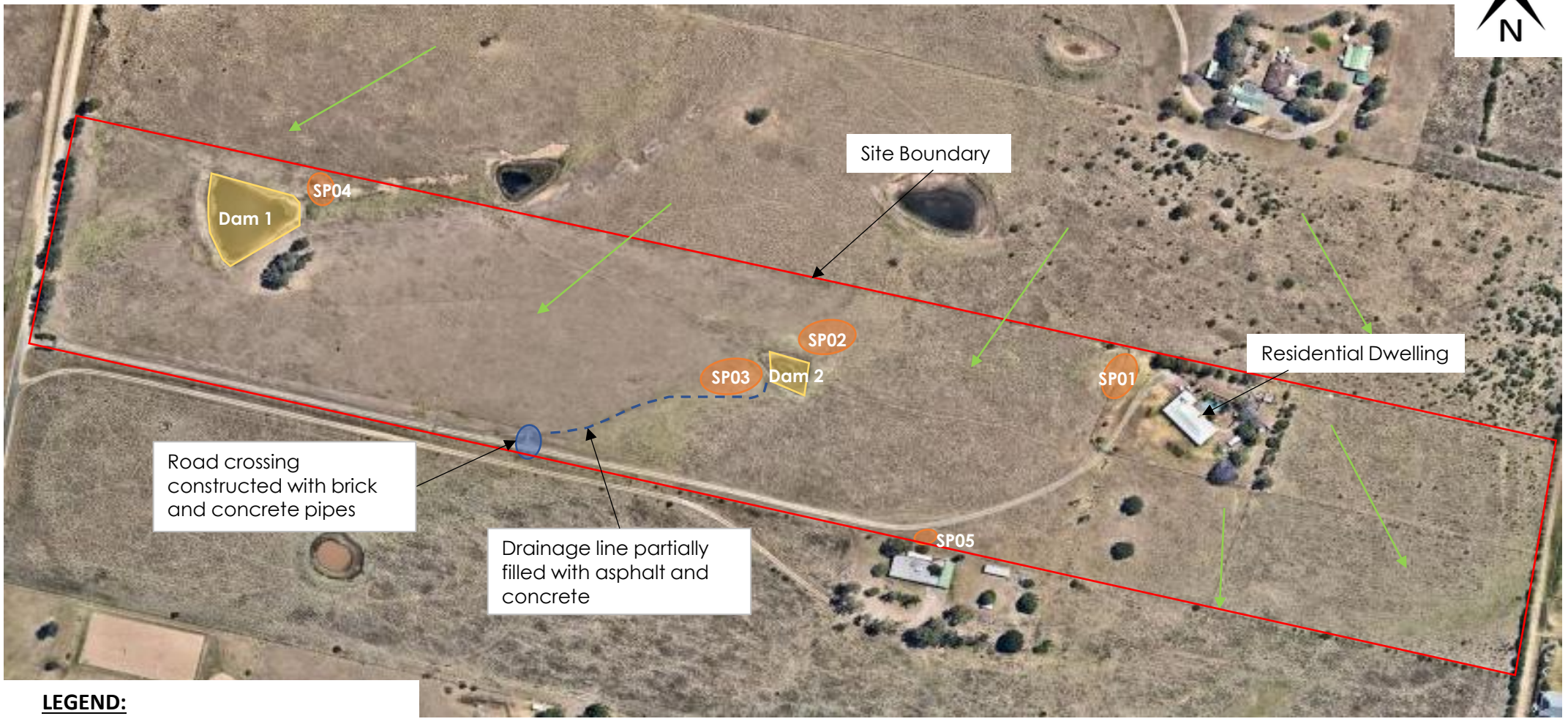
LEGEND:

Approximate Lot Boundary

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 2
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Lot Location Plan	Date:	7/11/2023



LEGEND:

Slope Direction

Dam Locations

Approx. Stockpile location

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 3A
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Site Features Plan	Date:	7/11/2023

LEGEND:

Fill / material storage

Approx. Stockpile location

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 3B
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Site Features Plan	Date:	7/11/2023

LEGEND:

- Testpit Locations
- Surface Water Sample Location
- Approx. Stockpile location
- Surface Soil Sample Location

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 4A
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Sample Location Plan	Date:	7/11/2023

LEGEND:

- Testpit Locations
- Approx. Stockpile location
- Surface Soil Sample Location

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 4B
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Sample Location Plan	Date:	7/11/2023

SP1	SP1-2	SP1-6	SP1-7	SP1-8
Asbestos ACM	0.19%w/w	0.06%w/w	ND	0.02%w/w
Asbestos FA/AF	<0.001%w/w	<0.001%w/w	0.13%w/w	<0.001%w/w

SS01A	0.0-0.1m
Arsenic	760mg/kg
Copper	570mg/kg

LEGEND:

- Testpit Location
- Surface Soil Sample Location
- Approx. Stockpile location

Sample ID / Stockpile	Depth (m) / Stockpile Sample ID
Contaminant	Concentration exceeds HIL/HSL
Contaminant	Concentration exceeds EIL/ESL

Image obtained from Nearmaps (7/11/2023), dated 23 October 2023

Qualtest LABORATORY (NSW) PTY LTD

Client:	AEP Developments Pty Ltd	Drawing No:	FIGURE 5
Project:	Preliminary and Detailed Site Investigation	Project No:	NEW23P-0216-AA
Location:	34 Wyndella Road, Lochinvar NSW	Scale:	N.T.S.
Title:	Identified Contamination	Date:	27/11/2023

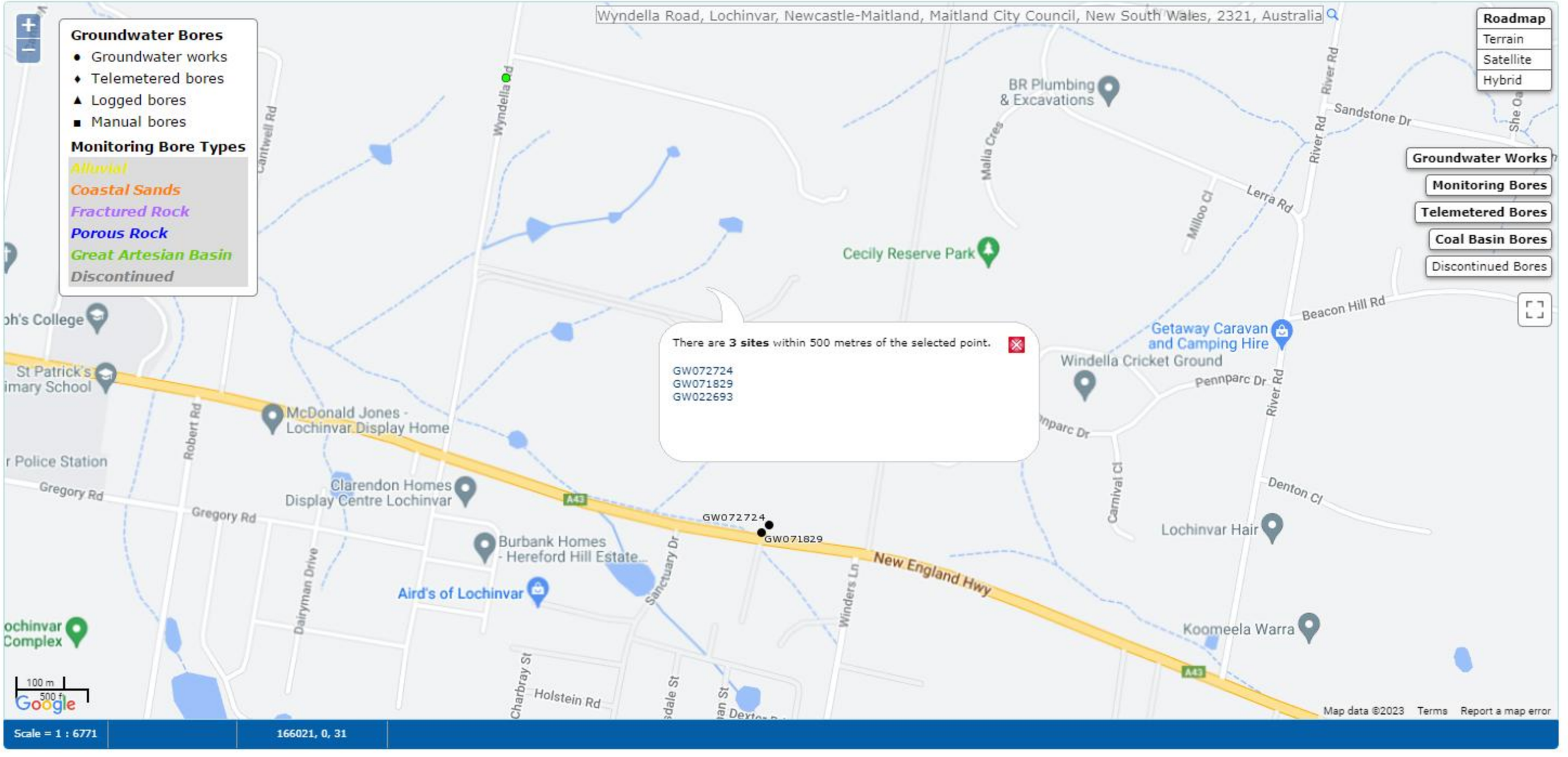
APPENDIX B:
Groundwater Bore Search

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map | Info



Scale = 1 : 6771 | 166021, 0, 31

APPENDIX C:
Historical Titles

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Mobile: 0412 169 809
Email: search@alsearchers.com.au

06th November, 2023

QUALTEST PTY LTD
2 Murray Dwyer Circuit,
MAYFIELD WEST, NSW 2304

Attention Emma Coleman,

RE: **34 Wyndella Road,**
Lochinvar
Purchase Order NEW23P-Lochinvar

Current Search

Folio Identifier 225/246447 (title attached)
DP 246447 (plan attached)
Dated 02nd November, 2023
Registered Proprietor:
DAVID TROY HEIEN
GAIL ALISON HEIEN

Title Tree
Lot 225 DP 246447

Folio Identifier 225/246447

Certificate of Title Volume 12381 Folio 188

(a)	**(b)**
CTVol 9938 Folio 34	CTVol 10541 Folio 198
\	CTVol 9938 Folio 35

See Notes (ai), (bi) & (aii) & (bii)

(ai) & (bi)	**(aii) & (bii)**
CTVol 7530 Folio 32	CTVol 7648 Folio 25

Certificate of Title Volume 5489 Folio 235

Certificate of Title Volume 5390 Folio's 125 to 127

PA 34901

New Trustee Deed Book 1872 No 806

Conveyance Book 892 No 516

****

Index

T – Transfer
TA – Transmission Application
NT – New Trustees
C – Conveyance

****

Summary of proprietor(s)
Lot 225 DP 246447

Year	Proprietor	
	(Lot 225 DP 246447)	
23 Dec 1988 todate	David Troy Heien Gail Alison Heien	T
03 Dec 1987	Dino Cosmo, cellarman Edda Cosmo, his wife	
	(Lot 225 DP 246447 – CTVol 12381 Fol 188)	
21 Dec 1979	Dino Cosmo, cellarman Edda Cosmo, his wife	T
22 Mar 1974	Jones Nominees Pty Limited	

See Notes (a) & (b)

Note (a)

	(Lot 1 DP 224407 – CTVol 9938 Fol 34)	
06 Feb 1974	Jones Nominees Pty Limited	T
25 May 1967	Christopher Michael John Wotton, grazier	T
02 Mar 1965	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	

See Notes (ai) & (aii)

Note (ai)

	(Lots A & B DP 404617 – Area 270 Acres 2 Rood 4 Perches – CTVol 7628 Fol 25)	
20 Feb 1959	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	T
	(Part Portion 54, 57, 58 & 68 Parish Gosforth and other lands – Area 979 Acres 2 Roods – CTVol 5489 Fol 235)	
16 May 1955	Jodete Pty Limited	T
16 May 1955	Winifred Elizabeth Fuge Capp, widow Norman Edward Weeks, solicitor	TA
19 Apr 1945	Roy Lyle Capp, grazier	
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – CTVol 5390 Fol's 125 to 127)	
31 Aug 1948	William Hooke Mackay, grazier John Julian Augustus Mackay, grazier Francis Keith Mackay, grazier	T
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – New Trustees Deed 1872 No 806)	
23 May 1940	William Hooke Mackay, (jrn) grazier / trustee John Julian Augustus Mackay, grazier / trustee Francis Keith Mackay, grazier / trustee William Hooke Mackay, estate	NT
	(Part Portion 68 Parish Gosforth and other lands – Conv Bk 892 No 516)	
30 Sep 1909	William Hooke Mackay, grazier	C

****

Note (aii)

	(Lot C DP 404617 – Area 619 Acres – CTVol 7530 Fol 32)	
14 Jul 1958	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	T
	(Part Portion 54, 57, 58 & 68 Parish Gosforth and other lands – Area 979 Acres 2 Roods – CTVol 5489 Fol 235)	
16 May 1955	Jodete Pty Limited	T
16 May 1955	Winifred Elizabeth Fuge Capp, widow Norman Edward Weeks, solicitor	TA
19 Apr 1945	Roy Lyle Capp, grazier	
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – CTVol 5390 Fol's 125 to 127)	
31 Aug 1948	William Hooke Mackay, grazier John Julian Augustus Mackay, grazier Francis Keith Mackay, grazier	T
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – New Trustees Deed 1872 No 806)	
23 May 1940	William Hooke Mackay, (jrn) grazier / trustee John Julian Augustus Mackay, grazier / trustee Francis Keith Mackay, grazier / trustee William Hooke Mackay, estate	NT
	(Part Portion 68 Parish Gosforth and other lands – Conv Bk 892 No 516)	
30 Sep 1909	William Hooke Mackay, grazier	C

****

Note (b)

	(Lot 20 DP 231443 – CTVol 10541 Fol 198)	
06 Feb 1974	Jones Nominees Pty Limited	T
25 May 1967	Christopher Michael John Wotton, grazier	T
01 May 1967	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	
	(Lot 2 DP 224407 – CTVol 9938 Fol 35)	
02 Mar 1965	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	

See Notes (bi) & (bii)

Note (bi)

	(Lots A & B DP 404617 – Area 270 Acres 2 Rood 4 Perches – CTVol 7628 Fol 25)	
20 Feb 1959	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	T
	(Part Portion 54, 57, 58 & 68 Parish Gosforth and other lands – Area 979 Acres 2 Roods – CTVol 5489 Fol 235)	
16 May 1955	Jodete Pty Limited	T
16 May 1955	Winifred Elizabeth Fuge Capp, widow Norman Edward Weeks, solicitor	TA
19 Apr 1945	Roy Lyle Capp, grazier	
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – CTVol 5390 Fol's 125 to 127)	
31 Aug 1943	William Hooke Mackay, grazier John Julian Augustus Mackay, grazier Francis Keith Mackay, grazier	T
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – New Trustees Deed 1872 No 806)	
23 May 1940	William Hooke Mackay, (jrn) grazier / trustee John Julian Augustus Mackay, grazier / trustee Francis Keith Mackay, grazier / trustee William Hooke Mackay, estate	NT
	(Part Portion 68 Parish Gosforth and other lands – Conv Bk 892 No 516)	
30 Sep 1909	William Hooke Mackay, grazier	C

****

Note (bii)

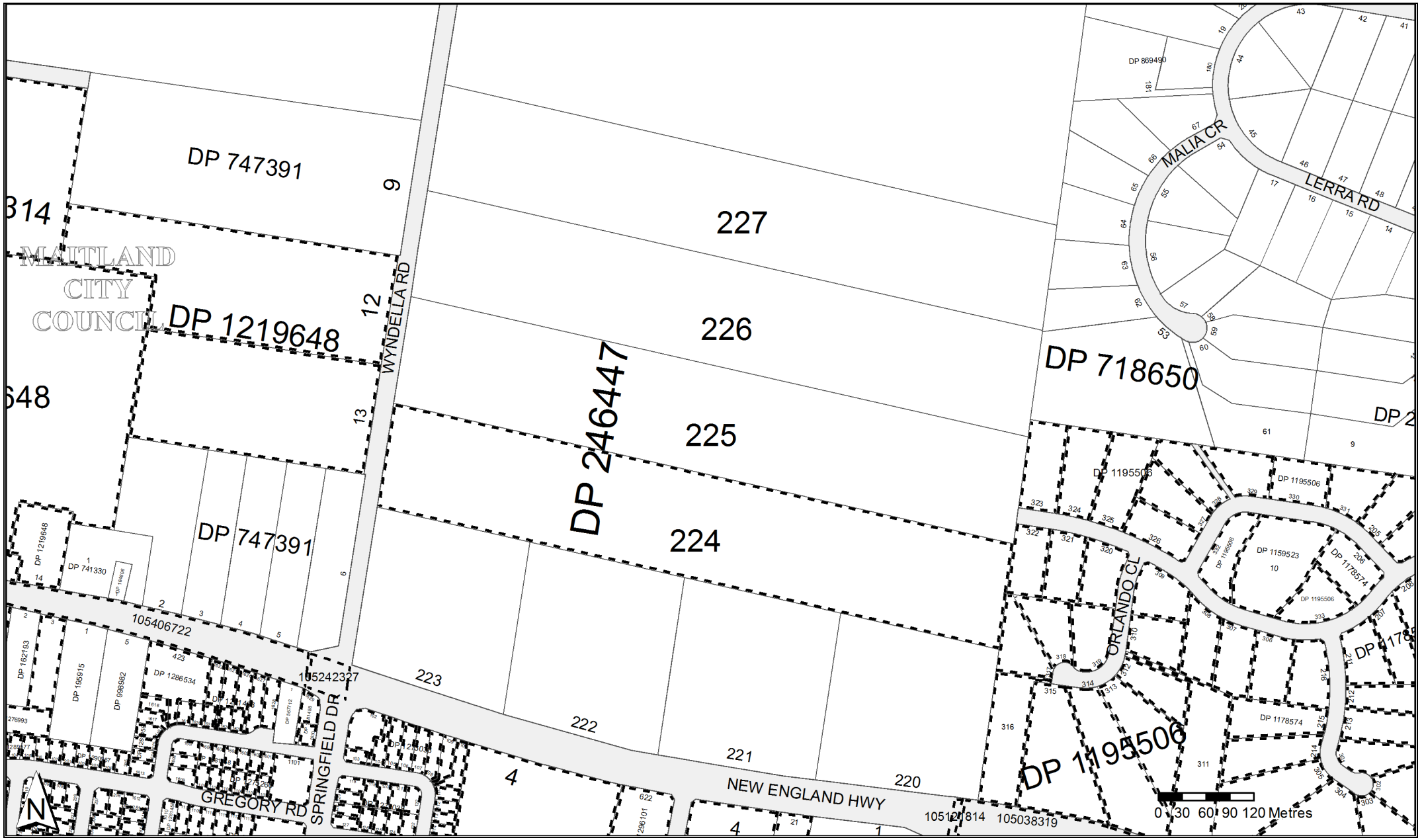
	(Lot C DP 404617 – Area 619 Acres – CTVol 7530 Fol 32)	
14 Jul 1958	Christopher Michael John Wootton, grazier Jeremy Wootton, grazier	T
	(Part Portion 54, 57, 58 & 68 Parish Gosforth and other lands – Area 979 Acres 2 Roods – CTVol 5489 Fol 235)	
16 May 1955	Jodete Pty Limited	T
16 May 1955	Winifred Elizabeth Fuge Capp, widow Norman Edward Weeks, solicitor	TA
19 Apr 1945	Roy Lyle Capp, grazier	
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – CTVol 5390 Fol's 125 to 127)	
31 Aug 1943	William Hooke Mackay, grazier John Julian Augustus Mackay, grazier Francis Keith Mackay, grazier	T
	(Lots 11 to 23 & 47 to 54 Wyndella Estate – Area 453 Acres 2 Roods 32 Perches – New Trustees Deed 1872 No 806)	
23 May 1940	William Hooke Mackay, (jrn) grazier / trustee John Julian Augustus Mackay, grazier / trustee Francis Keith Mackay, grazier / trustee William Hooke Mackay, estate	NT
	(Part Portion 68 Parish Gosforth and other lands – Conv Bk 892 No 516)	
30 Sep 1909	William Hooke Mackay, grazier	C

****

Cadastral Records Enquiry Report : Lot 225 DP 246447

Ref : NOUSER

Locality : LOCHINVAR
Parish : GOSFORTH
LGA : MAITLAND
County : NORTHUMBERLAND



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	Status	Surv/Comp	Purpose
DP162193			
Lot(s): 3			
CA147421 - LOT 3 DP162193			
DP246447			
Lot(s): 224			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP818314			
Lot(s): 2			
DP1137872	REGISTERED	SURVEY	EASEMENT
DP1238395	REGISTERED	SURVEY	EASEMENT
DP1299958	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP1107022			
Lot(s): 21			
CA103245 - LOT 21 DP1107022			
DP1159523			
Lot(s): 10			
DP1178574	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 2, 3			
DP1147220	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 2			
DP248728	HISTORICAL	COMPILATION	CROWN FOLIO CREATION
Lot(s): 2, 3, 10			
DP136187	HISTORICAL	COMPILATION	DEPARTMENTAL
DP550026	HISTORICAL	SURVEY	SUBDIVISION
DP1178574			
Lot(s): 207, 208, 209, 211, 212, 213			
DP248728	HISTORICAL	COMPILATION	CROWN FOLIO CREATION
DP1147220	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 204, 205, 206, 207, 208, 209, 211, 212, 213, 214, 215, 216			
DP136187	HISTORICAL	COMPILATION	DEPARTMENTAL
DP550026	HISTORICAL	SURVEY	SUBDIVISION
DP1127197	HISTORICAL	SURVEY	CROWN FOLIO CREATION
DP1159523	HISTORICAL	SURVEY	SUBDIVISION
DP1195506			
Lot(s): 301, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333			
DP1127197	HISTORICAL	SURVEY	CROWN FOLIO CREATION
Lot(s): 301, 302, 303, 304			
DP248728	HISTORICAL	COMPILATION	CROWN FOLIO CREATION
DP1147220	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333			
DP136187	HISTORICAL	COMPILATION	DEPARTMENTAL
DP550026	HISTORICAL	SURVEY	SUBDIVISION
DP1159523	HISTORICAL	SURVEY	SUBDIVISION
DP1178574	HISTORICAL	SURVEY	SUBDIVISION
DP1218447			
Lot(s): 10			
DP162193	HISTORICAL	SURVEY	UNRESEARCHED
DP1285925	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP1219648			
Lot(s): 11			
DP1229692	REGISTERED	SURVEY	EASEMENT
DP1238395	REGISTERED	SURVEY	EASEMENT
DP1240754	REGISTERED	SURVEY	EASEMENT
CA101842 - LOT 2 DP1102770			
Lot(s): 11, 14			
DP818314	HISTORICAL	SURVEY	SUBDIVISION

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	Status	Surv/Comp	Purpose
Lot(s): 11, 12, 13			
DP747391	HISTORICAL	SURVEY	OLD SYSTEM CONVERSION
DP1256730			
Lot(s): 4			
DP718712	HISTORICAL	SURVEY	SUBDIVISION
DP746278	HISTORICAL	SURVEY	SUBDIVISION
DP776491	HISTORICAL	SURVEY	SUBDIVISION
DP1034974	HISTORICAL	SURVEY	SUBDIVISION
DP1132263	HISTORICAL	SURVEY	SUBDIVISION
DP1135580	HISTORICAL	SURVEY	SUBDIVISION
DP1244625	HISTORICAL	SURVEY	SUBDIVISION
DP1294296	REGISTERED	SURVEY	SUBDIVISION
DP1273038			
Lot(s): 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129			
DP1124571	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1218389	HISTORICAL	COMPILATION	SUBDIVISION
DP1248129	HISTORICAL	SURVEY	SUBDIVISION
CA104021 - LOT 1819 DP1124571			
DP1275266			
Lot(s): 1107			
DP1281458	REGISTERED	SURVEY	SUBDIVISION
Lot(s): 1100, 1101			
DP1248129	HISTORICAL	SURVEY	SUBDIVISION
DP1273038	HISTORICAL	SURVEY	SUBDIVISION
DP1273039	HISTORICAL	SURVEY	SUBDIVISION
DP1275226	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113			
DP1124571	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1218389	HISTORICAL	COMPILATION	SUBDIVISION
CA104021 - LOT 1819 DP1124571			
DP1276993			
Lot(s): 102			
DP561399	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1097563	HISTORICAL	SURVEY	SUBDIVISION
DP1195444	HISTORICAL	SURVEY	SUBDIVISION
DP1281457			
Lot(s): 1501, 1513, 1514			
DP1124571	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1218389	HISTORICAL	COMPILATION	SUBDIVISION
DP1248129	HISTORICAL	SURVEY	SUBDIVISION
DP1273038	HISTORICAL	SURVEY	SUBDIVISION
DP1273039	HISTORICAL	SURVEY	SUBDIVISION
DP1275226	HISTORICAL	SURVEY	SUBDIVISION
DP1275266	HISTORICAL	SURVEY	SUBDIVISION
DP1275267	HISTORICAL	SURVEY	SUBDIVISION
DP1277563	HISTORICAL	SURVEY	SUBDIVISION
DP1277565	HISTORICAL	SURVEY	SUBDIVISION
CA104021 - LOT 1819 DP1124571			

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	Status	Surv/Comp	Purpose
DP1281458			
Lot(s): 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630			
DP1124571	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1218389	HISTORICAL	COMPILATION	SUBDIVISION
DP1248129	HISTORICAL	SURVEY	SUBDIVISION
DP1273038	HISTORICAL	SURVEY	SUBDIVISION
DP1273039	HISTORICAL	SURVEY	SUBDIVISION
DP1275226	HISTORICAL	SURVEY	SUBDIVISION
DP1275266	HISTORICAL	SURVEY	SUBDIVISION
DP1275267	HISTORICAL	SURVEY	SUBDIVISION
DP1277563	HISTORICAL	SURVEY	SUBDIVISION
DP1277565	HISTORICAL	SURVEY	SUBDIVISION
DP1281457	HISTORICAL	SURVEY	SUBDIVISION
CA104021 - LOT 1819 DP1124571			
DP1286534			
Lot(s): 423			
DP1124571	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1218389	HISTORICAL	COMPILATION	SUBDIVISION
DP1248129	HISTORICAL	SURVEY	SUBDIVISION
DP1273038	HISTORICAL	SURVEY	SUBDIVISION
DP1273039	HISTORICAL	SURVEY	SUBDIVISION
DP1275226	HISTORICAL	SURVEY	SUBDIVISION
DP1275266	HISTORICAL	SURVEY	SUBDIVISION
DP1275267	HISTORICAL	SURVEY	SUBDIVISION
DP1277563	HISTORICAL	SURVEY	SUBDIVISION
DP1277565	HISTORICAL	SURVEY	SUBDIVISION
DP1281457	HISTORICAL	SURVEY	SUBDIVISION
DP1281458	HISTORICAL	SURVEY	SUBDIVISION
CA104021 - LOT 1819 DP1124571			
DP1289577			
Lot(s): 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 122, 123			
DP161839	HISTORICAL	SURVEY	UNRESEARCHED
DP561399	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1097563	HISTORICAL	SURVEY	SUBDIVISION
DP1195444	HISTORICAL	SURVEY	SUBDIVISION
DP1290967			
Lot(s): 201, 202, 203, 204, 205, 206, 207, 208, 209, 225, 226, 227, 228			
DP161839	HISTORICAL	SURVEY	UNRESEARCHED
DP561399	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1097563	HISTORICAL	SURVEY	SUBDIVISION
DP1195444	HISTORICAL	SURVEY	SUBDIVISION
DP1289577	HISTORICAL	SURVEY	SUBDIVISION

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	Status	Surv/Comp	Purpose
DP1296101			
Lot(s): 622			
DP718712	HISTORICAL	SURVEY	SUBDIVISION
DP746278	HISTORICAL	SURVEY	SUBDIVISION
DP776491	HISTORICAL	SURVEY	SUBDIVISION
DP1034974	HISTORICAL	SURVEY	SUBDIVISION
DP1132263	HISTORICAL	SURVEY	SUBDIVISION
DP1135580	HISTORICAL	SURVEY	SUBDIVISION
DP1244625	HISTORICAL	SURVEY	SUBDIVISION
DP1256730	HISTORICAL	SURVEY	SUBDIVISION
DP1281200	HISTORICAL	SURVEY	SUBDIVISION
DP1294296	HISTORICAL	SURVEY	SUBDIVISION
DP1294297	HISTORICAL	SURVEY	SUBDIVISION
DP1294298	HISTORICAL	SURVEY	SUBDIVISION
DP1294299	HISTORICAL	SURVEY	SUBDIVISION
DP1294300	HISTORICAL	SURVEY	SUBDIVISION
DP1294474	HISTORICAL	SURVEY	SUBDIVISION
DP1294737	HISTORICAL	SURVEY	SUBDIVISION
DP1294773	HISTORICAL	SURVEY	SUBDIVISION
Road			
Polygon Id(s): 105038319, 105121814, 105242327, 105406722			
DP1257525	REGISTERED	SURVEY	SURVEY INFORMATION ONLY

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Plan	Surv/Comp	Purpose
DP65706	SURVEY	UNRESEARCHED
DP136186	COMPILATION	DEPARTMENTAL
DP162193	SURVEY	UNRESEARCHED
DP164806	SURVEY	UNRESEARCHED
DP195915	COMPILATION	DEPARTMENTAL
DP231443	SURVEY	SUBDIVISION
DP246447	SURVEY	SUBDIVISION
DP263829	SURVEY	SUBDIVISION
DP567712	SURVEY	SUBDIVISION
DP718650	SURVEY	SUBDIVISION
DP741330	COMPILATION	DEPARTMENTAL
DP747391	SURVEY	OLD SYSTEM CONVERSION
DP818314	SURVEY	SUBDIVISION
DP869490	SURVEY	SUBDIVISION
DP998982	COMPILATION	DEPARTMENTAL
DP1107022	COMPILATION	LIMITED FOLIO CREATION
DP1159523	SURVEY	SUBDIVISION
DP1178574	SURVEY	SUBDIVISION
DP1195506	SURVEY	SUBDIVISION
DP1218447	SURVEY	SUBDIVISION
DP1219648	SURVEY	SUBDIVISION
DP1256730	SURVEY	SUBDIVISION
DP1273038	SURVEY	SUBDIVISION
DP1273038	UNRESEARCHED	SUBDIVISION
DP1275266	SURVEY	SUBDIVISION
DP1275266	UNRESEARCHED	SUBDIVISION
DP1275266	SURVEY	SUBDIVISION
DP1276993	SURVEY	SUBDIVISION
DP1281457	SURVEY	SUBDIVISION
DP1281457	SURVEY	SUBDIVISION
DP1281457	UNRESEARCHED	SUBDIVISION
DP1281458	SURVEY	SUBDIVISION
DP1281458	UNRESEARCHED	SUBDIVISION
DP1281458	SURVEY	SUBDIVISION
DP1286534	SURVEY	SUBDIVISION
DP1286534	UNRESEARCHED	SUBDIVISION
DP1286534	SURVEY	SUBDIVISION
DP1289577	SURVEY	SUBDIVISION
DP1290967	SURVEY	SUBDIVISION
DP1296101	SURVEY	SUBDIVISION
DP1296101	SURVEY	SUBDIVISION

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Req:R466161 /Doc:CT 09938-034 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:27 /Seq:1 of 2
© Office of the Registrar-General /Src:GlobalX /Ref:advlegs

09938034

[redacted]TIFICATE OF TITLE

NEW SOUTH WALES [redacted]PERTY ACT, 1900, as amended.

(For Grant and title reference prior to first edition see Deposited Plan.)

Vol. 9938 Fol. 34

1st Edition issued 2-3-1965.

(Page 1) Vol. 9938 Fol. 34

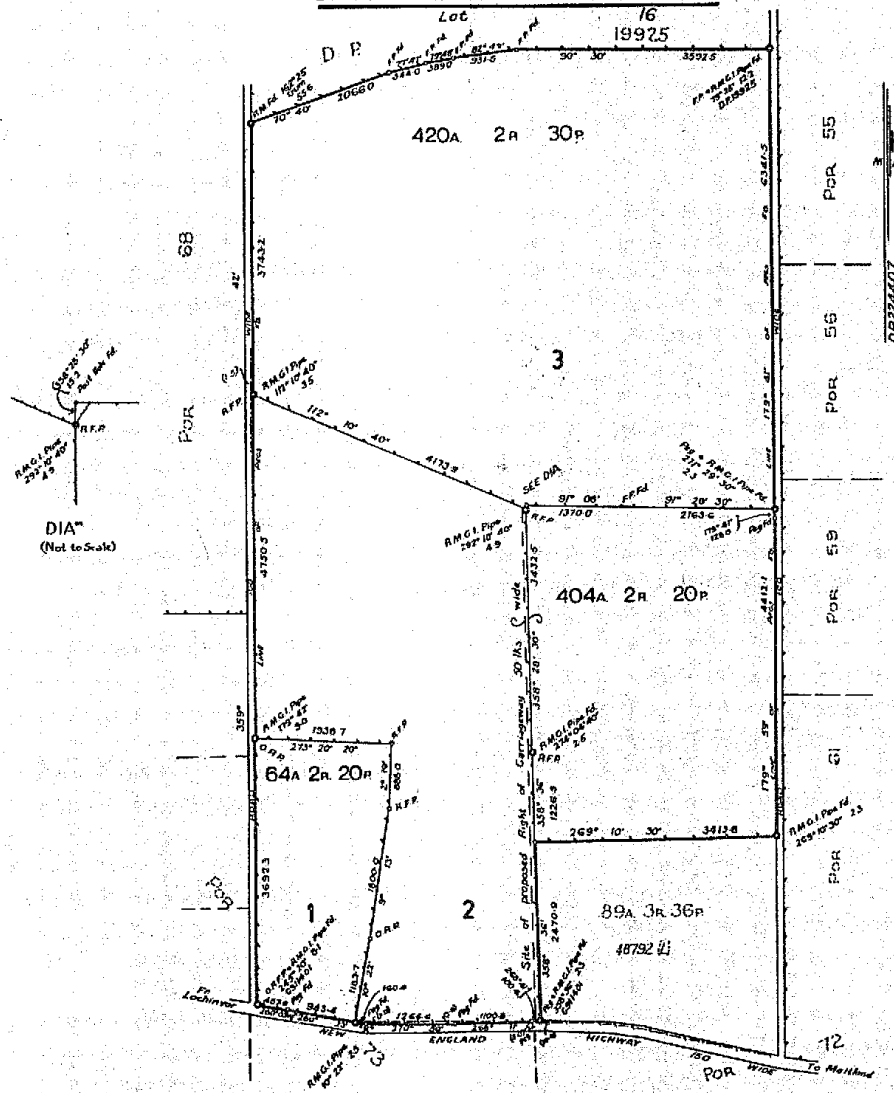
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

Registrar General.

CANCELLED

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 1 in Deposited Plan 224407 at Lochinvar in the City of Maitland Parish of Gosforth and County of Northumberland.

FIRST SCHEDULE (Continued overleaf)

~~CHRISTOPHER MICHAEL JOHN WOOTTON and JEREMY WOOTTON, both of Fishery Creek, Maitland, Graziers.~~

Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants referred to in the said Deposited Plan.

Registrar General.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON
NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Req:R466161 /Doc:CT 09938-034 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:27 /Seq:2 of 2
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Vol. 9938 Fol. 34

ST 1608 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Christopher Michael John Wootton of Maitland Grazier~~	~~Transfer~~	~~K660654~~	~~5.4.1967~~	~~25.5.1967~~	Jowatson
Jones Nominees Pty. Limited.	Transfer	N589549	6.11.1973.	6.2.1974.	Jowatson

This deed is cancelled as to whole (ex road)
New Certificates of Title have issued on 22/3/74
for lots in Deposited Plan No. 246447 as follows:-
Lots 220 40 227 Vol 12384 12383 12381 Fol 183 188 40/190 respectively.

Jowatson
REGISTRAR GENERAL

The residue of land in this folio comprises road in DP 246447

Jowatson
REGISTRAR GENERAL

K660654 D.P. 237303 Pt Affected by Realignment 232 17-7-7 to 2806

M47697 ... lots 1123 ...

N589548 -49 -50 M

DP 246447 ... 11/3/7...

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
Restriction on user	M47697		AFFECTING ~~of~~ part of the land within described being Lot 3 in D.P. 237303 Sec. 27E(6) Main Roads Act 1924-1967.	3-12-1970	Jowatson			
~~Mortgage~~	~~M668676~~	~~21.10.1968~~	~~to Australian ...~~	~~11-4-1972~~	Jowatson	Discharged	N589548	Jowatson
Mortgage	N589550	19.10.1973	to Beneficial Finance Corporation Limited.	6.2.1974.	Jowatson			
			The Interest of the Council of the City of Maitland in the addition to existing road shown on D.P. 246447.	8.3.1974.	Jowatson			
			New C/T issue on DP 246447 ...					

Whole ex Rd

FORM No. 62

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R472787 /Doc:CT 09938-035 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 22:06 /Seq:1 of 2
© Office of the Registrar-General /Src:GlobalX /Ref:advlegs

[redacted]

TIFICATE OF TITLE

NEW SOUTH WALES . PERTY ACT, 1900, as amended.

09938035

(For Grant and title reference prior to first edition see Deposited Plan.)

Vol. 9938 Fol. 35

1st Edition issued 2-3-1965.

Vol. 9938 Fol. 35 (Page 1)

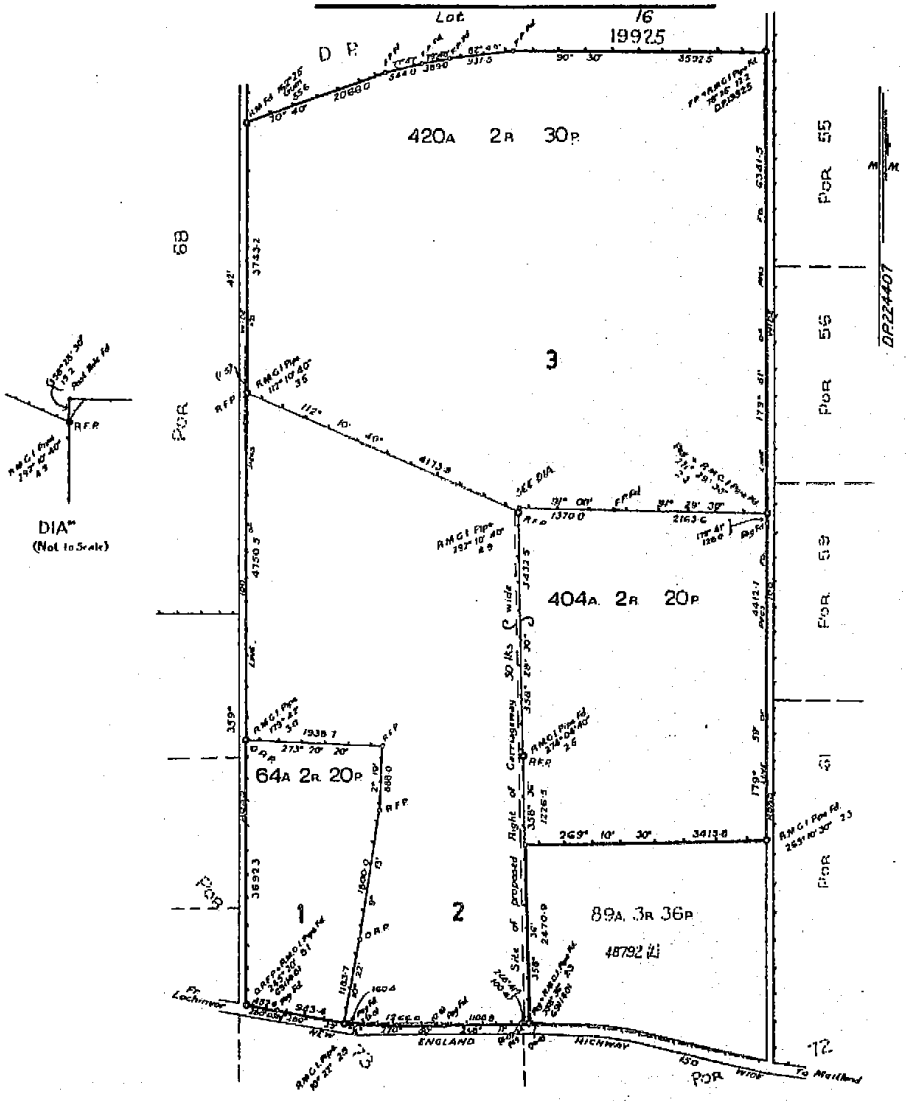
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *A Cohen*

Registrar General.

CANCELLED

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 2 in Deposited Plan 224407 at Lochinvar in the City of Maitland Parish of Gosforth and County of Northumberland.

FIRST SCHEDULE (Continued overleaf)

CHRISTOPHER MICHAEL JOHN WOOTTON and JEREMY WOOTTON, both of Fishery Creek, Maitland, Graziers.

Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants referred to in the said Deposited Plan.

Registrar General.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

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Vol. 9938 Fol. 35

ST 1509 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
This deed is cancelled as to the whole. New Certificates of Title have issued on 1.5.1967 for lots in deposited Plan No. 231443 as follows:- Lots 20, 21 & 22 Vol. 10541 Fol. 198, 199, 200 respectively. J. Watson Registrar General (Seal: Registrar General New South Wales)					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Transfer	K23627	11.1.1965	Right of carriageway affecting part of the land within described shown as Site of proposed Right of Carriageway 60 lks wide in the plan hereon.	20.7.1965	J. Watson	

Margin notes: K23627 T.&.. ; DP 231443 C.T. ... ; K516437 ... lot 22 DP 2.. Easement R.O. ; K541442 lot 21 DP 231.. tog with R of Carr. ; K617494 (Res of Tas DP 231443) ; K660650 Lot 20 DP 231443

FORM No. 62

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R466162 /Doc:CT 10541-198 CT /Rev:16-Dec-2010 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:27 /Seq:1 of 2
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B

10541198

M

NEW SOUTH WALES [redacted]IFICATE OF TITLE

[redacted]ERTY ACT, 1900, as amended.

[redacted]

Vol. 10541 Fol. 198

(Page 1) Vol. 10541 Fol. 198

Application No.34901 (part)
Prior Title Volume 9938 Folio 35

ID

Edition issued 1-5-1967.

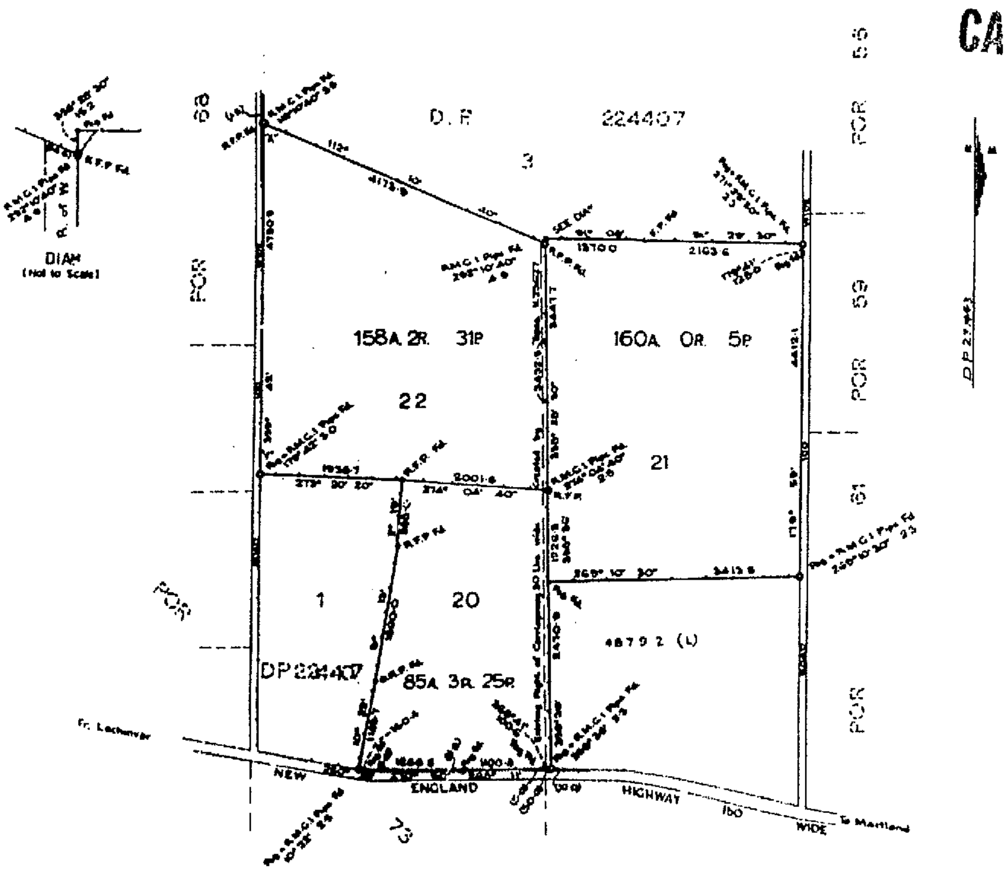
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness J. Afflick.

Registrar-General.

PLAN SHOWING LOCATION OF LAND

CANCELLED



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 20 in Deposited Plan 231443 at Lochinvar in the City of Maitland Parish of Gosforth and County of Northumberland being part of Portion 72 granted to Tom White Melville Winder on 19-10-1831, part of Portion 68 granted to Tom White Melville Winder on 23-8-1835 and part of Portion 63 granted by Crown Grant Volume 185 Folio 160.

FIRST SCHEDULE (continued overleaf)

~~CHRISTOPHER MICHAEL JOHN WOOTTON and JEREMY WOOTTON, both of Fishery Creek, Maitland, Graziers, as Joint Tenants.~~

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Right of Carriageway created by Transfer No. K23627 affecting the part of the land above described 50 links wide shown in the plan hereon.

Registrar General

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

Req:R466162 /Doc:CT 10541-198 CT /Rev:16-Dec-2010 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:27 /Seq:2 of 2
© Office of the Registrar-General /Src:GlobalX /Ref:advlegs

ST 1608 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~Christopher [illegible] of [illegible], Grazier~~	~~Transfer~~	~~K646561~~	~~5.4.1967~~	~~25.5.1967~~	Jandatson
Jones Nominees Pty. Limited.	Transfer	N589548	6.11.1973.	6.2.1974.	Jandatson

This deed is cancelled as to whole (ex road)
New Certificates of Title have issued on 27/3/74
for lots in Deposited Plan No. 246447 as follows:-
~~Lots 220 to 227 Vol 12384 Fol 183 to 190 respectively.~~
LOTS 220 TO 227 VOL. 12381 FOLS. 183 TO 190 RESP.

Jandatson
REGISTRAR GENERAL

The residue of land in this folio comprised in road in DP 246447

Jandatson
REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
Transfer	K541442	19.5.1966	Right of Carriageway affecting that part of the land within described shown as Existing Right of Carriageway 50 lks wide in the Plan hereon	25.5.1967	Jandatson			
Transfer	K541443	19.5.1966	Right of Carriageway affecting that part of the land within described shown as Existing Right of Carriageway 50 lks wide in the Plan hereon	25.5.1967	Jandatson			
Restriction on user	M47697		~~of~~ affecting part of the land within described being Lot 4 in DP. 237303 Sec 27E(6) Main Roads Act 1924-1967	3-12-1970	Jandatson			
~~Mortgage~~	~~[illegible]~~		~~[illegible]~~	~~[illegible] 1972~~	Jandatson	Discharged	N589548	Jandatson
Transfer	M167296	14-3-1973	Right of Carriageway, appurtenant to the land comprised in Certificate of Title Volume 11876 Folio 95, affecting that part of the land within described shown as "50 lks wide" in the plan hereon, with consent of Mortgagee	16-7-1973	Jandatson			
Mortgage	N589550	19.10.1973.	to Beneficial Finance Corporation Limited.	6.2.1974.	Jandatson			
			The Interest of the Council of the City of Maitland in the addition to existing road shown on D.P. 246447.	8.3.1974	Jandatson			

K660552
PI Affect
6/12 Ag[illegible]
Gaz. 17-7-[illegible]
fo. 2806
M43697
[illegible]
[illegible]
CT 5135
M167296
R.O.[illegible] with[illegible]
DP 246447
N589546 -49 -50

FORM No. 18A

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

Req:R466160 /Doc:CT 12381-188 CT /Rev:04-Mar-2011 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:22 /Seq:1 of 2
© Office of the Registrar-General /Src:GlobalX /Ref:advlegs

[redacted]ICATE OF TITLE

NEW SOUTH WALES — PROPERTY ACT, 1900

Vol. 12381 Fol. 188

Appln.No.34901 (part)

Prior Titles Vol.9938 Fol.34
Vol.10541 Fol.198

Edition issued 22-3-1974

12381 Fol. 188

(Page 1) Vol. 12381 Fol. 188

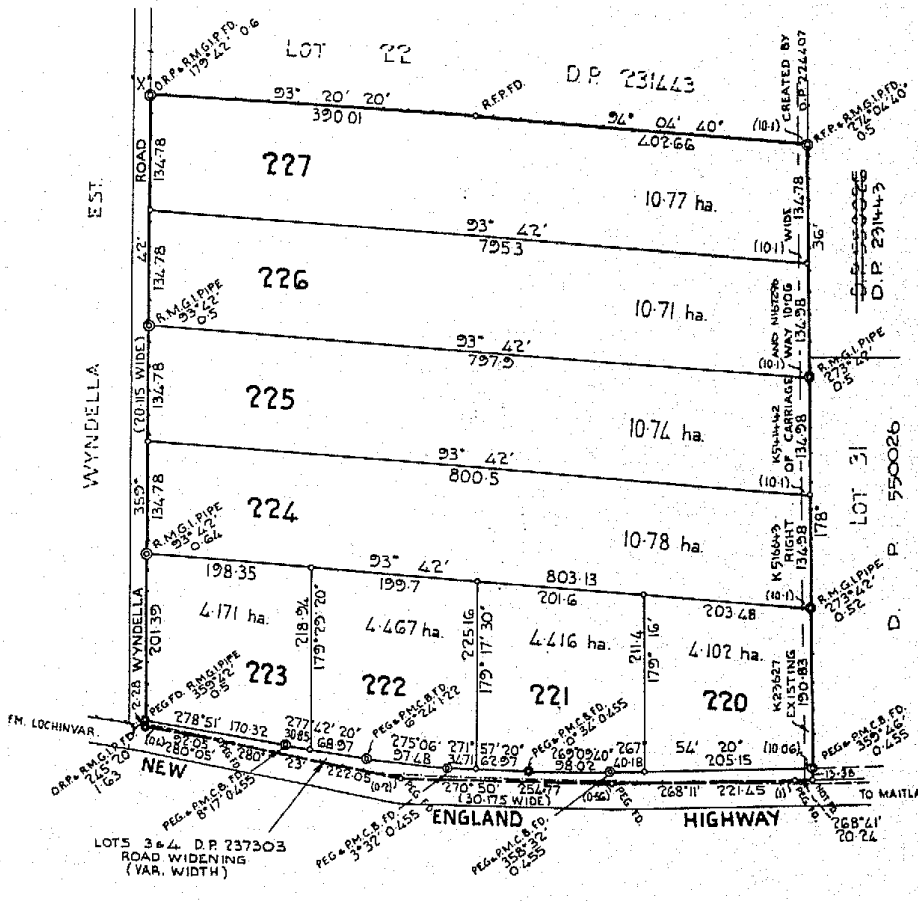
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED
Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 225 in Deposited Plan 246447 at Lochinvar in the City of Maitland Parish of Gosforth and County of Northumberland, being part of Portion 68 granted to Tom White Melville Winder on 23-8-1835 and part of Portion 63 granted by Crown Grant Volume 185 Folio 160.

FIRST SCHEDULE

~~JONES NOMINEES PTY. LIMITED.~~

GRY

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Right of Carriageway created by Transfers Nos. K236271P K516643P K541442P and N167296P affecting the piece of land 10.06 metres wide shown in the plan hereon.
3. ~~Mortgage No. N589550 to Beneficial Finance Corporation Limited. Entered 6-2-1974.~~ Cancelled R582104

RC (SB)

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

P571649 V/I
P596484 M.
Q293452
R582104 T/P.

Vol. 12381 Fol. 188

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Dino Cosmo of Abbotsford, Cellarman and Edda Cosmo his wife as joint tenants	Transfer	R582104	———	21-12-1979	

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
~~Mortgage~~	~~P596484~~	———	~~to Beneficial Finance Corporation Limited.~~	~~8-3-1976.~~		Cancelled	R582104
~~Mortgage~~	~~Q293452~~	———	~~to Beneficial Finance Corporation Limited.~~	~~1-9-1977.~~		Cancelled	R582104

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R466160 /Doc:CT 12381-188 CT /Rev:04-Mar-2011 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:22 /Seq:2 of 2
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Req:R466159 /Doc:DP 0246447 P /Rev:23-Jun-1992 /NSW LRS /Pgs:ALL /Prt:03-Nov-2023 01:22 /Seq:1 of 1
© Office of the Registrar-General /Src:GlobalX /Ref:advlegs

PLAN FORM 2

Plan Drawing only to appear in this space

• OFFICE USE ONLY

Signatures and seals only.

SIGNED by the said BENEFICIAL FINANCE CORPORATION LIMITED by its Attorneys,

PHILIP H. J. ESPEROD — JOHN ARTHUR COLLINS

The undersigned states that he has no notice of the revocation of the Power of Attorney registered No. 132402 under the authority of which he has this day executed the within dealing.

at 285 George Street, Sydney

the 4th day of October 1973

JOHN ARTHUR COLLINS — PHILIP H. J. ESPEROD

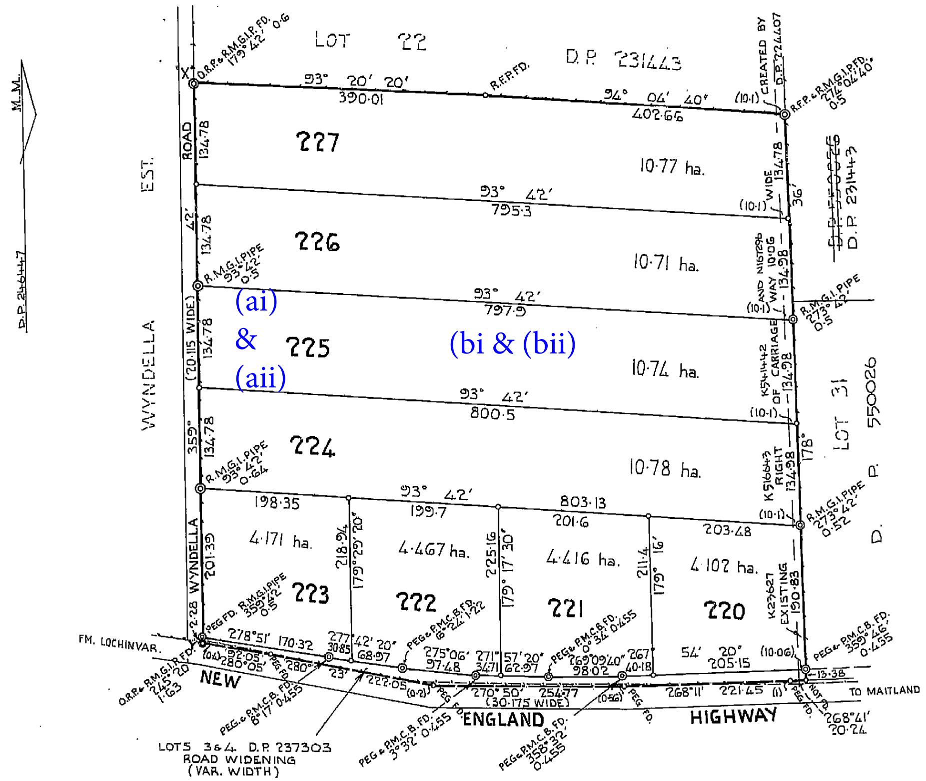
Signature of Attorney

Signature of Witness

K. Rochford Director

SECRETARY

JONES NOMINEES PTY. LIMITED Common Seal



D. P. 246447
Registered: 8.3.1974
C.A.: NO. 47/73 OF 11-9-1973
Title System: TORRENS
Purpose: SUBDIVISION
Ref. Map: MAITLAND SH. 12
Last Plan: D.P. 224407 # D.P. 231443

PLAN OF SUBDN OF THE LAND IN CERTS OF TITLE VOL. 9938 FOL. 34 " 10541 " 198 BEING LOT 1 D.P. 224407 & LOT 20 D.P. 231443

Reduction Ratio 1: 4000
Lengths are in metres.

Mun./Shire City: MAITLAND
Locality: LOCHINVAR
Parish: GOSFORTH
County: NORTHUMBERLAND

~~This is sheet 1 of my plan in ... sheets.~~ (Delete if inapplicable).

I, WALTER JACK CRISP of C.N. SCOTT, CRISP & Co. MAITLAND a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made *(1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 30 - 8 - 73

Signature

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth: X - Y
*Strike out either (1) or (2). †Insert date of survey.

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.*

NOTE: IT IS INTENDED TO DEDICATE THE LAND SHOWN AS ROAD WIDENING TO THE PUBLIC AS PUBLIC ROAD

DEDICATION ACCEPTED BY COUNCIL

COUNCIL CLERK.

Council Clerk's Certificate

I hereby certify that —
(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and
*(b) the requirements of section 34D of the †Metropolitan ~~Water, Sewerage and Drainage Act, 1924, as amended.~~ †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed subdivision (Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. 47/73

Date 11-9-73

(Signature) Council Clerk

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.
†Delete if inapplicable.

M.P.D.

SURVEYOR'S REFERENCE: GF/21 (J.D.)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 29th day of August, 1977

N 0 0 8 A I A

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
3/11/2023 1:22AM

FOLIO: 225/246447

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12381 FOL 188

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/12/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
23/12/1988	Y70860	TRANSFER	EDITION 1
25/8/2006	AC552516	MORTGAGE	EDITION 2
15/9/2018	AN713146	DEPARTMENTAL DEALING	EDITION 3 CORD ISSUED
14/3/2023	AS919613	CAVEAT	EDITION 4
25/8/2023	AT379029	DISCHARGE OF MORTGAGE	EDITION 5

*** END OF SEARCH ***

advlegs PRINTED ON 3/11/2023

Obtained from NSW LRS on 03 November 2023 12:22 AM AEST

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NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 225/246447

SEARCH DATE	TIME	EDITION NO	DATE
3/11/2023	1:22 AM	5	25/8/2023

LAND

LOT 225 IN DEPOSITED PLAN 246447
AT LOCHINVAR
LOCAL GOVERNMENT AREA MAITLAND
PARISH OF GOSFORTH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP246447

FIRST SCHEDULE

DAVID TROY HEIEN
GAIL ALISON HEIEN
AS JOINT TENANTS (T Y70860)

SECOND SCHEDULE (6 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 K23627 RIGHT OF CARRIAGEWAY AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
3 K516643 RIGHT OF CARRIAGEWAY AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 K541442 RIGHT OF CARRIAGEWAY AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
5 N167296 RIGHT OF CARRIAGEWAY AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
* 6 AS919613 CAVEAT BY COMMERCIAL 7 PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

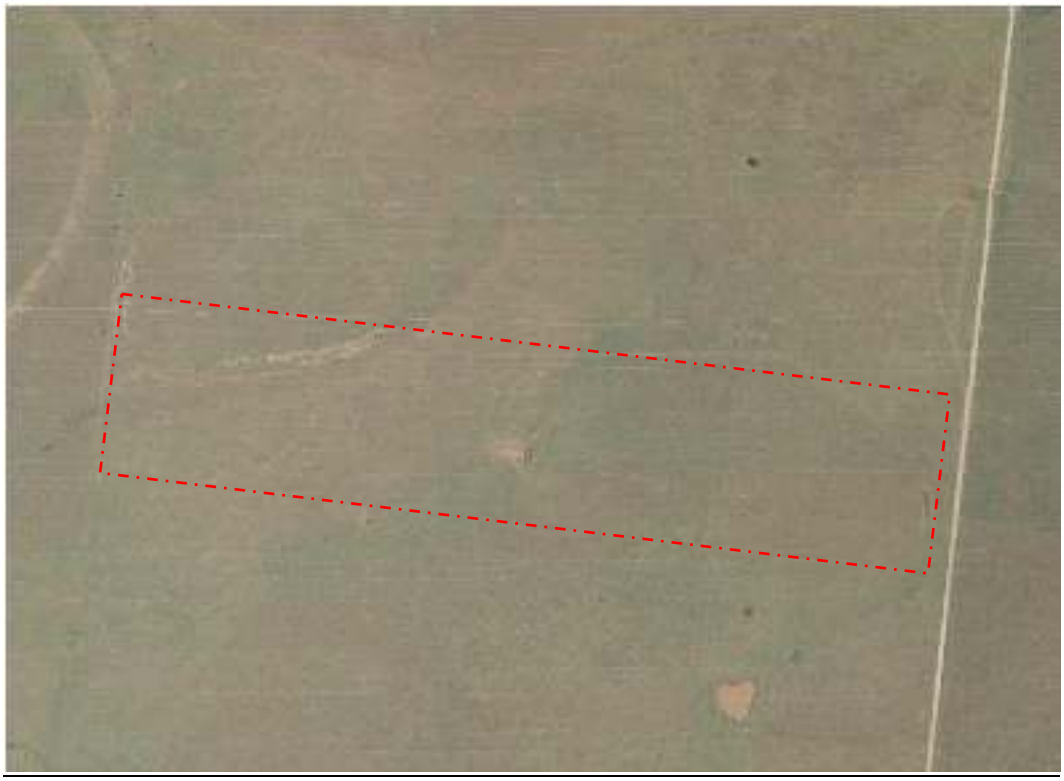
advlegs PRINTED ON 3/11/2023

Obtained from NSW LRS on 03 November 2023 12:22 AM AEST © Office of the Registrar-General 2023
* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. GlobalX hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900. Note: Information contained in this document is provided by GlobalX Pty Ltd, ABN 35 099 032 596, www.globalx.com.au an approved NSW Information Broker.

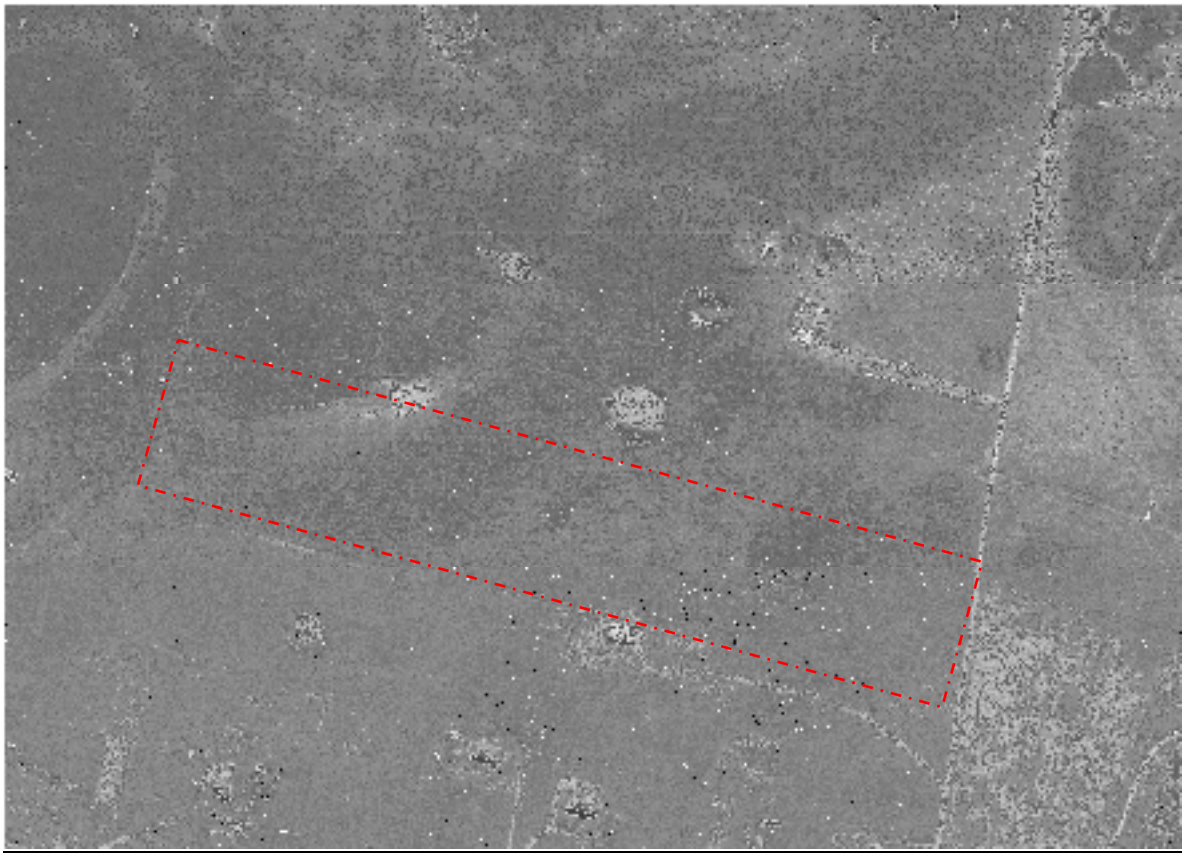
APPENDIX D:
Aerial Photographs

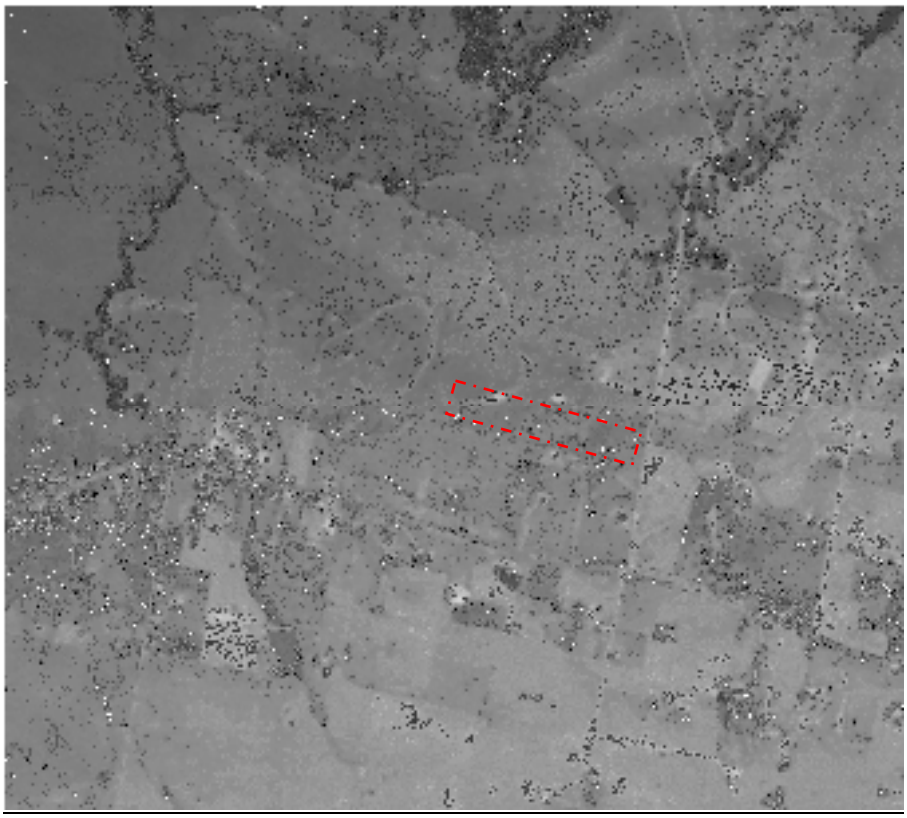
Aerial Photographs

1976



1984





1991

2001

2015

2023

APPENDIX E:
Site Photographs

Photograph 1 - residential Dwelling and vehicle parking.

Photograph 2 - stored fuel drums, boat motors, power tools etc stored on eastern side of dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**1 and 2**
	Title:	Site Photographs		

Photograph 3 - Pool and shed 3 located on the north-eastern side of the dwelling.

Photograph 4 - Shed 1, north-east of the dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**3 and 4**
	Title:	Site Photographs		

Photograph 5 - Shed 3 located east of the dwelling.

Photograph 6 - Shed 2 bay containg lawn mower and gardening equipment.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**5 and 6**
	Title:	Site Photographs		

Photograph 7 - Bay of shed 2 containing hoses, cement mixer, ladders timber fencing.

Photograph 8 - Water tank located on northern side of shed 2.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**7 and 8**
	Title:	Site Photographs		

Photograph 9 - Storage area north-east of dwelling.

Photograph 10 - Fill material north-east of dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**9 and 10**
	Title:	Site Photographs		

Photograph 11 - Storage area north-east of dwelling.

Photograph 12 - Storage area north-east of dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**11 and 12**
	Title:	Site Photographs		

Photograph 13 - batteries in storage area north-east of dwelling.

Photograph 14 - Ash pile located within storage area north-east of the dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**13 and 14**
	Title:	Site Photographs		

Photograph 15 - fill material west of dwelling on the northern boundary.

Photograph 16 - fill material west of dwelling on the northern boundary.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**15 and 16**
	Title:	Site Photographs		

Photograph 17 - Water tanks located east of the dwelling.

Photograph 18 - Septic tank located east of the dwelling.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**17 and 18**
	Title:	Site Photographs		

Photograph 19 - cubby house east of the dwelling.

Photograph 20 - stockpile SP01.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**19 and 20**
	Title:	Site Photographs		

Photograph 21 - exposed brick and concrete from stockpile SP01.

Photograph 22 - Dam 1 containing tyres.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**21 and 22**
	Title:	Site Photographs		

Photograph 23 - Dam 2 and Stockpile SP02

Photograph 24 - Stockpile SP03

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**23 and 24**
	Title:	Site Photographs		

Photograph 25 - Stockpile SP04.

Photograph 26 - Stockpile SP04.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**25 and 26**
	Title:	Site Photographs		

Photograph 27 - Stockpile SP04.

Photograph 28 - Road crossing.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**27 and 28**
	Title:	Site Photographs		

Photograph 29 - Asphalt in drainage line north of road crossing.

Photograph 30 - Stockpile SP05.

Qualtest	Client:	AEP Developments Pty Ltd	Project No:	NEW23P-0216-AA
	Project:	Preliminary and Detailed Site Investigation	Date:	10/11/2023
	Location:	34 Wyndella Road, Lochinvar NSW	No:	**29 and 30**
	Title:	Site Photographs		

APPENDIX F:
NSW EPA Records

Search results

Your search for: Suburb: LOCHINVAR

Search Again Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

9 November 2023

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
LITHGOW	Former Mobil Depot	353 Main STREET	Other Petroleum	Regulation under CLM Act not required	-33.48235166	150.1383012
LITHGOW	Former Gasworks	Mort STREET	Gasworks	Regulation under CLM Act not required	-33.47995167	150.1635401
LITHGOW	Jasbe BP-branded Service Station (Former Reliance Petroleum)	1106 Great Western HIGHWAY	Service Station	Regulation under CLM Act not required	-33.48426647	150.134992
LITHGOW	Caltex Lithgow (Quota Park)	Adjacent to 1131 Great Western HIGHWAY	Unclassified	Regulation under CLM Act not required	-33.47927554	150.1366238
LIVERPOOL	AC McGrath (Wholesale) Pty Ltd	20 Shepherd Street and 6A & 6B Atkinson STREET	Other Industry	Regulation under CLM Act not required	-33.9320192	150.9236862
LIVERPOOL	Former Car Park	4 - 6 Rose STREET	Unclassified	Regulation under CLM Act not required	-33.93258955	150.9157936
LIVERPOOL	Woolworths Service Station	59-67 Orange Grove ROAD	Service Station	Regulation under CLM Act not required	-33.90711248	150.9178855
LIVERPOOL	68 Speed Street (former gasworks)	2A Mill ROAD	Gasworks	Regulation under CLM Act not required	-33.92992649	150.9224472
LIVERPOOL	Woodward Park	84 Memorial AVENUE	Other Industry	Regulation under CLM Act not required	-33.92477836	150.9169229
LOFTUS	BP Freedom Fuel Service Station Loftus	127 Loftus AVENUE	Service Station	Regulation under CLM Act not required	-34.04570765	151.0508004
LONG JETTY	Metro Petroleum Service Station Long Jetty	326 The Entrance ROAD	Service Station	Under assessment	-33.35897356	151.4847709
LONG JETTY	Caltex Service Station	431 The Entrance ROAD	Service Station	Regulation under CLM Act not required	-33.36022468	151.4826553
LONG JETTY	Westside Petroleum Service Station	290-294 The Entrance ROAD	Service Station	Contamination currently regulated under CLM Act	-33.35686757	151.4861479
LONG JETTY	7-Eleven (former Mobil) Service Station	184-186 The Entrance ROAD	Service Station	Regulation under CLM Act not required	-33.35089363	151.4924904
LONGUEVILLE	Caltex Service Station	5 Northwood ROAD	Service Station	Regulation under CLM Act not required	-33.82427366	151.1724497

Search results

Your search for: **POEO Licences** with the following criteria

Suburb - lochinvar

returned 0 results

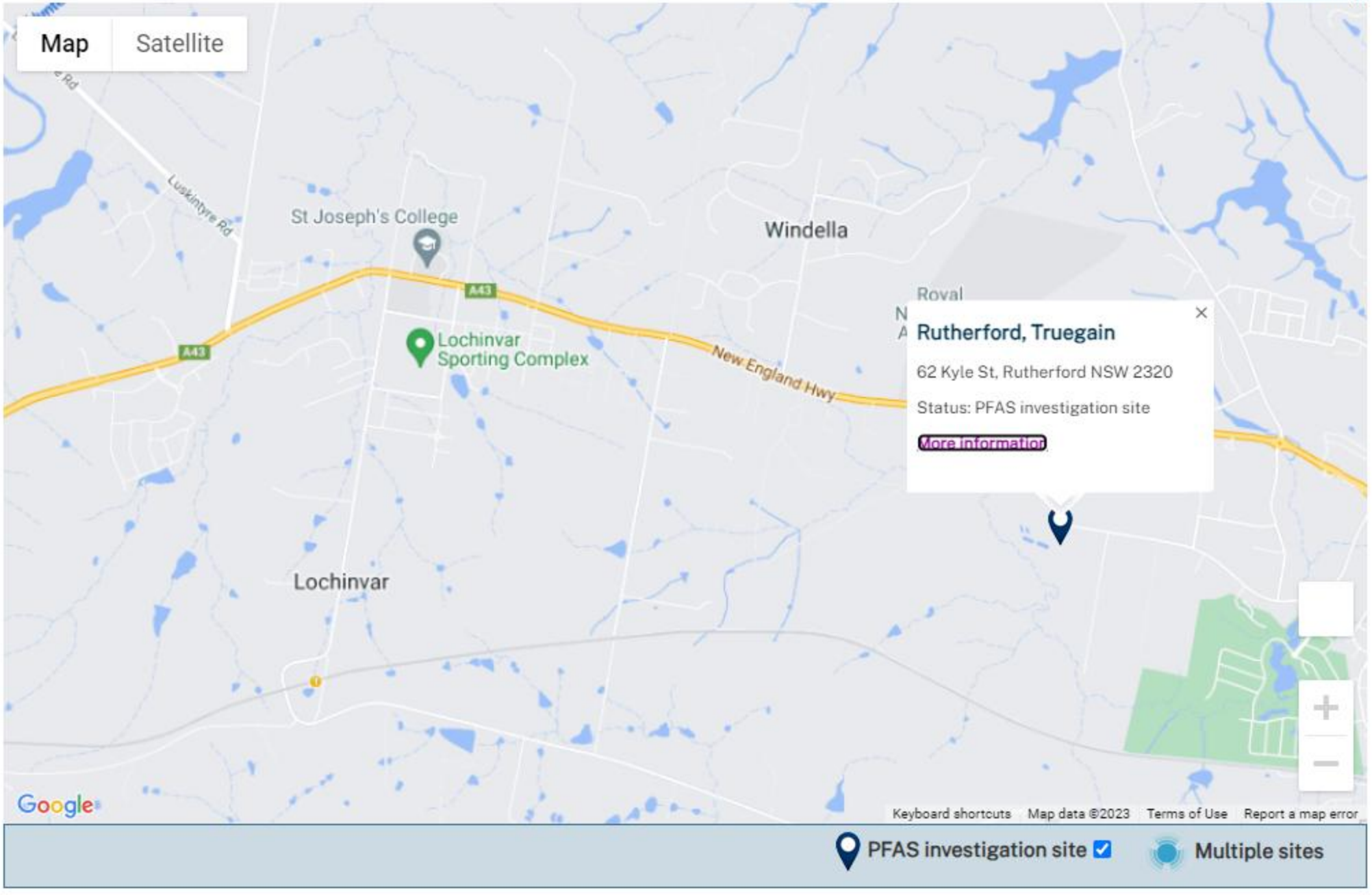
Search Again

Map view | List view

Filter by | No filter set

Showing 1 of 50 sites

Reset map



Tags: PFAS

Liverpool City Council	Mill Road, Liverpool	Contact council
Liverpool Plains Shire Council	Single Street, Werris Creek	Contact council
Maitland City Council	Charles Street, Maitland	Search record of EPA notices
Maitland City Council	Melbourne Street, East Maitland	Search record of EPA notices
Manly Council	Stuart Street, Manly	Search record of EPA notices
Mudgee Shire Council	Mortimer Street, Mudgee	Contact council
Muswellbrook Shire Council	Carl Street, Muswellbrook	Contact council

APPENDIX G:
Section 10.7 Certificate

Certificate No.:
PC/2023/3336
Certificate Date: 02/11/2023
Fee Paid: $168.00
Receipt No.:
Your Reference: NEW23P-0216

SECTION 10.7 PLANNING CERTIFICATE
Environmental Planning and Assessment Act, 1979 as amended

APPLICANT:	Emma Coleman
	emmacoleman@qualtest.com.au
PROPERTY DESCRIPTION:	34 Wyndella Road LOCHINVAR NSW 2321
PARCEL NUMBER:	27791
LEGAL DESCRIPTION:	Lot 225 DP 246447

IMPORTANT: Please read this Certificate carefully.

The information provided in this Certificate relates only to the land described above. If you need information about an adjoining property or nearby land, a separate certificate will be required.

All information provided is correct as at the date of issue of this Certificate. However, it is possible for changes to occur at any time after the issue of this Certificate.

For more information on the Planning Certificate please contact our Customer Experience team on 4934 9700.

SECTION 10.7(2)

The following matters relate to the land, as required by section 10.7(2) of the *Environmental Planning and Assessment Act (1979)* ("the Act") and clause 284 and Schedule 2 of the *Environment Planning and Assessment Regulation 2021.*

ITEM 1 - Names of relevant planning instruments and development control plans

The following environmental planning instruments and development control plans apply to the carrying out of development on the land:

State Environmental Planning Policies

The Minister for Planning has notified that the following State Environmental Planning Policies (SEPPs) shall be specified on Certificates under Section 10.7 of the Environmental Planning and Assessment Act, 1979.

The land is affected by the following State Environmental Planning Policies:

- SEPP65 Design Quality of Residential Apartment Development
- SEPP (Biodiversity and Conservation) 2021
- SEPP (Industry and Employment) 2021
- SEPP (Primary Production) 2021
- SEPP (Planning Systems) 2021
- SEPP (Housing) 2021
- SEPP Building Sustainability Index: BASIX 2004
- SEPP (Exempt and Complying Development Codes) 2008
- SEPP (Resources and Energy) 2021
- SEPP (Transport and Infrastructure) 2021
- SEPP (Resilience and Hazards) 2021

Local Environmental Plan (LEP)

Maitland LEP 2011, published 16 December 2011, applies to the land.

Development Control Plan prepared by Council

Maitland Development Control Plan 2011 applies to the land.

The following proposed environmental planning instruments and draft development control plans are or have been the subject of community consultation or on public exhibition under the Environmental Planning and Assessment Act 1979, apply to the carrying out of development on the land and:

Planning Proposal for a Local Environmental Plan

No draft local Environmental Plans that have been on public exhibition under the Act are applicable to the land.

Detailed information on draft environmental planning instruments is available at

the NSW Department of Planning and Environment Current LEP Proposals website; or Maitland City Council's website.

Draft Development Control Plans

No draft Development Control Plan(s) that have been on public exhibition under the Act are applicable to the land.

Draft State Environmental Planning Policies

No draft State Environmental Planning Policy(s) applying to the land is, or has been publicised the subject of community consultation or on public exhibition under the Act.

ITEM 2 – Zoning and land use under relevant planning instruments

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a State Environmental Planning Policy or proposed State Environmental Planning Policies)

Zone and Land Use Table from Local Environmental Plan

RU2 Rural Landscape

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To maintain the rural landscape character of the land
- To provide for a range of compatible land uses, including extensive agriculture
- To provide for a range of non-agricultural uses where infrastructure is adequate to support the uses and conflict between different land uses is minimised

2 Permitted without Consent

Extensive agriculture; Home occupations; Intensive plant agriculture

3 Permitted with Consent

Agriculture; Airstrips; Animal boarding or training establishments; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Eco-tourist facilities; Educational establishments; Environmental facilities; Environmental protection works; Farm buildings; Farm stay accommodation; Flood mitigation works; Forestry; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Jetties; Landscaping material supplies; Markets; Open cut mining; Places of public worship; Plant nurseries; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural industries; Rural supplies;

Signage; Turf farming; Veterinary hospitals; Water supply systems

4 Prohibited

Intensive livestock agriculture; Livestock processing industries; Any other development not specified in item 2 or 3.

Detailed information on the land zone mapping is available at the NSW Department of Planning and Environment ePlanning Spatial Viewer website; or Maitland City Council's website.

Note: Detailed information on the local environmental plan is available at NSW Legislation – In force legislation.

Whether development standards applying to the land fix minimum land dimensions for the erection of a dwelling house on the land and, if so, the fixed minimum land dimensions.

For the land zoned RU2 Rural Landscape Clause 4.2A in the Maitland Local Environmental Plan 2011 applies to the land. This clause fixes a minimum lot size for the erection of a dwelling-house that is identified on the Maitland Local Environmental Plan 2011 Lot Size Map as 40 hectares.

Is the land in an area of outstanding biodiversity value under the Biodiversity Conservation Act 2016?

The land IS NOT identified in an area of outstanding biodiversity value under the Biodiversity Conservation Act.

Is the land within a conservation area, however described?

The land IS NOT in a Heritage Conservation Area.

Is there an item of environmental heritage in a local environmental plan?

The land does NOT contain an item of Environmental Heritage.

Note: An item of environmental heritage, namely Aboriginal heritage, listed on the Aboriginal Heritage Information Management System (AHIMS), may be situated on the land. The Department of Planning and Environment, Biodiversity and Conservation Division.

ITEM 3 – Contribution plans

The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans.

- Maitland S94A Levy Contributions Plan 2006
- Maitland City Wide Section 94 Contributions Plan 2016
- Maitland S94 Contributions Plan (City Wide) 2006

If the land is in a special contributions area under the Act, Division 7.1, the name of the area.

The land IS NOT in a special contributions area.

Note: In addition to the above developer contribution plans, Development Servicing Plans for water and sewer connection may be applicable, attracting additional contributions for the development, particularly where development will connect to water and/or sewer services.

ITEM 4 – Complying Development

If the land is land on which complying development may be carried out under each of the complying development codes under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, because of that Policy, clause 1.17A(1)(c)–(e), (2), (3) or (4), 1.18(1)(c3) or 1.19.

Complying development under the **Housing Code** may not be carried out on the land as it is not within an applicable zone.

Complying development under the **Low Rise Medium Density Housing Code and Greenfield Housing Code** may not be carried out on the land as it is not within an applicable zone.

Complying development under the **Rural Housing Code** may be carried out on the land.

Complying development under the **Housing Alterations Code** may be carried out on the land.

Complying development under the **General Development Code** may be carried out on the land.

Complying development under the **Commercial and Industrial Alterations Code** may be carried out on the land.

Complying development under the **Commercial and Industrial (New Buildings and Additions) Code** may not be carried out on the land as it is not within an applicable zone.

Complying development under the **Subdivisions Code** may be carried out on the land.

Complying development under the **Demolition Code** may be carried out on the land.

Complying development under the **Fire Safety Code** may be carried out on the land.

Complying development under the **Container Recycling Facilities Code** may not be carried out on the land.

Note: Despite the above provisions, if only part of a lot is subject to an exclusion or exemption under Clause 1.17A or Clause 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Commercial and Industrial Development and Other*

***Matters) 2013*, complying development may be carried out on that part of the lot that is not affected by the exclusion or exemption.**
The complying development may not be carried out on the land because of the following provisions of Clauses 1.17A(1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of the Policy.

The provisions of Clauses 1.17A(1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 are not identified on the land. Complying development may be undertaken in accordance with the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 as amended.

Note: This information needs to be read in conjunction with the whole of the State Environment Planning Policy. If an identification, restriction or characteristic of land referred to above is not located on or does not comprise, the whole of the relevant land, complying development may be carried out on any part of the land not so identified, restricted or characterised.

Note: Information regarding whether the property is affected by flood related development controls or is bushfire prone land is identified in other sections of this certificate. If your property is identified as being impacted by bushfire or flooding, a specific technical assessment of these issues will be required as part of any Complying Development Certificate application under the State Environment Planning Policy, or a development application for any other type of development requiring consent from Council.

Note: Despite any references above advising that Complying Development may be undertaken on the land, certain Complying Development may be precluded from occurring on the land due to requirements contained in the remainder of State Environment Planning Policy (Exempt and Complying Development Codes) 2008. It is necessary to review the State Environment Planning Policy in detail to ensure that specific types of complying development may be undertaken on the land.

If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that

(a) a restriction applies to the land, but it may not apply to all of the land,
(b) and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.

There are no variations to the exempt development codes within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 that apply in the Maitland local government area.

For further information on complying development, please refer to the Department of Planning and Environment.

ITEM 5 – Exempt Development

If the land is land on which exempt development may be carried out under each of the exempt development codes under State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A.

If exempt development may not be carried out on the land because of 1 of those clauses, the reasons why it may not be carried out under the clause.

If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that

a) a restriction applies to the land, but it may not apply to all of the land, and
b) the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.

If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land.

ITEM 6 – Affected building notices and building product rectification orders

Whether the council is aware that –

The Council IS NOT aware of any affected building notice which is in force in respect of the land.

The Council is NOT aware of any building product rectification order which is in force in respect of the land and that has not been fully complied with.

The Council IS NOT aware of any notice of intention to make a building product rectification order being given in respect of the land and that is outstanding.

ITEM 7 - Land Reserved for Acquisition

Whether an environmental planning instrument or proposed environmental planning instrument referred to in section 1 makes provision in relation to the acquisition of the land by an authority of the State, as referred to in the Act, section 3.15.

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

ITEM 8 – Road widening and road realignment

Whether the land is affected by road widening or road realignment under –

a) The land is NOT affected by road widening under Division 2 of Part 3 of the Roads Act 1993.

b) The land is NOT affected by road widening under any environmental planning

instrument

c) The land is NOT affected by any road-widening or realignment under any resolution of the Council

d) The land is NOT affected by road-widening or realignment under a resolution of the Council

Note: This item relates to Council's road proposals only. Other authorities, including the NSW Roads and Traffic Authority may have road widening proposals.

ITEM 9 – Flood related development controls

The land or part of the land IS NOT within the flood planning area and subject to flood related development controls.

The land or part of the land IS NOT between the flood planning area and the probable maximum flood and subject to flood related development controls.

The Maitland LEP 2011 identifies the flood planning level (FPL) as the level of a 1:100 ARI flood event plus 0.5m freeboard. The probable maximum flood has the same meaning as the Floodplain Development Manual.

Note in this section – ***flood planning area*** has the same meaning as in the Floodplain Development Manual. ***Floodplain Development Manual*** means the Floodplain Development Manual (ISBN 0 7347 5476 00) published by the NSW Government in April 2005. ***probable maximum flood*** has the same meaning as in Floodplain Development Manual

Note: The information provided in item 9 is based on the data and information presently available to the Council and on development controls in force as at the date of this certificate. The identification of land as not being subject to flood related development controls does not mean that the land is not, or may not be, subject to flooding or that the land will not in the future be subject to flood related development controls, as additional data and information regarding the land become available.

ITEM 10 – Council and other public authority policies on hazard risk restrictions

Whether any of the land is affected by an adopted policy that restricts the development of the land because of the likelihood of land slip, bush fire, tidal inundation, subsidence, acid sulfate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding.

All land within the Maitland Local Government Area has the potential to contain acid sulfate soils. Clause 7.1 of the Maitland Local Environmental Plan 2011 generally applies. Development consent is required where works described in the Table to this clause are proposed on land shown on the Maitland LEP 2011 Acid Sulfate Soils Map as being of the class specified for those works.

The Council has adopted by resolution a policy on contaminated land which may restrict the development of the land to which this certificate relates. This policy is implemented when zoning or land use changes are proposed on lands which:

- are considered to be contaminated; or
- which have previously been used for certain purposes; or
- which have previously been used for certain purposes but Council's

records do not have sufficient information about previous use of the land to determine whether the land is contaminated; or
- have been remediated for a specific use.

Consideration of Council's adopted policy and the application of provisions under relevant State legislation is warranted.

Note in this section –
adopted policy means a policy adopted –
a) by the council,or
b) by another public authority, if the public authority has notified the council that the policy will be included in a planning certificate issued by council.

ITEM – 11 Bush fire prone land

If any of the land is bush fire prone land, designated by the Commissioner of the NSW Rural Fire Service under the Act, section 10.3, a statement that all or some of the land is bush fire prone land.

The land is mapped as bushfire prone land and as such restrictions may apply to new development on this land.

Note – In accordance with the *Environmental Planning and Assessment Act 1979,* bush fire prone land, in relation to area, means land recorded for the time being as bush fire prone on a bush fire prone land map for the area. This mapping is subject to periodic review.

Note – The identification of land as not being bushfire prone does not mean that the land is not, or may not be affected by bushfire or that the land will not in the future be subject to bushfire related development controls, as additional data and information regarding the land become available.

ITEM – 12 Loose-fill asbestos insulation

If the land includes residential premises, within the meaning of the Home Building Act 1989, Part 8, Division 1A, that are listed on the Register kept under that Division, a statement to that effect.

There are no premises on the subject land listed on the register.

ITEM – 13 Mine subsidence

Whether the land is declared to be a mine subsidence district, within the meaning of the Coal Mine Subsidence Compensation Act 2017.

The land has NOT been proclaimed to be within a Mine Subsidence District under the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

ITEM – 14 Paper subdivision information

There is no development plan that applies to the:

1) Land or that is proposed to be subject to a consent ballot
2) There is no subdivision order that applies to the land.

ITEM – 15 Property vegetation plans

If the land in relation to which a property vegetation plan is approved and in force under the Native Vegetation Act 2003, Part 4, a statement to that effect, but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act.

The Council has not received any notification from Hunter Local Land Services that this land is affected by a property vegetation plan under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

ITEM – 16 Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the Biodiversity Conservation Act 2016, Part 5, a statement to that effect, but only if the council has been notified of the existence of the agreement by the biodiversity Conservation Trust.

The Council is not aware if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under part 5 of the *Biodiversity Conservation Act 2016.*

Note – Biodiversity stewardship agreements include biobanking agreements under the *Threatened Species Conservation Act 1995,* Part 7A that are taken to be biodiversity stewardship agreements under the *Biodiversity Conservation Act 2016,* Part 5.

ITEM 17 – Biodiversity certified land

If the land is biodiversity certified land under the Biodiversity Conservation Act 2016, Part 8, a statement to that effect.

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note – Biodiversity certified land includes land certified under the *Threatened Species Conservation Act 1995,* Part 7AA that is taken to be certified under the *Biodiversity Conservation Act 2016,* Part 8.

ITEM 18 – Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land, but only if the council has been notified or the order.

Council has NOT received notification from the Land and Environment Court of NSW that the land is affected by an Order under Trees – (Disputes Between Neighbours) Act 2006.

ITEM 19 – Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

If the *Coastal Management Act 2016* applies to the council, whether the owner, or a previous owner, of the land has given written consent to the land being subject to annual charges under the *Local Government Act 1993,* section 496B, for coastal protection services that relate to existing coastal protection works.

The owner (or any previous owner) of the land has NOT consented in writing to the land being subject to annual charges under section 496B of the Local Government

Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note - In this section existing coastal protection works has the same meaning as in the Local Government Act 1993, section 553B.

Note – Existing coastal protection works are works to reduce the impact of coastal hazards on land, such as seawalls, revetments, groynes and beach nourishment, that existed before 1 January 2011

ITEM 20 – Western Sydney Aerotropolis

The State Environmental Planning Policy (Precincts – Western Parkland City) 2021 does not apply to land within the Maitland City Council local government area.

ITEM 21 – Development consent conditions for seniors housing

If State Environmental Planning Policy (Housing) 2021, Chapter 3, Part 5 applies to the land, any conditions of a development consent granted after 11 October 2007 in relation to the land that are of the kind set out in that Policy, section 88(2).

Clause 88(2) of the *State Environmental Planning Policy (Housing) 2021* restricts occupation of development approved for seniors housing to:

a) Seniors or people who have a disability
b) People who live in the same household with seniors or people who have a disability,
c) Staff employed to assist in the administration and provision of services to housing provided under this Part.

ITEM 22 – Site compatibility certificates and development consent conditions for affordable rental housing

Whether there is a current site compatibility certificate under State Environmental Planning Policy (Housing) 2021, or a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land and, if there is a certificate –

a) the period for which the certificate is current, and
b) that a copy may be obtained from the Department.

If State Environmental Planning Policy (Housing) 2021, Chapter 2, Part 2, Division 1 or 5 applies to the land, any conditions of a development consent in relation to the land that are of a kind referred to in that Policy, section 21(1) or 40(1).

Any conditions of a development consent in relation to land that are kind referred to in State Environmental Planning Policy (Affordable Rental Housing) 2009, clause 17(1) or 38(1).

Note - No Seniors Housing development consent conditions apply to this land.

Note - In this section – Former site compatibility certificate means a site compatibility certificate issued under State Environmental Planning Policy (Affordable Rental Housing) 2009.

Council is unaware if a Site Compatibility Certificate (Affordable Rental Housing) has been issued in accordance with State Environmental Planning Policy

(Affordable Rental Housing) 2009.

Note. The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate.

Contaminated Land

a) The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.

b) The land to which this certificate relates is NOT subject to a management order within the meaning of the Contaminated Land Management Act 1997.

c) The land to which this certificate relates is NOT the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.

d) The land to which this certificate relates is NOT the subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.

e) Council has NOT been provided with a site audit statement, within the meaning of the Contaminated Land Management Act 1997, for the land to which this Certificate relates.

PART 2: ADDITIONAL MATTERS PROVIDED PURSUANT TO SECTION 10.7 (5)

The following information is provided in accordance with section 10.7(5) of the Environmental Planning and Assessment Act 1979. Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5). If this information is to be relied upon, it should be independently checked.

1. Development Consent

Councils records indicate that the land has not had any development consent granted within the five (5) years preceding the date of this certificate.

2. Draft Development Control Plan

No draft Development Control Plans apply to the land.

3. Suspension of Covenants

Clause 1.9A in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. This clause suspends any agreement, covenant or other instrument that restricts the development of land that is permissible under the provisions of the Maitland Local Environmental Plan 2011 to the extent necessary to serve that purpose.

4. Filling of Land

Earthworks (excavation and filling of land) require development consent. Clause 7.2 in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. Earthworks (defined as both excavation and filling of land) require development consent of Council unless the works are exempt development, ancillary to other development for which development consent is required or granted, or considered by Council to be of a minor nature.

5. Development in the Vicinity of Heritage Items

Clause 5.10 in the Maitland LEP 2011 generally applies to all land in the Maitland Local Government Area, where the land is located in the vicinity of a heritage item or heritage conservation area. This Clause requires a consent authority to consider the effect of the proposed development on the heritage significance of the item or area concerned, before granting development consent.

6. Other Matters

There are no other specific matters.

Jeff Smith
General Manager

APPENDIX H:
Logs

ENGINEERING LOG - BOREHOLE

CLIENT: COMMERCIAL 7 PTY LTD
PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW

BOREHOLE NO: BH06
PAGE: 1 OF 1
JOB NO: NEW23P-0216
LOGGED BY: BE
DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT **SURFACE RL:**
BOREHOLE DIAMETER: 300 mm **DATUM:**

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/T	Not Encountered			0.5		CH	0.10m TOPSOIL: CLAY - medium to high plasticity, grey-brown, root affected. CLAY - medium to high plasticity, grey-brown.	M < w_P	H	HP	>600	TOPSOIL RESIDUAL SOIL
										HP	450	
										HP	350	
				1.0		CL	0.80m Sandy CLAY - low to medium plasticity, pale grey-white and pale orange, fine grained sand.	M > w_P	VSt	HP	230	RESIDUAL SOIL / EXTREMELY WEATHERED ROCK
										HP	300	
				1.5			1.50m Sandy SILTSTONE band approximately 100mm thick.			HP	350	
							Extremely Weathered Sandy SILTSTONE with soil properties: breaks down in to Silty Sandy CLAY - low to medium plasticity, pale grey-white and pale orange, fine grained sand.					EXTREMELY WEATHERED ROCK
				2.0								
				2.5			SANDSTONE band (approximately 100mm thick).	M < w_P	VSt / Fb			
				3.0								
				3.5			3.45m 3.50m Sandy SILTSTONE - estimated low to medium strength, fine grained, orange with pale grey.					SLIGHTLY WEATHERED ROCK
							Hole Terminated at 3.50 m Refusal					

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - BOREHOLE

CLIENT: COMMERCIAL 7 PTY LTD
PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW

BOREHOLE NO: BH07
PAGE: 1 OF 1
JOB NO: NEW23P-0216
LOGGED BY: BE
DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT **SURFACE RL:**
BOREHOLE DIAMETER: 300 mm **DATUM:**

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
AD/T	Not Encountered			0.5		CH	0.10m TOPSOIL: CLAY - medium to high plasticity, dark grey, root affected.					TOPSOIL
							CLAY - medium to high plasticity, dark grey.	M < w_P	H	HP	450	RESIDUAL SOIL
										HP	380	
										HP	320	
				1.0						HP	280	
										HP	220	
										HP	250	
							Brown.			HP	300	
				1.5		CH		M > w_P	VSt	HP	280	
										HP	350	
										HP	280	
				2.0								
				2.5			2.60m			HP	280	
							Hole Terminated at 2.60 m					
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BH08

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT
SURFACE RL:

BOREHOLE DIAMETER: 300 mm
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/T	Not Encountered			0.5		CH	0.10m TOPSOIL: CLAY - medium to high plasticity, dark brown, root affected.					TOPSOIL
						CH	CLAY - medium to high plasticity, dark brown.	M < w_P	H	HP	480	RESIDUAL SOIL
							0.60m			HP	500	
						CL	Silty CLAY - low to medium plasticity, pale brown, trace orange.		H / Fb			RESIDUAL SOIL / EXTREMELY WEATHERED ROCK
				1.0			0.80m ANDESITE - grey to dark grey, estimated medium to high strength, fractured, trace extremely weathered pockets.	D				HIGHLY TO MODERATELY WEATHERED ROCK 1.0M TO 1.3M SLOW TO VERY SLOW PROGRESS
							1.40m Less fractured.					1.3M TO 1.4M VERY SLOW PROGRESS AUGER NOT MOVING @ 1.4M.
				1.5			Hole Terminated at 1.40 m Refusal					
				2.0								
				2.5								
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

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ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BH12

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT
SURFACE RL:

BOREHOLE DIAMETER: 300 mm
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/T	Not Encountered			0.5		CH	0.10m CLAY - medium to high plasticity, brown, root affected.					TOPSOIL
							CLAY - medium to high plasticity, brown.			HP	450	RESIDUAL SOIL
						CH	With some Clayey SAND pockets/bands.			HP	>600	
				1.0			1.00m	M < w_P	H			
							Extremely Weathered ANDESITE breaks down into: Sandy Gravell CLAY/Clayey Sandy GRAVEL - low to medium plasticity, dark grey with some brown, fines of low plasticity, fine grained angular gravel, fine to coarse grained sand.			HP	>600	EXTREMELY WEATHERED ROCK
				1.5			1.70m					
							1.75m ANDESITE - dark grey and dark brown, estimated medium to high strength.	D				HIGHLY TO MODERATELY WEATHERED ROCK
				2.0			Hole Terminated at 1.75 m Refusal					
				2.5								
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition	
D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density		
V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

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ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BH13

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT
SURFACE RL:

BOREHOLE DIAMETER: 300 mm
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/T	Not Encountered			0.5		CH	0.10m TOPSOIL: CLAY - medium to high plasticity, brown, root affected.					TOPSOIL
						CH	CLAY - medium to high plasticity, brown.		H	HP	500	RESIDUAL SOIL
				1.0			0.50m Extremely Weathered ANDESITE: breaks down into Sandy CLAY - low to medium plasticity, pale brown and grey, fine grained sand.	M < w_P	H / Fb			EXTREMELY WEATHERED ROCK
				1.5			1.40m Extremely Weathered ANDESITE: breaks down into Clayey Gravelly SAND - fine to coarse grained, brown to red-brown and dark grey, fines of low plasticity, fine angular gravel.	D - M	D - VD			
				2.0			1.80m ANDESITE - dark grey with red-brown, estimated low to medium strength, highly fractured, trace extremely weathered pockets (excavated as Sandy GRAVEL - fine to medium grained angular, fine to coarse grained sand).					HIGHLY WEATHERED ROCK
				2.5				D				
				3.0								
				3.5			3.50m Hole Terminated at 3.50 m Slow progress					

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - BOREHOLE

BOREHOLE NO: BH14

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 6/11/23

DRILL TYPE: 2.7 TONNE EXCAVATOR WITH AUGER ATTACHMENT **SURFACE RL:**
BOREHOLE DIAMETER: 300 mm **DATUM:**

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/T	Not Encountered			0.5		CH	0.10m TOPSOIL: CLAY - medium to high plasticity, brown, root affected.					TOPSOIL
						CH	CLAY - medium to high plasticity, brown.		H	HP	500	RESIDUAL SOIL
				1.0			0.60m Extremely Weathered Sandy SILTSTONE with soil properties breaks down into: Sandy CLAY - low to medium plasticity, dark brown, fine to coarse grained (mostly fine grained) sand.	M < W_P	H / Fb	HP	480	EXTREMELY WEATHERED ROCK
				1.5			1.10m ANDESITE - dark grey with red-brown, estimated low to medium strength, highly fractured, extremely weathered pockets, excavated as Sandy GRAVEL - fine to medium grained angular, fine to coarse grained sand.	D				HIGHLY WEATHERED ROCK 1.1M TO 2.4M: EASY TO MODERATE TO DRILL
				2.0			2.40m					
				2.5			2.50m ANDESITE - estimated medium to high strength, grey and brown with pale grey-white. Hole Terminated at 2.50 m Refusal					HIGHLY WEATHERED ROCK AT 2.4M: AUGER PROGRESSING 1MM/REVOLUTION. AT 2.5M: AUGER BOUNCING ON WEATHERED ROCK.
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - TEST PIT

TEST PIT NO: TP01

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered			0.5		CL	TOPSOIL: Sandy CLAY/Clayey SAND - low plasticity, grey-brown, fine to coarse grained sand, root affected in top 0.1m.					TOPSOIL
							0.30m			HP	480	
						CH	CLAY - medium to high plasticity, grey-brown, with orange.	$M < w_P$	H	HP	500	RESIDUAL SOIL
				1.0			0.70m Silty SANDSTONE - fine grained, pale grey-white and orange, trace extremely weathered pockets/bands, estimated medium to high strength.					HIGHLY WEATHERED ROCK
				1.5			No extremely weathered pockets/bands, (excavated as cobbles of boulder sized fragments).					SLOW PROGRESS
				2.0			Trace extremely weathered pockets/bands, fractured.					EASY TO MODERATE TO EXCAVATE
				2.5			2.80m Hole Terminated at 2.81 m Refusal					VERY SLOW PROGRESS WITH EXCAVATOR BUCKET
				3.0								SLIGHTLY WEATHERED ROCK - 6 SCRAPES/10MM
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition	
D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density		
V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - TEST PIT

TEST PIT NO: TP02

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered	0.30m				SM	0.10m TOPSOIL: Silty SAND - fine to coarse grained, grey-brown, fines of low plasticity, root affected.					TOPSOIL
							CLAY - medium to high plasticity.					RESIDUAL SOIL
		BB		0.5		CH		M < w_P	H	HP	550	
		0.60m								HP	500	
		0.80m					With Clayey SAND pockets, with pale grey-white and pale orange, trace fine to medium grained angular gravel.			HP	450	
							0.80m Sandy SILTSTONE - fine grained, pale grey-white and orange, estimated low to medium strength, with extremely weathered bands/pockets.					HIGHLY TO MODERATELY WEATHERED ROCK - EASY TO MODERATE EXCAVATING MATERIAL WITH EXCAVATOR BUCKET
		BB		1.0				D				
		1.20m										
				1.5			1.50m Estimated medium to high strength, no weathered bands/pockets.					SLIGHTLY WEATHERED ROCK - VERY SLOW PROGRESS, APPROX.10 SCRAPES/1MM.
							Hole Terminated at 1.50 m Refusal					
				2.0								
				2.5								
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - TEST PIT

TEST PIT NO: TP03

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered					SM	0.10m TOPSOIL: Silty SAND - fine to coarse grained, grey-brown, fines of low plasticity, root affected.					TOPSOIL
							CLAY - medium to high plasticity, grey-brown.	M < w_P	H	HP	550	RESIDUAL SOIL
				0.5		CH				HP	580	
							With Clayey SAND pockets, with pale grey-white and pale orange, trace fine to medium grained angular gravel.	M ~ w_P	VSt - H	HP	380 - 410	
							0.80m			HP	380 - 410	
				1.0			Sandy SILTSTONE - fine grained, pale orange to orange and pale grey-white to grey, estimated low to medium strength, with extremely weathered bands/pockets.					HIGHLY TO MODERATELY WEATHERED ROCK EASY TO EXCAVATE
				1.5				D				
		1.90m B 2.10m		2.0			Estimated medium to high strength, no extremely weathered bands/pockets, less weathered.					SLIGHTLY WEATHERED ROCK 1 SCRAPE/10MM
							2.10m					
							Hole Terminated at 2.10 m Very slow progress					
				2.5								
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

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ENGINEERING LOG - TEST PIT

TEST PIT NO: TP04

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered			0.5		CL	TOPSOIL: Sandy CLAY/Silty SAND - low plasticity, grey-brown, fine to coarse grained sand, root affected.					TOPSOIL
						GM	Silty Sandy GRAVEL - fine to coarse grained, angular to sub-angular, grey-brown, fine to coarse grained (mostly fine to medium grained) sand, fines of low plasticity, trace angular cobbles.					COLLUVIUM / POSSIBLE FILL
				1.0			Sandy SILTSTONE - fine to medium grained, pale grey with orange to brown, estimated medium to high strength, semi-fractured with clay pockets/bands.	D - M	D - VD			HIGHLY TO MODERATELY WEATHERED ROCK SLOW PROGRESS WITH EXCAVATOR BUCKET
				1.5		CL	Silty CLAY - low to medium plasticity, pale grey-white and pale orange, trace siltstone bands.	M < w_P	H			RESIDUAL SOIL / EXTREMELY WEATHERED ROCK
				2.0			Sandy SILTSTONE - pale grey-white and pale orange, estimated high strength. Hole Terminated at 2.32 m Refusal	D				SLIGHTLY WEATHERED ROCK APPROX. 1 SCRAPE/1MM
				2.5								
				3.0								
				3.5								

0.15m
0.50m
1.40m
2.30m
2.32m

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

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ENGINEERING LOG - TEST PIT

TEST PIT NO: TP05

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered			0.5		CL	0.10m TOPSOIL: Sandy CLAY - low plasticity, grey-brown, fine grained sand, with some silt, root affected.					TOPSOIL
						CH	CLAY - medium to high plasticity, grey-brown.	M < w_P	H	HP	550	RESIDUAL SOIL / COLLUVIUM
										HP	550	
				1.0			0.60m Sandy SILTSTONE - fine grained, pale grey to grey and pale orange, estimated high strength, fractured, (excavated as medium to coarse grained gravel, cobbles and boulder size fragments).	D				HIGHLY WEATHERED ROCK SLOW PROGRESS
				1.5			1.01m No fractures. Hole Terminated at 1.01 m Refusal					SLIGHTLY WEATHERED ROCK
				2.0								
				2.5								
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Moisture Condition	
D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

Density		
V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

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ENGINEERING LOG - TEST PIT

CLIENT: COMMERCIAL 7 PTY LTD
PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW

TEST PIT NO: TP09
PAGE: 1 OF 1
JOB NO: NEW23P-0216
LOGGED BY: BE
DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
						CL	0.15m TOPSOIL: Sandy CLAY - low to medium plasticity, brown to grey-brown, fine grained sand, root affected.					TOPSOIL / FILL
		0.30m					FILL: Gravelly Sandy CLAY - medium plasticity, brown to orange-brown, fine to coarse grained sand, fine to medium grained angular to sub-angular gravel.			HP	420	FILL
		B 0.60m		0.5		CI				HP	450	
				1.0						HP	450	
E	Not Encountered						1.20m CLAY - medium to high plasticity, dark grey to grey-brown.	M < w_P	H	HP	450	RESIDUAL SOIL
		1.50m		1.5		CH				HP	480	
		B 1.80m								HP	490	
				2.0			2.00m Sandy CLAY - medium to high plasticity, red-brown, fine grained sand, with some Clayey SAND pockets.			HP	550	
						CH	2.30m					
				2.5		SC	Gravelly Clayey SAND - fine to coarse grained, orange and pale grey trace red-brown, fines of low plasticity, fine angular gravel.	D - M	D - VD	HP	550	RESIDUAL SOIL / EXTREMELY WEATHERED ROCK
							2.60m ANDESITE - estimated very low to medium strength (mostly very low to low strength), orange to brown and grey.	D				HIGHLY WEATHERED ROCK
				3.0			3.30m					
				3.5			Hole Terminated at 3.30 m Very slow progress					1 SCRAPE/20MM

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - TEST PIT

CLIENT: COMMERCIAL 7 PTY LTD
PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW

TEST PIT NO: TP10
PAGE: 1 OF 1
JOB NO: NEW23P-0216
LOGGED BY: BE
DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered			0.0		CL	FILL-TOPSOIL: Sandy CLAY - low to medium plasticity, brown to grey-brown, fine grained sand, root affected.					FILL - TOPSOIL
							0.15m					
						CH	Gravelly Sandy CLAY/ Sandy Clayey GRAVEL - medium to high plasticity, brown to pale brown, fine to coarse grained sand, fine to coarse grained angular gravel, trace cobbles and boulders.	M < w_P	H	HP	530	FILL
				0.5								
							0.70m					
							Sandy CLAY - medium to high plasticity, brown, fine grained sand.			HP	410	RESIDUAL SOIL
				1.0						HP	420	
										HP	380	
				1.5		CH	With some Clayey SAND pockets, pale brown.	M ~ w_P	VSt - H	HP	380	
							With some Clayey Sandy GRAVEL pockets fine angular, fine to coarse grained sand.			HP	450	
				2.0								
							2.30m					
							ANDESITE - red-brown and dark grey, estimated medium to high strength, highly fractured, trace extremely weathered pockets.					HIGHLY WEATHERED ROCK - SLOW PROGRESS - 1 SCRAPE/50MM
				2.5								
							2.70m					
							ANDESITE - estimated low to medium strength, red-brown and dark grey, semi fractured.	D				HIGHLY WEATHERED ROCK
				3.0								
				3.5			3.50m					
							Hole Terminated at 3.50 m Slow progress					

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

ENGINEERING LOG - TEST PIT

TEST PIT NO: TP11

CLIENT: COMMERCIAL 7 PTY LTD
PAGE: 1 OF 1

PROJECT: PROPOSED MANUFACTURED HOUSING ESTATE
JOB NO: NEW23P-0216

LOCATION: 34 WYNDELLA ROAD, LOCHINVAR NSW
LOGGED BY: BE

DATE: 2/11/23

EQUIPMENT TYPE: 20 TONNE EXCAVATOR
SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 1.0 m
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
E	Not Encountered	0.30m		0		CI	TOPSOIL: Sandy CLAY - medium plasticity, red-brown, fine grained sand, root affected.					TOPSOIL
							0.15m Sandy CLAY - medium to high plasticity, brown to red-brown, fine grained sand.			HP	>600	RESIDUAL SOIL
		BB		0.5						HP	>600	
		0.60m								HP	>600	
							With Clayey SAND pockets.			HP	>600	
				1.0		CH		M < w_P	H			
				1.5						HP	>600	
				2.0			2.00m			HP	>600	
		2.20m					ANDESITE - medium to high strength, pale grey to grey and brown to dark brown, trace orange, fractured.					MODERATELY TO SLIGHTLY WEATHERED ROCK 1 SCRAPE/10MM
		D 2.30m		2.5			2.60m					
							Hole Terminated at 2.60 m Practical Refusal					
				3.0								
				3.5								

LEGEND:

Water
- Water Level (Date and time shown)
- Water Inflow
- Water Outflow

Strata Changes
- Gradational or transitional strata
- Definitive or distict strata change

Notes, Samples and Tests

U_{50}	50mm Diameter tube sample
CBR	Bulk sample for CBR testing
E	Environmental sample (Glass jar, sealed and chilled on site)
ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)
B	Bulk Sample

Field Tests

PID	Photoionisation detector reading (ppm)
DCP(x-y)	Dynamic penetrometer test (test depth interval shown)
HP	Hand Penetrometer test (UCS kPa)

Consistency

		UCS (kPa)
VS	Very Soft	<25
S	Soft	25 - 50
F	Firm	50 - 100
St	Stiff	100 - 200
VSt	Very Stiff	200 - 400
H	Hard	>400
Fb	Friable	

Density

V	Very Loose	Density Index <15%
L	Loose	Density Index 15 - 35%
MD	Medium Dense	Density Index 35 - 65%
D	Dense	Density Index 65 - 85%
VD	Very Dense	Density Index 85 - 100%

Moisture Condition

D	Dry
M	Moist
W	Wet
W_p	Plastic Limit
W_L	Liquid Limit

QT LIB 1.1.GLB Log NON-CORED BOREHOLE - TEST PIT NEW23P-0216 LOGS.GPJ <<DrawingFile>> 20/11/2023 14:57 10.01.00.01 Datgel Lab and In Situ Tool

APPENDIX I:
Tables

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 1 - Soil Analytical Results - Metals, OCPs
34 Wyndella Road, Lochinvar NSW

					Field ID	SS01A	SS01	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
					Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**												
Metals	Arsenic	mg/kg	2	100	100	760	2.6	3.5	3.9	2.8	3.8	8.1	3.8	4.1	3.5	3.5	4.7
	Cadmium	mg/kg	0.4	20		0.5	0.6	3.1	< 0.4	< 0.4	< 0.4	12	< 0.4	0.5	< 0.4	< 0.4	< 0.4
	Hexavalent Chromium, Cr6+	mg/kg	0.5	100		-	<1	-	-	-	-	-	-	-	-	-	-
	Trivalent Chromium, Cr3+	mg/kg	1		640*	-	120	-	-	-	-	-	-	-	-	-	-
	Chromium (total)	mg/kg	5		640*	370	120	100	110	100	110	21	100	74	110	100	86
	Copper	mg/kg	5	6000	270*	570	39	34	44	49	57	11	57	56	68	51	36
	Lead	mg/kg	5	300	1100	18	7.7	11	22	9.8	16	12	12	12	13	11	8.5
	Mercury	mg/kg	5	40		< 0.1	0.1	0.5	< 0.1	< 0.1	< 0.1	1.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400	630*	62	72	66	60	55	57	7.6	58	51	66	49	52
	Zinc	mg/kg	5	7400	2000*	700	110	80	200	180	360	92	110	400	96	360	180
CEC	Cation Exchange Capacity	us/cm	10			-	260	-	-	-	-	-	-	-	-	-	-
pH	pH (1:5 Aqueous extract)	pH units	0.1			-	8	-	-	-	-	-	-	-	-	-	-
OCPs	4.4'-DDD	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	4.4'-DDE	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	4.4'-DDT	mg/kg	0.05		180	-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	a-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Aldrin	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Aldrin and Dieldrin (Total)*	mg/kg	0.05	6		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	b-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Chlordanes - Total	mg/kg	0.1	50		-	-	-	-	-	-	-	< 0.1	-	-	-	< 0.1
	DDT + DDE + DDD (Total)*	mg/kg	0.05	240		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	d-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Dieldrin	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endosulfan I	mg/kg	0.05	270		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endosulfan II	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endosulfan sulphate	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endrin	mg/kg	0.05	10		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endrin aldehyde	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Endrin ketone	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	g-HCH (Lindane)	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Heptachlor	mg/kg	0.05	6		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Heptachlor epoxide	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Hexachlorobenzene (HCB)	mg/kg	0.05	10		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Methoxychlor	mg/kg	0.05	300		-	-	-	-	-	-	-	< 0.05	-	-	-	< 0.05
	Toxaphene	mg/kg	0.5	20		-	-	-	-	-	-	-	< 0.5	-	-	-	< 0.5

Notes

* EIL based on pH of 8 and CEC of 71mg/kg, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic , 50% percentile.

Result — Concentration exceeds adopted HIL/HSL A

Result — Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 1 - Soil Analytical Results - Metals, OCPs
34 Wyndella Road, Lochinvar NSW

					Field ID	SS12	SS13	SS14	SS15	SS16	SS17	SS18	SS19	SS20	SS21	SS22	SS23
					Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**												
Metals	Arsenic	mg/kg	2	100	100	4.5	4.3	5	9.3	4.5	3.6	4.6	4.6	3.5	5.7	4.5	3.1
	Cadmium	mg/kg	0.4	20		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Hexavalent Chromium, Cr6+	mg/kg	0.5	100		-	-	-	-	-	-	<1	-	-	-	-	-
	Trivalent Chromium, Cr3+	mg/kg	1		640*	-	-	-	-	-	-	120	-	-	-	-	-
	Chromium (total)	mg/kg	5		640*	29	35	110	74	53	97	120	68	28	18	18	100
	Copper	mg/kg	5	6000	270*	16	17	43	50	24	59	60	33	16	13	12	33
	Lead	mg/kg	5	300	1100	< 5	6.1	7.7	10	24	6.4	6.1	9.2	< 5	6.7	< 5	7.2
	Mercury	mg/kg	5	40		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400	630*	17	28	65	53	36	76	67	52	26	24	18	59
	Zinc	mg/kg	5	7400	2000*	47	80	73	190	140	110	65	120	58	68	35	67
CEC	Cation Exchange Capacity	us/cm	10			-	-	-	-	-	-	-	-	-	71	-	-
pH	pH (1:5 Aqueous extract)	pH units	0.1			-	-	-	-	-	-	-	-	-	8.7	-	-
OCPs	4.4'-DDD	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	4.4'-DDE	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	4.4'-DDT	mg/kg	0.05		180	-	-	-	-	-	-	-	< 0.05	-	-	-	-
	a-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Aldrin	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Aldrin and Dieldrin (Total)*	mg/kg	0.05	6		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	b-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Chlordanes - Total	mg/kg	0.1	50		-	-	-	-	-	-	-	< 0.1	-	-	-	-
	DDT + DDE + DDD (Total)*	mg/kg	0.05	240		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	d-HCH	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Dieldrin	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endosulfan I	mg/kg	0.05	270		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endosulfan II	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endrin	mg/kg	0.05	10		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endrin aldehyde	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Endrin ketone	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	g-HCH (Lindane)	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Heptachlor	mg/kg	0.05	6		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Heptachlor epoxide	mg/kg	0.05			-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Hexachlorobenzene (HCB)	mg/kg	0.05	10		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Methoxychlor	mg/kg	0.05	300		-	-	-	-	-	-	-	< 0.05	-	-	-	-
	Toxaphene	mg/kg	0.5	20		-	-	-	-	-	-	-	< 0.5	-	-	-	-

Notes

* EIL based on pH of 8 and CEC of 71mg/kg, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic , 50% percentile.

Result — Concentration exceeds adopted HIL/HSL A

Result — Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 1 - Soil Analytical Results - Metals, OCPs
34 Wyndella Road, Lochinvar NSW

					Field ID	SS24	SS25	SS26	SS27	SS28	SS29	SS30	SS31	SS32	SS33	SS34
					Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**											
Metals	Arsenic	mg/kg	2	100	100	2.6	4.9	4.5	4.6	4.1	2.8	3.4	3.4	6.7	3.2	4.7
	Cadmium	mg/kg	0.4	20		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Hexavalent Chromium, Cr6+	mg/kg	0.5	100		-	-	-	-	-	-	<1	-	-	-	-
	Trivalent Chromium, Cr3+	mg/kg	1		640*	-	-	-	-	-	-	300	-	-	-	-
	Chromium (total)	mg/kg	5		640*	54	110	66	80	79	100	300	26	30	58	27
	Copper	mg/kg	5	6000	270*	23	49	40	49	44	59	8.9	5.6	< 5	26	< 5
	Lead	mg/kg	5	300	1100	7.6	6	18	14	14	9.3	15	10	16	12	15
	Mercury	mg/kg	5	40		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400	630*	40	86	50	66	62	51	8.5	9.6	< 5	34	5.1
	Zinc	mg/kg	5	7400	2000*	77	89	81	76	130	54	45	27	10	54	19
CEC	Cation Exchange Capacity	us/cm	10			-	-	-	-	-	-	-	-	-	-	-
pH	pH (1:5 Aqueous extract)	pH units	0.1			-	-	-	-	-	-	-	-	-	-	-
OCPs	4.4'-DDD	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	4.4'-DDE	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	4.4'-DDT	mg/kg	0.05		180	-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	a-HCH	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Aldrin	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Aldrin and Dieldrin (Total)*	mg/kg	0.05	6		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	b-HCH	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Chlordanes - Total	mg/kg	0.1	50		-	-	-	-	-	< 0.1	-	-	-	-	< 0.1
	DDT + DDE + DDD (Total)*	mg/kg	0.05	240		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	d-HCH	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Dieldrin	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endosulfan I	mg/kg	0.05	270		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endosulfan II	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endosulfan sulphate	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endrin	mg/kg	0.05	10		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endrin aldehyde	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Endrin ketone	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	g-HCH (Lindane)	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Heptachlor	mg/kg	0.05	6		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Heptachlor epoxide	mg/kg	0.05			-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Hexachlorobenzene (HCB)	mg/kg	0.05	10		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Methoxychlor	mg/kg	0.05	300		-	-	-	-	-	< 0.05	-	-	-	-	< 0.05
	Toxaphene	mg/kg	0.5	20		-	-	-	-	-	< 0.5	-	-	-	-	< 0.5

Notes

* EIL based on pH of 8 and CEC of 71mg/kg, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic , 50% percentile.

Result — Concentration exceeds adopted HIL/HSL A

Result — Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 1 - Soil Analytical Results - Metals, OCPs
34 Wyndella Road, Lochinvar NSW

Qualtest LABORATORY (NSW) PTY LTD

					Field ID	SP1-1	SP1-2	SP1-3	SP1-4	SP1-5	SP1-6	SP1-7	SP1-8	SP1-9	SP1-10
					Date	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**										
Metals	Arsenic	mg/kg	2	100	100	5.8	6.5	9.2	4.6	6.4	5.4	5.2	5.2	4.3	5.8
	Cadmium	mg/kg	0.4	20		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Hexavalent Chromium, Cr6+	mg/kg	0.5	100		-	-	-	-	-	-	-	-	-	-
	Trivalent Chromium, Cr3+	mg/kg	1		640*	-	-	-	-	-	-	-	-	-	-
	Chromium (total)	mg/kg	5		640*	24	25	48	32	53	45	26	73	110	33
	Copper	mg/kg	5	6000	270*	16	23	16	13	17	19	23	32	20	28
	Lead	mg/kg	5	300	1100	49	65	62	27	46	61	96	13	25	94
	Mercury	mg/kg	5	40		0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.2
	Nickel	mg/kg	5	400	630*	24	29	24	22	26	29	32	44	29	36
	Zinc	mg/kg	5	7400	2000*	120	160	46	44	64	80	220	31	56	260
CEC	Cation Exchange Capacity	us/cm	10			-	-	-	-	-	-	-	-	-	-
pH	pH (1:5 Aqueous extract)	pH units	0.1			-	-	-	-	-	-	-	-	-	-
OCPs	4.4'-DDD	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	4.4'-DDE	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	4.4'-DDT	mg/kg	0.05		180	-	-	-	-	-	-	-	-	-	-
	a-HCH	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Aldrin	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Aldrin and Dieldrin (Total)*	mg/kg	0.05	6		-	-	-	-	-	-	-	-	-	-
	b-HCH	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Chlordanes - Total	mg/kg	0.1	50		-	-	-	-	-	-	-	-	-	-
	DDT + DDE + DDD (Total)*	mg/kg	0.05	240		-	-	-	-	-	-	-	-	-	-
	d-HCH	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Dieldrin	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.05	270		-	-	-	-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Endrin	mg/kg	0.05	10		-	-	-	-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Endrin ketone	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	g-HCH (Lindane)	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.05	6		-	-	-	-	-	-	-	-	-	-
	Heptachlor epoxide	mg/kg	0.05			-	-	-	-	-	-	-	-	-	-
	Hexachlorobenzene (HCB)	mg/kg	0.05	10		-	-	-	-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.05	300		-	-	-	-	-	-	-	-	-	-
	Toxaphene	mg/kg	0.5	20		-	-	-	-	-	-	-	-	-	-

Notes

* EIL based on pH of 8 and CEC of 71mg/kg, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic , 50% percentile.

Result — Concentration exceeds adopted HIL/HSL A

Result — Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 1 - Soil Analytical Results - Metals, OCPs
34 Wyndella Road, Lochinvar NSW

					Field ID	SP2-1	SP3-1	SP4-1	SP4-2	SP4-3	SP4-4	SP4-5
					Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**							
Metals	Arsenic	mg/kg	2	100	100	4.1	3.2	4.2	11	4.2	2.5	16
	Cadmium	mg/kg	0.4	20		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Hexavalent Chromium, Cr6+	mg/kg	0.5	100		-	-	-	-	-	-	-
	Trivalent Chromium, Cr3+	mg/kg	1		640*	-	-	-	-	-	-	-
	Chromium (total)	mg/kg	5		640*	66	53	13	25	33	8.7	27
	Copper	mg/kg	5	6000	270*	25	18	< 5	5.2	22	9.2	< 5
	Lead	mg/kg	5	300	1100	13	9.7	9.1	16	8.6	< 5	25
	Mercury	mg/kg	5	40		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400	630*	31	19	< 5	7.2	33	9.2	< 5
	Zinc	mg/kg	5	7400	2000*	34	27	26	30	130	28	17
CEC	Cation Exchange Capacity	us/cm	10			-	-	-	-	-	-	-
pH	pH (1:5 Aqueous extract)	pH units	0.1			-	-	-	-	-	-	-
OCPs	4.4'-DDD	mg/kg	0.05			-	-	-	-	-	-	-
	4.4'-DDE	mg/kg	0.05			-	-	-	-	-	-	-
	4.4'-DDT	mg/kg	0.05		180	-	-	-	-	-	-	-
	a-HCH	mg/kg	0.05			-	-	-	-	-	-	-
	Aldrin	mg/kg	0.05			-	-	-	-	-	-	-
	Aldrin and Dieldrin (Total)*	mg/kg	0.05	6		-	-	-	-	-	-	-
	b-HCH	mg/kg	0.05			-	-	-	-	-	-	-
	Chlordanes - Total	mg/kg	0.1	50		-	-	-	-	-	-	-
	DDT + DDE + DDD (Total)*	mg/kg	0.05	240		-	-	-	-	-	-	-
	d-HCH	mg/kg	0.05			-	-	-	-	-	-	-
	Dieldrin	mg/kg	0.05			-	-	-	-	-	-	-
	Endosulfan I	mg/kg	0.05	270		-	-	-	-	-	-	-
	Endosulfan II	mg/kg	0.05			-	-	-	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05			-	-	-	-	-	-	-
	Endrin	mg/kg	0.05	10		-	-	-	-	-	-	-
	Endrin aldehyde	mg/kg	0.05			-	-	-	-	-	-	-
	Endrin ketone	mg/kg	0.05			-	-	-	-	-	-	-
	g-HCH (Lindane)	mg/kg	0.05			-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.05	6		-	-	-	-	-	-	-
	Heptachlor epoxide	mg/kg	0.05			-	-	-	-	-	-	-
	Hexachlorobenzene (HCB)	mg/kg	0.05	10		-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.05	300		-	-	-	-	-	-	-
	Toxaphene	mg/kg	0.5	20		-	-	-	-	-	-	-

Notes

* EIL based on pH of 8 and CEC of 71mg/kg, and Clay content 40%, and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, old suburbs with high traffic , 50% percentile.

Result — Concentration exceeds adopted HIL/HSL A

Result — Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 2 - Soil Analytical Results - TRH, BTEX, PAH
34 Wyndella Road, Lochinvar NSW

						Field ID	SP1-1	SP1-5	SP1-10	SS01A	SS01	SS06	SS07	SS09	SS11	SS13
						Date	2/11/2023	2/11/2023	2/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**											
PAHs	Acenaphthene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Acenaphthylene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Anthracene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benz(a)anthracene	mg/kg	0.5				0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(a)pyrene	mg/kg	0.5		0.7		0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.6	3			0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Benzo(b&j)fluoranthene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(g.h.i)perylene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5				0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Chrysene	mg/kg	0.5				0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Dibenz(a.h)anthracene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fluoranthene	mg/kg	0.5				1.2	1	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Fluorene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5				< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Naphthalene	mg/kg	0.5		170		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Phenanthrene	mg/kg	0.5				0.7	< 0.5	0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Pyrene	mg/kg	0.5				1.2	1	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Total PAH	mg/kg	0.5	300			5.4	2	2.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
BTEX	Benzene	mg/kg	0.1	0.7	50		0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Toluene	mg/kg	0.1	480	85		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1	NL	70		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Xylenes - Total	mg/kg	0.3	110	105		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
TRH	Naphthalene	mg/kg	0.5	5			< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	TRH C6-C10	mg/kg	20		180		< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C6-C10 less BTEX (F1)	mg/kg	20	50			< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH >C10-C16	mg/kg	50		120		< 50	100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	280			< 50	100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C16-C34	mg/kg	100		1300		< 100	580	< 100	740	1100	< 100	120	< 100	< 100	< 100
	TRH >C34-C40	mg/kg	100		5600		< 100	< 100	< 100	320	380	< 100	< 100	< 100	< 100	< 100

Notes

NL	Not limiting
Result	Concentration exceeds adopted HIL/HSL A
Result	Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

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Table 2 - Soil Analytical Results - TRH, BTEX, PAH
34 Wyndella Road, Lochinvar NSW

					Field ID	SS15	SS17
					Date	6/11/2023	6/11/2023
Analytes		**Units**	**LOR**	**HIL/HSL A [1]**	**EIL/ESL A [2]**		
PAHs	Acenaphthene	mg/kg	0.5			< 0.5	< 0.5
	Acenaphthylene	mg/kg	0.5			< 0.5	< 0.5
	Anthracene	mg/kg	0.5			< 0.5	< 0.5
	Benz(a)anthracene	mg/kg	0.5			< 0.5	< 0.5
	Benzo(a)pyrene	mg/kg	0.5		0.7	< 0.5	< 0.5
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.6	3		0.6	0.6
	Benzo(b&j)fluoranthene	mg/kg	0.5			< 0.5	< 0.5
	Benzo(g.h.i)perylene	mg/kg	0.5			< 0.5	< 0.5
	Benzo(k)fluoranthene	mg/kg	0.5			< 0.5	< 0.5
	Chrysene	mg/kg	0.5			< 0.5	< 0.5
	Dibenz(a.h)anthracene	mg/kg	0.5			< 0.5	< 0.5
	Fluoranthene	mg/kg	0.5			< 0.5	< 0.5
	Fluorene	mg/kg	0.5			< 0.5	< 0.5
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5			< 0.5	< 0.5
	Naphthalene	mg/kg	0.5		170	< 0.5	< 0.5
	Phenanthrene	mg/kg	0.5			< 0.5	< 0.5
	Pyrene	mg/kg	0.5			< 0.5	< 0.5
	Total PAH	mg/kg	0.5	300		< 0.5	< 0.5
BTEX	Benzene	mg/kg	0.1	0.7	50	< 0.1	< 0.1
	Toluene	mg/kg	0.1	480	85	< 0.1	< 0.1
	Ethylbenzene	mg/kg	0.1	NL	70	< 0.1	< 0.1
	Xylenes - Total	mg/kg	0.3	110	105	< 0.3	< 0.3
TRH	Naphthalene	mg/kg	0.5	5		< 0.5	< 0.5
	TRH C6-C10	mg/kg	20		180	< 20	< 20
	TRH C6-C10 less BTEX (F1)	mg/kg	20	50		< 20	< 20
	TRH >C10-C16	mg/kg	50		120	< 50	< 50
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	280		< 50	< 50
	TRH >C16-C34	mg/kg	100		1300	< 100	< 100
	TRH >C34-C40	mg/kg	100		5600	< 100	< 100

Notes

NL	Not limiting
Result	Concentration exceeds adopted HIL/HSL A
Result	Concentration exceeds the adopted EIL/ESL A

[1] ASC NEPM (2013) Health Investigation & Screening Levels, Residential, Clay 0m to <1m

[2] NEPC (2013) Soil Ecological Investigation & Screening Levels, Residential, Fine Texture

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NEW23P-0216-AA

Table 3: Asbestos Results
34 Wyndella Road, Lochinvar NSW

	Sample ID	SS01A	SS01	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11	SS12	SS13	SS14
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
	HIL/HSL A															
ACM weight (g)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACM weight (kg)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil density (kg/L)		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Soil Volume (L)		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Asbestos Content (%)		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
%w/w ACM in Soil	0.01	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.00	0.00
%w/w FA/AF in Soil	0.001	<0.001%	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
%w/w asbestos in soil calculated using: % asbestos content x bonded ACM (kg) / soil volume (L) x soil density (kg/L)
Result Exceeds adopted criteria
Criteria from ASC NEPM (2013) Table 7 - Health Screening Level (HSL) for Asbestos, Residential

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 3: Asbestos Results
34 Wyndella Road, Lochinvar NSW

	Sample ID	SS15	SS16	SS17	SS18	SS19	SS20	SS21	SS22	SS23	SS24	SS25	SS26	SS27	SS28
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
	HIL/HSL A														
ACM weight (g)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACM weight (kg)		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil density (kg/L)		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Soil Volume (L)		10	10	10	10	10	10	10	10	10	10	10	10	10	10
Asbestos Content (%)		15	15	15	15	15	15	15	15	15	15	15	15	15	15
%w/w ACM in Soil	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%w/w FA/AF in Soil	0.001	-	-	-	-	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	-	-	-

Notes:
%w/w asbestos in soil calculated using: %
Result Exceeds adoptec
Criteria from ASC NEPM (2013) Table 7 - I

AEP Developments Pty Ltd
NEW23P-0216-AA

Table 3: Asbestos Results
34 Wyndella Road, Lochinvar NSW

	Sample ID	SS29	SS30	SS31	SS32	SS33	SS34	SP1-1	SP1-2	SP1-3	SP1-4	SP1-5	SP1-6	SP1-7	SP1-8
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023	2/11/2023
	HIL/HSL A														
ACM weight (g)		0	0	0	0	0	0	0	226	0	0	0	66	0	18
ACM weight (kg)		0	0	0	0	0	0	0	0.226	0	0	0	0.066	0	0.018
Soil density (kg/L)		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Soil Volume (L)		10	10	10	10	10	10	10	10	10	10	10	10	10	10
Asbestos Content (%)		15	15	15	15	15	15	15	15	15	15	15	15	15	15
%w/w ACM in Soil	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.06	0.00	0.02
%w/w FA/AF in Soil	0.001	-	-	<0.001%	-	-	-	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	0.13	<0.001%

Notes:
%w/w asbestos in soil calculated using: %
Result Exceeds adoptec
Criteria from ASC NEPM (2013) Table 7 - I

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NEW23P-0216-AA

Table 3: Asbestos Results
34 Wyndella Road, Lochinvar NSW

	Sample ID	SP1-9	SP1-10	SP2-1	SP3-1	SP4-1	SP4-2	SP4-3	SP4-4	SP4-5
	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	2/11/2023	2/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023	6/11/2023
	HIL/HSL A									
ACM weight (g)		0	0	0	0	0	0	0	0	0
ACM weight (kg)		0	0	0	0	0	0	0	0	0
Soil density (kg/L)		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Soil Volume (L)		10	10	10	10	10	10	10	10	10
Asbestos Content (%)		15	15	15	15	15	15	15	15	15
%w/w ACM in Soil	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%w/w FA/AF in Soil	0.001	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%	<0.001%

Notes:
%w/w asbestos in soil calculated using: %
Result Exceeds adoptec
Criteria from ASC NEPM (2013) Table 7 - I

Table 4: Surface Water Analytical Results
34 Wyndella Road, Lochinvar NSW

						Field ID	Field ID	SW01
						Date	Date	6/11/2023
Analytes		Units	EQL	Aquatic Ecosystem[1]	Irrigation2[##]	Stockwatering[3]		
Metals	Arsenic	mg/L	5	0.013	20	0.5	0.001	
	Cadmium	mg/L	0.1	0.0002	0.05	0.01	< 0.0002	
	Chromium	mg/L	0.05	0.001	1	1	0.001	
	Copper	mg/L	0.5	0.0014	5	0.4	0.001	
	Lead	mg/L	0.001	0.0034	5	0.1	< 0.001	
	Mercury	mg/L	0.001	0.00006	0.002	0.002	< 0.0001	
	Nickel	mg/L	0.001	0.011	2	1	< 0.001	
	Zinc	mg/L	0.005	0.008	5	20	< 0.005	
OCP	4.4'-DDD	mg/L	0.0001				< 0.0002	
	4.4'-DDE	mg/L	0.0001				< 0.0002	
	4.4'-DDT	mg/L	0.0001	0.006			< 0.0002	
	a-HCH	mg/L	0.0001				< 0.0002	
	Aldrin	mg/L	0.0001				< 0.0002	
	Dieldrin	mg/L	0.0001				< 0.0002	
	b-HCH	mg/L	0.0001				< 0.0002	
	Chlordanes - Total	mg/L	0.001	0.03			< 0.002	
	d-HCH	mg/L	0.0001				< 0.0002	
	Endosulfan I	mg/L	0.0001	0.03			< 0.0002	
	Endosulfan II	mg/L	0.0001				< 0.0002	
	Endosulfan sulphate	mg/L	0.0001				< 0.0002	
	Endrin	mg/L	0.0001	0.01			< 0.0002	
	Endrin aldehyde	mg/L	0.0001				< 0.0002	
	Endrin ketone	mg/L	0.0001				< 0.0002	
	g-HCH (Lindane)	mg/L	0.0001	0.2			< 0.0002	
	Heptachlor	mg/L	0.0001	0.01			< 0.0002	
	Heptachlor epoxide	mg/L	0.0001				< 0.0002	
	Hexachlorobenzene	mg/L	0.0001				< 0.0002	
	Methoxychlor	mg/L	0.0001				< 0.0002	
	Toxaphene	mg/L	0.01	0.1			< 0.005	

Notes:

Concentration exceeds the Protection of 95-99% of species in Freshwater trigger values

Concentration exceeds the Irrigation trigger values

Concentration exceeds the Stockwatering trigger values

Italics LOR exceeds adopted criteria

** Low reliability value - ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

a. Conservatively assumes xylene is p-xylene.

Based on short-term trigger values (STV) - Short term use, up to 20 years

1 ANZECC (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

2 ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Tables 4.2.10 and 4.2.11

3 ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Table 4.3.2

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NEW23P-0216-AA

Table 5 - Quality Control Results
34 Wyndella Road, Lochinvar NSW

		Sample ID		SS01	D.6.11.23	RPD %
		Date		6/11/2023	6/11/2023	
		Type		Primary	Duplicate	
Analytes		**Soil Units**	**LOR**			
Metals	Arsenic	mg/kg	2	2.6	3.1	18
	Cadmium	mg/kg	0.4	0.6	0.7	15
	Chromium	mg/kg	5	120	130	8
	Copper	mg/kg	5	39	42	7
	Lead	mg/kg	5	7.7	8.3	8
	Mercury	mg/kg	0.1	0.1	< 0.1	0
	Nickel	mg/kg	5	72	78	8
	Zinc	mg/kg	5	110	110	0
PAHs	Acenaphthene	mg/kg	0.5	< 0.5	< 0.5	0
	Acenaphthylene	mg/kg	0.5	< 0.5	< 0.5	0
	Anthracene	mg/kg	0.5	< 0.5	< 0.5	0
	Benz(a)anthracene	mg/kg	0.5	< 0.5	< 0.5	0
	Benzo(a)pyrene	mg/kg	0.5	< 0.5	< 0.5	0
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.6	0.6	0.6	0
	Benzo(b&j)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0
	Benzo(g.h.i)perylene	mg/kg	0.5	< 0.5	< 0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0
	Chrysene	mg/kg	0.5	< 0.5	< 0.5	0
	Dibenz(a.h)anthracene	mg/kg	0.5	< 0.5	< 0.5	0
	Fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0
	Fluorene	mg/kg	0.5	< 0.5	< 0.5	0
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5	< 0.5	< 0.5	0
	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0
	Phenanthrene	mg/kg	0.5	< 0.5	< 0.5	0
	Pyrene	mg/kg	0.5	< 0.5	< 0.5	0
	Total PAH	mg/kg	0.5	< 0.5	< 0.5	0
BTEX	Benzene	mg/kg	0.1	< 0.1	< 0.1	0
	Toluene	mg/kg	0.1	< 0.1	< 0.1	0
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	0
	Xylenes - Total	mg/kg	0.3	< 0.3	< 0.3	0
TRH	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0
	TRH C6-C10	mg/kg	20	< 20	< 20	0
	TRH C6-C10 less BTEX (F1)	mg/kg	20	< 20	< 20	0
	TRH >C10-C16	mg/kg	50	< 50	< 50	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	< 50	< 50	0
	TRH >C16-C34	mg/kg	100	1100	1400	24
	TRH >C34-C40	mg/kg	100	380	480	23

*RPDs have only been considered where a concentration is greater than 10 times the LOR.
**High RPDs are in bold (Acceptable RPD range is 30% (>10 x LOR))

APPENDIX J:
Data Validation Report

QA/QC DATA VALIDATION REPORT
JOB NO.: NEW23P-0216-AA – PRELIMINARY & DETAILED SITE INVESTIGATION

Eurofins report: 1042040-S, 1042040-AID, 1042040-W, 1046255-S

1. SAMPLE HANDLING

Item	Yes/No	Comments
Were the sample holding times met?	Yes	-
Were the samples in proper custody between collection in the field and reaching the laboratory?	Yes	-
Were the samples properly and adequately preserved?	Yes	-
Were the samples received by the laboratory in good condition?	Yes	-

Sampling Handling was:

Satisfactory :	✓	**Partially Satisfactory:**	**Unsatisfactory:**

2. PRECISION AND ACCURACY ASSESSMENT

Item	Yes/No	Comment
Was a NATA registered laboratory used?	Yes	-
Did the laboratory perform the requested tests?	Yes	-
Were the laboratory methods adopted NATA endorsed?	Yes	-
Were the appropriate test procedures followed?	Yes	-
Were the reporting limits satisfactory?	Yes	-
Was the NATA seal on the reports?	Yes	-
Were the reports signed by an authorised person?	Yes	-

Laboratory Precision and Accuracy was:

Satisfactory :	✓	**Partially Satisfactory:**	**Unsatisfactory:**

3. FIELD QA/QC

Soil Samples

No. Samples Analysed	52
Duplicates	1
Triplicates	0
Trip Blanks	0
Wash Blanks	0
Trip Spikes	0

No. Days Sampling

Item	Soil
Number of Days Sampling	2
Number of Sampling Events	2

Field Duplicates

Item	Yes/No	Comments
Were an adequate number of field duplicates collected?	No	One duplicate sample was collected, at a rate of 2%. Sampling was carried out by one person, using the same methods. Based on this, it is considered the absence of duplicates does not affect the outcome of the assessment.
Were RPDs within control limits? No Limit for 5-10 x EQL and 30% for >10 x EQL	Yes	-

Trip Blanks/Trip Spikes

Item	Yes/No	Comments
Were an adequate number of trip blanks and trip spikes collected?	Yes	No trip blanks or spikes were collected, as volatiles were not a primary contaminant of concern
Were the trip blanks free of contaminants?	NA	
Were the trip spikes within recovery limits (between 80% and 120%)	NA	

Rinsate Samples

Item	Yes/No	Comments
Were an adequate number of rinsate samples used? (1 per day of using reusable sampling equipment – trowel, hand auger etc)	No	No wash blanks were collected. Re-useable sampling equipment was decontaminated between sampling locations. The results showed concentrations below the criteria, with the exception of metals in one sample, and asbestos in a stockpile. Based on this, cross-contamination has not occurred, and the absence of a wash blank does not affect the data usability.

Were the rinsate samples free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	NA	

Field QC was:

Satisfactory :	✓	**Partially Satisfactory:**	**Unsatisfactory:**

4. LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

A) Type of QA/QC Sample	Yes/No	Comments
Laboratory Blanks/Reagent Blanks (at least 1 per batch)	Yes	
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples)	Yes	
Matrix Spikes, Matrix Spike Duplicates (1 for each soil type)	Yes	
Laboratory Control Spike	Yes	
Surrogate (where appropriate)	Yes	

Item	Yes/ No	Comments
B) Were the laboratory blanks and/or reagent blanks free of contamination?	Yes	
C) Were the spike recoveries within control limits? *150%)*	Yes	
D) Were the RPDs of the laboratory duplicates within control limits?	Yes	A range of metals, PAHs, and TRH for duplicate sample were outside control limits. The lab quoted Q15 which states "*The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report*". Based on this the duplicate RPDs are not considered to affect data usability.
E) Were the surrogate recoveries within control limits?	Yes	

Laboratory Internal QA/QC was:

Satisfactory :	✓	**Partially Satisfactory:**	**Unsatisfactory:**

5. DATA USABILITY

Item	Yes/No	Comments

Was the data directly usable?	Yes	
Was the data usable with the following corrections/modifications? (see comments)	NA	
Was the data not usable?	NA	

APPENDIX K:
Laboratory Documentation

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ **Sydney Laboratory** Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com

☐ **Brisbane Laboratory** Unit 1 21 Smallwood Place Murarrie QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com

☐ **Perth Laboratory** Unit 2 91 Leach Highway Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com

☐ **Melbourne Laboratory** 6 Monterey Road Dandenong South VIC 3175 03 8564 5000 EnviroSampleVic@eurofins.com

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Calinan
Handed over by	
Email for Invoice	accounts@qualtest.com.au
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au

Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers Change container type & size if necessary.

Required Turnaround Time (TAT) Default will be 5 days if not ticked.

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦ ☐ Same day♦ ☐ 1 day♦ ☐ 2 days♦ ☐ 3 days♦ ☑ 5 days (Standard) ☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SP1-1	2/11/23	SOIL	X	X	X	X							1	1	
2	SP1-2	2/11/23	SOIL	X	X									1	1	
3	SP1-3	2/11/23	SOIL	X	X									1	1	
4	SP1-4	2/11/23	SOIL	X	X									1	1	
5	SP1-5	2/11/23	SOIL	X	X	X								1	1	
6	SP1-6	2/11/23	SOIL	X	X									1	1	
7	SP1-7	2/11/23	SOIL	X	X									1	1	
8	SP1-8	2/11/23	SOIL	X	X									1	1	
9	SP1-9	2/11/23	SOIL	X	X									1	1	
10	SP1-10	2/11/23	SOIL	X	X	X								1	1	
	Total Counts			10	10	3	1							10	10	page 1/2

Method of Shipment ☐ Courier (#) ☐ Hand Delivered ☐ Postal Name: Lewis Calinan Signature: Date: 7-11-23 Time:

Laboratory Use Only

Received By	Jandan	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date: 7-11	Time: 230	Temperature	12.5
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date:	Time:	Report №	1642010

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz	Sampler(s)	Lewis Calinan
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel	Handed over by	
Contact Name	Libby Betz					Email for Invoice	accounts@qualtest.com.au
Phone №						Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au
Special Directions							
Purchase Order							
Quote ID №	180622QUAN-3						

Analyses: Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers: Change container type & size if necessary.

Required Turnaround Time (TAT): Default will be 5 days if not ticked. ♦Surcharge will apply

- ☐ Overnight (reporting by 9am)♦
- ☐ Same day♦ ☐ 1 day♦
- ☐ 2 days♦ ☐ 3 days♦
- ☑ 5 days (Standard)
- ☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Asbestos (w/w%)	Asbestos ID	Suite B7 (TRH, BTEX, PAH, Metals)	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	TP10 0.2-1.0	2/11/23	SOIL										1	1	
2	SP1-PACM	2/11/23	SOIL											1	
3															
4															
5															
6															
7															
8															
9															
10															
			Total Counts										1	2	page 1/2

Method of Shipment	☐ Courier (#) ☐ Hand Delivered ☐ Postal	Name	Lewis Callinan	Signature	[signature]	Date	7.11.23	Time	
Laboratory Use Only — Received By	JRandall	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature [signature]	Date 7-11	Time 230	Temperature	12.5
Laboratory Use Only — Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Report №	

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 Pr1 Leach Highway Kewdale, WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

3/7

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PDSI - Lochinvar	EDD Format ESdat, EQuIS etc	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Callinan				
Handed over by					
Email for Invoice	accounts@qualtest.com.au				
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au				

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing

Containers — Change container type & size if necessary

Required Turnaround Time (TAT) — Default will be 5 days if not ticked

♦Surcharge will apply
☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	OCPs	Suite B4 (TRH, BTEX, PAH)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SS01	6/11/23	SOIL					X								1	1	
2	SS02	6/11/23	SOIL	X												1	1	
3	SS03	6/11/23	SOIL	X												1	1	
4	SS04	6/11/23	SOIL	X												1	1	
5	SS05	6/11/23	SOIL	X												1	1	
6	SS06	6/11/23	SOIL					X								1	1	
7	SS07	6/11/23	SOIL			X		X								1	1	
8	SS08	6/11/23	SOIL	X												1	1	
9	SS09	6/11/23	SOIL					X								1	1	
10	SS10	6/11/23	SOIL	X												1	1	
	Total Counts			6		1		4								10	10	page 1/2

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal — Name: Lewis Callinan — Signature — Date: 7-11-23 — Time:

Laboratory Use Only

Received By	Skandali	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 7-11	Time 230	Temperature 12.5
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report № 1042940

Eurofins Environment Testing Australia Pty Ltd

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CHAIN OF CUSTODY RECORD

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☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSamplePWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PDSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Calinan	
Handed over by		
Email for Invoice	accounts@qualtest.com.au	
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au	

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked. ♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	OCPs	Suite B4 (TRH, BTEX, PAH)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SS11	6/11/23	SOIL			X		X								1	1	
2	SS12	6/11/23	SOIL	X												1	1	
3	SS13	6/11/23	SOIL					X								1	1	
4	SS14	6/11/23	SOIL	X												1	1	
5	SS15	6/11/23	SOIL					X								1	1	
6	SS16	6/11/23	SOIL	X												1	1	
7	SS17	6/11/23	SOIL					X								1	1	
8	SS18	6/11/23	SOIL	X												1	1	
9	SS19	6/11/23	SOIL	X	X	X										1	1	
10	SS20	6/11/23	SOIL	X	X											1	1	
		Total Counts		6	2	2		4								10	10	page 1/2

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal — Name: Lewis Calinan — Signature: — Date: 7-11-23 — Time:

Laboratory Use Only						
Received By	Jlandau	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date 7-11	Time 2:30	Temperature 12.3
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date	Time	Report № 104240

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 57 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PDSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Calinan	
Handed over by		
Email for Invoice	accounts@qualtest.com.au	
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au	

Analyses — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Charge container type & size if necessary

Required Turnaround Time (TAT) — Default will be 5 days if not ticked. ♦Surcharge will apply

- ☐ Overnight (reporting by 9am)♦
- ☐ Same day♦ ☐ 1 day♦
- ☐ 2 days♦ ☐ 3 days♦
- ☑ 5 days (Standard)
- ☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	OCPs	Suite B4 (TRH, BTEX, PAH)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SS21	6/11/23	SOIL	X	X				X							1	1	
2	SS22	6/11/23	SOIL	X	X											1	1	
3	SS23	6/11/23	SOIL	X	X											1	1	
4	SS24	6/11/23	SOIL	X	X											1	1	
5	SS25	6/11/23	SOIL	X	X											1	1	
6	SS26	6/11/23	SOIL	X												1	1	
7	SS27	6/11/23	SOIL	X												1	1	
8	SS28	6/11/23	SOIL	X												1	1	
9	SS29	6/11/23	SOIL	X		X										1	1	
10	SS30	6/11/23	SOIL	X												1	1	
	Total Counts			10	5	1			1							10	10	page 1/2

Method of Shipment: ☐ Courier (#) ☑ Hand Delivered ☐ Postal — Name: Lewis Callinan — Signature: — Date: 7-11-23 — Time:

Laboratory Use Only

Received By	Dandan	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 7-11	Time 2.30	Temperature 12.5
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time	Report № 1042140

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CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing | ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

0/7

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PDSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Calinan				
Handed over by					
Email for Invoice	accounts@qualtest.com.au				
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscalilnan@qualtest.com.au				

Analyses (Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing)

Containers (Change container type & size if necessary)

Required Turnaround Time (TAT) (Default will be 5 days if not ticked.)

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	OCPs	Suite B4 (TRH, BTEX, PAH)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SS31	6/11/23	SOIL	X	X											1	1	
2	SS32	6/11/23	SOIL	X												1	1	
3	SS33	6/11/23	SOIL	X												1	1	
4	SS34	6/11/23	SOIL	X		X										1	1	
5	SP2-1	6/11/23	SOIL	X	X											1	1	
6	SP3-1	6/11/23	SOIL	X	X											1	1	
7	SP4-1	6/11/23	SOIL	X	X											1	1	
8	SP4-2	6/11/23	SOIL	X	X											1	1	
9	SP4-3	6/11/23	SOIL	X	X											1	1	
10	SP4-4	6/11/23	SOIL	X	X											1	1	
	Total Counts			10	7	1										10	10	page 1/2

Method of Shipment	☐ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Lewis Calinan	Signature	Date 7/11/23 Time
Laboratory Use Only	Received By	Jlandall	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 7-11	Time 2:30
	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time

Temperature 12.5

Report № 1042040

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarrie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVIC@eurofins.com

Company	Qualtest	Project №	NEW23P-0216	Project Manager	Libby Betz
Address	2 Murray Dwyer Circuit NSW 2304	Project Name	PDSI - Lochinvar	EDD Format (ESdat, EQuIS etc)	Excel
Contact Name	Libby Betz				
Phone №					
Special Directions					
Purchase Order					
Quote ID №	180622QUAN-3				

Sampler(s)	Lewis Calinan				
Handed over by					
Email for Invoice	accounts@qualtest.com.au				
Email for Results	libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au lewiscallinan@qualtest.com.au				

Analytes — Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.

Containers — Change container type & size if necessary.

Required Turnaround Time (TAT) — Default will be 5 days if not ticked.

♦Surcharge will apply

☐ Overnight (reporting by 9am)♦
☐ Same day♦ ☐ 1 day♦
☐ 2 days♦ ☐ 3 days♦
☑ 5 days (Standard)
☐ Other( )

№	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)	Metals M8	Asbestos (w/w%)	OCPs	Suite B4 (TRH, BTEX, PAH)	Suite B7 (TRH, BTEX, PAH, Metals)	pH and CEC	500mL Plastic	250mL Plastic	125mL Plastic	200mL Amber Glass	40mL VOA vial	500mL PFAS Bottle	Jar (Glass or HDPE)	Other (Asbestos AS4964, WA Guidelines)	Sample Comments / Dangerous Goods Hazard Warning
1	SP4-5	6/11/23	SOIL	X	X											1	1	
2	D.6.11.23	6/11/23	SOIL					X								1		
3	SW01	6/11/23	SOIL	X		X						1	1	2				
4	SS01A	6/11/23	SOIL		X			X								1	1	
5																		
6																		
7																		
8																		
9																		
10																		
	Total Counts			2	2	1		2				1	1	2		3	2	page 1/2

Method of Shipment: ☐ Courier (#) ☐ Hand Delivered ☐ Postal

Name: Lewis Calinan Signature: Date: 7-11-23 Time:

Laboratory Use Only

Received By	Jkandall	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date 7-11	Time 2:30
Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature		Date	Time

Temperature: 12.5 Report № 164240

Eurofins Environment Testing Australia Pty Ltd

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.

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Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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ABN: 91 05 0159 898

Perth
46-48 Banksia Road
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IANZ# 1327	IANZ# 1290	IANZ# 1402

Sample Receipt Advice

Company name:	Qualtest
Contact name:	Libby Betz
Project name:	PSI - LOCHINVAR
Project ID:	NEW23P-0216
Turnaround time:	5 Day
Date/Time received	Nov 7, 2023 2:30 PM
Eurofins reference	1042040

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

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Libby Betz - libbybetz@qualtest.com.au.

Note: A copy of these results will also be delivered to the general Qualtest email address.

Certificate of Analysis

Environment Testing

NATA Accredited
Accreditation Number 1261
Site Number 18217

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.

Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Attention:	Libby Betz
Report	1042040-AID
Project Name	PSI - LOCHINVAR
Project ID	NEW23P-0216
Received Date	Nov 07, 2023
Date Reported	Nov 16, 2023

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 PSI - LOCHINVAR
Project ID NEW23P-0216
Date Sampled Nov 02, 2023 to Nov 06, 2023
Report 1042040-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SP1-1	23-No0016816	Nov 02, 2023	Approximate Sample 920g Sample consisted of: Brown coarse-grained sandy soil, cement, brick, coal and rocks	ACM: Chrysotile and amosite asbestos detected in fibre cement material. Approximate raw weight of ACM = 16g Total estimated asbestos content in ACM = 1.6g* Total estimated asbestos concentration in ACM = 0.18% w/w* Organic fibre detected. No trace asbestos detected.
SP1-2	23-No0016817	Nov 02, 2023	Approximate Sample 790g Sample consisted of: Brown coarse-grained sandy soil, cement, brick, coal, debris, corroded metal and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-3	23-No0016818	Nov 02, 2023	Approximate Sample 706g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-4	23-No0016819	Nov 02, 2023	Approximate Sample 663g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-5	23-No0016820	Nov 02, 2023	Approximate Sample 667g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-6	23-No0016821	Nov 02, 2023	Approximate Sample 661g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SP1-7	23-No0016822	Nov 02, 2023	Approximate Sample 746g Sample consisted of: Brown coarse grained sandy clayey soil, bitumen, cement and rocks	ACM: Chrysotile asbestos detected in fibre cement material. Approximate raw weight of ACM = 19g Total estimated asbestos content in ACM = 0.95g* Total estimated asbestos concentration in ACM = 0.13% w/w* Organic fibre detected. No trace asbestos detected.
SP1-8	23-No0016823	Nov 02, 2023	Approximate Sample 642g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-9	23-No0016824	Nov 02, 2023	Approximate Sample 684g Sample consisted of: Brown fine-grained clayey soil, bitumen, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP1-10	23-No0016825	Nov 02, 2023	Approximate Sample 808g Sample consisted of: Brown coarse grained sandy clayey soil, plaster, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS19	23-No0016844	Nov 06, 2023	Approximate Sample 593g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS20	23-No0016845	Nov 06, 2023	Approximate Sample 655g Sample consisted of: Brown coarse grained sandy clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS21	23-No0016846	Nov 06, 2023	Approximate Sample 667g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS22	23-No0016847	Nov 06, 2023	Approximate Sample 623g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS23	23-No0016848	Nov 06, 2023	Approximate Sample 519g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS24	23-No0016849	Nov 06, 2023	Approximate Sample 393g Sample consisted of: Grey fine-grained clayey soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS25	23-No0016850	Nov 06, 2023	Approximate Sample 530g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS31	23-No0016856	Nov 06, 2023	Approximate Sample 494g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SP2-1	23-No0016860	Nov 06, 2023	Approximate Sample 511g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP3-1	23-No0016861	Nov 06, 2023	Approximate Sample 474g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP4-1	23-No0016862	Nov 06, 2023	Approximate Sample 571g Sample consisted of: Brown coarse grained sandy clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP4-2	23-No0016863	Nov 06, 2023	Approximate Sample 460g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP4-3	23-No0016864	Nov 06, 2023	Approximate Sample 612g Sample consisted of: Brown coarse grained sandy clayey soil, brick, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP4-4	23-No0016865	Nov 06, 2023	Approximate Sample 625g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SP4-5	23-No0016866	Nov 06, 2023	Approximate Sample 629g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS01A	23-No0016869	Nov 06, 2023	Approximate Sample 281g Sample consisted of: Brown fine-grained clayey soil, corroded metal, organic debris and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

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
Asbestos - LTM-ASB-8020	Sydney	Nov 08, 2023	Indefinite

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: PSI - LOCHINVAR
Project ID: NEW23P-0216

Order No.:
Report #: 1042040
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 7, 2023 2:30 PM
Due: Nov 14, 2023
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	SP1-1	Nov 02, 2023		Soil	N23-No0016816	X		X			X	X	X
2	SP1-2	Nov 02, 2023		Soil	N23-No0016817	X				X	X		
3	SP1-3	Nov 02, 2023		Soil	N23-No0016818	X				X	X		
4	SP1-4	Nov 02, 2023		Soil	N23-No0016819	X				X	X		
5	SP1-5	Nov 02, 2023		Soil	N23-No0016820	X					X		X
6	SP1-6	Nov 02, 2023		Soil	N23-No0016821	X				X	X		
7	SP1-7	Nov 02, 2023		Soil	N23-No0016822	X				X	X		
8	SP1-8	Nov 02, 2023		Soil	N23-No0016823	X				X	X		
9	SP1-9	Nov 02, 2023		Soil	N23-No0016824	X				X	X		
10	SP1-10	Nov 02, 2023		Soil	N23-No0016825	X					X		X
11	SS01	Nov 06, 2023		Soil	N23-No0016826						X		X
12	SS02	Nov 06, 2023		Soil	N23-No0016827					X	X		

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
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Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
13	SS03	Nov 06, 2023		Soil	N23-No0016828					X	X		
14	SS04	Nov 06, 2023		Soil	N23-No0016829					X	X		
15	SS05	Nov 06, 2023		Soil	N23-No0016830					X	X		
16	SS06	Nov 06, 2023		Soil	N23-No0016831						X		X
17	SS07	Nov 06, 2023		Soil	N23-No0016832				X		X		X
18	SS08	Nov 06, 2023		Soil	N23-No0016833					X	X		
19	SS09	Nov 06, 2023		Soil	N23-No0016834						X		X
20	SS10	Nov 06, 2023		Soil	N23-No0016835					X	X		
21	SS11	Nov 06, 2023		Soil	N23-No0016836				X		X		X
22	SS12	Nov 06, 2023		Soil	N23-No0016837					X	X		
23	SS13	Nov 06, 2023		Soil	N23-No0016838						X		X
24	SS14	Nov 06, 2023		Soil	N23-No0016839					X	X		
25	SS15	Nov 06, 2023		Soil	N23-No0016840						X		X
26	SS16	Nov 06, 2023		Soil	N23-No0016841					X	X		
27	SS17	Nov 06, 2023		Soil	N23-No0016842						X		X

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Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
28	SS18	Nov 06, 2023		Soil	N23-No0016843					X	X		
29	SS19	Nov 06, 2023		Soil	N23-No0016844	X			X	X	X		
30	SS20	Nov 06, 2023		Soil	N23-No0016845	X				X	X		
31	SS21	Nov 06, 2023		Soil	N23-No0016846	X		X		X	X	X	
32	SS22	Nov 06, 2023		Soil	N23-No0016847	X				X	X		
33	SS23	Nov 06, 2023		Soil	N23-No0016848	X				X	X		
34	SS24	Nov 06, 2023		Soil	N23-No0016849	X				X	X		
35	SS25	Nov 06, 2023		Soil	N23-No0016850	X				X	X		
36	SS26	Nov 06, 2023		Soil	N23-No0016851					X	X		
37	SS27	Nov 06, 2023		Soil	N23-No0016852					X	X		
38	SS28	Nov 06, 2023		Soil	N23-No0016853					X	X		
39	SS29	Nov 06, 2023		Soil	N23-No0016854				X	X	X		
40	SS30	Nov 06, 2023		Soil	N23-No0016855					X	X		
41	SS31	Nov 06, 2023		Soil	N23-No0016856	X				X	X		
42	SS32	Nov 06, 2023		Soil	N23-No0016857					X	X		

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: PSI - LOCHINVAR
Project ID: NEW23P-0216

Order No.:
Report #: 1042040
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 7, 2023 2:30 PM
Due: Nov 14, 2023
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
43	SS33	Nov 06, 2023		Soil	N23-No0016858					X	X		
44	SS34	Nov 06, 2023		Soil	N23-No0016859				X	X	X		
45	SP2-1	Nov 06, 2023		Soil	N23-No0016860	X				X	X		
46	SP3-1	Nov 06, 2023		Soil	N23-No0016861	X				X	X		
47	SP4-1	Nov 06, 2023		Soil	N23-No0016862	X				X	X		
48	SP4-2	Nov 06, 2023		Soil	N23-No0016863	X				X	X		
49	SP4-3	Nov 06, 2023		Soil	N23-No0016864	X				X	X		
50	SP4-4	Nov 06, 2023		Soil	N23-No0016865	X				X	X		
51	SP4-5	Nov 06, 2023		Soil	N23-No0016866	X				X	X		
52	D.6.11.23	Nov 06, 2023		Soil	N23-No0016867						X		X
53	SW01	Nov 06, 2023		Water	N23-No0016868				X	X			
54	SS01A	Nov 06, 2023		Soil	N23-No0016869	X					X		X
55	TP10 0.2-1.0	Nov 02, 2023		Soil	N23-No0016870		X						
56	SP1-PACM	Nov 02, 2023		Building Materials	N23-No0016871		X						

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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WA 6106
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Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: PSI - LOCHINVAR
Project ID: NEW23P-0216

Order No.:
Report #: 1042040
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 7, 2023 2:30 PM
Due: Nov 14, 2023
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254					X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X	X	X	X
Test Counts	26	2	2	6	41	53	2	13

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. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
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:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V** = **r** x **t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to “non-bonded / friable”.
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w)**.
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
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.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
Sampling	Unless otherwise stated Eurofins are not responsible for sampling equipment or the sampling process.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
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* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

23-No0016849, 23-No0016856, 23-No0016861, 23-No0016863, 23-No0016869: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

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

Asbestos Counter/Identifier:

Laxman Dias	Senior Analyst-Asbestos

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Libby Betz**

Report **1042040-S**
Project name PSI - LOCHINVAR
Project ID NEW23P-0216
Received Date Nov 07, 2023

Client Sample ID			**SP1-1**	**SP1-2**	**SP1-3**	**SP1-4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**N23-No0016816**	**N23-No0016817**	**N23-No0016818**	**N23-No0016819**
Date Sampled			**Nov 02, 2023**	**Nov 02, 2023**	**Nov 02, 2023**	**Nov 02, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	56	-	-	-
TRH C29-C36	50	mg/kg	91	-	-	-
TRH C10-C36 (Total)	50	mg/kg	147	-	-	-
BTEX						
Benzene	0.1	mg/kg	0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	66	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.9	-	-	-
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	0.6	-	-	-
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	0.6	-	-	-
Chrysene	0.5	mg/kg	0.6	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	1.2	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			SP1-1	SP1-2	SP1-3	SP1-4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016816	N23-No0016817	N23-No0016818	N23-No0016819
Date Sampled			Nov 02, 2023	Nov 02, 2023	Nov 02, 2023	Nov 02, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	0.7	-	-	-
Pyrene	0.5	mg/kg	1.2	-	-	-
Total PAH*	0.5	mg/kg	5.4	-	-	-
2-Fluorobiphenyl (surr.)	1	%	76	-	-	-
p-Terphenyl-d14 (surr.)	1	%	73	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	260	-	-	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	8.0	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	5.8	6.5	9.2	4.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	24	25	48	32
Copper	5	mg/kg	16	23	16	13
Lead	5	mg/kg	49	65	62	27
Mercury	0.1	mg/kg	0.2	0.2	< 0.1	< 0.1
Nickel	5	mg/kg	24	29	24	22
Zinc	5	mg/kg	120	160	46	44
Cation Exchange Capacity						
Cation Exchange Capacity	0.5	meq/100g	26	-	-	-
Sample Properties						
% Moisture	1	%	4.5	4.1	10	12

Client Sample ID			SP1-5	SP1-6	SP1-7	SP1-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016820	N23-No0016821	N23-No0016822	N23-No0016823
Date Sampled			Nov 02, 2023	Nov 02, 2023	Nov 02, 2023	Nov 02, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	61	-	-	-
TRH C15-C28	50	mg/kg	530	-	-	-
TRH C29-C36	50	mg/kg	130	-	-	-
TRH C10-C36 (Total)	50	mg/kg	721	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	98	-	-	-

Client Sample ID			SP1-5	SP1-6	SP1-7	SP1-8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016820	N23-No0016821	N23-No0016822	N23-No0016823
Date Sampled			Nov 02, 2023	Nov 02, 2023	Nov 02, 2023	Nov 02, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	100	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
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	1.0	-	-	-
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	1.0	-	-	-
Total PAH*	0.5	mg/kg	2.0	-	-	-
2-Fluorobiphenyl (surr.)	1	%	84	-	-	-
p-Terphenyl-d14 (surr.)	1	%	80	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	100	-	-	-
TRH >C16-C34	100	mg/kg	580	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	680	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	6.4	5.4	5.2	5.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	53	45	26	73
Copper	5	mg/kg	17	19	23	32
Lead	5	mg/kg	46	61	96	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1
Nickel	5	mg/kg	26	29	32	44
Zinc	5	mg/kg	64	80	220	31
Sample Properties						
% Moisture	1	%	9.2	11	8.0	16

Client Sample ID			SP1-9	SP1-10	SS01	SS02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016824	N23-No0016825	N23-No0016826	N23-No0016827
Date Sampled			Nov 02, 2023	Nov 02, 2023	Nov 06, 2023	Nov 06, 2023
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	490	-
TRH C29-C36	50	mg/kg	-	72	860	-
TRH C10-C36 (Total)	50	mg/kg	-	72	1350	-
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	%	-	88	91	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	-
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	-	1.0	< 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	-
Phenanthrene	0.5	mg/kg	-	0.6	< 0.5	-
Pyrene	0.5	mg/kg	-	1.0	< 0.5	-
Total PAH*	0.5	mg/kg	-	2.6	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	76	109	-
p-Terphenyl-d14 (surr.)	1	%	-	67	94	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	< 100	1100	-
TRH >C34-C40	100	mg/kg	-	< 100	380	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	1480	-

Client Sample ID			SP1-9	SP1-10	SS01	SS02
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016824	N23-No0016825	N23-No0016826	N23-No0016827
Date Sampled			Nov 02, 2023	Nov 02, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.3	5.8	2.6	3.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	0.6	3.1
Chromium	5	mg/kg	110	33	120	100
Copper	5	mg/kg	20	28	39	34
Lead	5	mg/kg	25	94	7.7	11
Mercury	0.1	mg/kg	< 0.1	0.2	0.1	0.5
Nickel	5	mg/kg	29	36	72	66
Zinc	5	mg/kg	56	260	110	80
Sample Properties						
% Moisture	1	%	8.9	5.1	22	30

Client Sample ID			SS03	SS04	SS05	SS06
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016828	N23-No0016829	N23-No0016830	N23-No0016831
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
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

Client Sample ID			SS03	SS04	SS05	SS06
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016828	N23-No0016829	N23-No0016830	N23-No0016831
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	-	-	-	92
p-Terphenyl-d14 (surr.)	1	%	-	-	-	89
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Heavy Metals						
Arsenic	2	mg/kg	3.9	2.8	3.8	8.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	12
Chromium	5	mg/kg	110	100	110	21
Copper	5	mg/kg	44	49	57	11
Lead	5	mg/kg	22	9.8	16	12
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	1.9
Nickel	5	mg/kg	60	55	57	7.6
Zinc	5	mg/kg	200	180	360	92
Sample Properties						
% Moisture	1	%	31	21	26	40

Client Sample ID			SS07	SS08	SS09	SS10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016832	N23-No0016833	N23-No0016834	N23-No0016835
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
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	65	-	< 50	-
TRH C29-C36	50	mg/kg	110	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	175	-	< 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	%	87	-	134	-

Client Sample ID			SS07	SS08	SS09	SS10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016832	N23-No0016833	N23-No0016834	N23-No0016835
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
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	-
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	%	101	-	95	-
p-Terphenyl-d14 (surr.)	1	%	89	-	84	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	120	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	120	-	< 100	-
Heavy Metals						
Arsenic	2	mg/kg	3.8	4.1	3.5	3.5
Cadmium	0.4	mg/kg	< 0.4	0.5	< 0.4	< 0.4
Chromium	5	mg/kg	100	74	110	100
Copper	5	mg/kg	57	56	68	51
Lead	5	mg/kg	12	12	13	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	58	51	66	49
Zinc	5	mg/kg	110	400	96	360
Sample Properties						
% Moisture	1	%	21	25	24	29
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	-	-	-

Client Sample ID			SS07	SS08	SS09	SS10
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016832	N23-No0016833	N23-No0016834	N23-No0016835
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	-	-	-
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	%	125	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	99	-	-	-

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016836	N23-No0016837	N23-No0016838	N23-No0016839
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
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	55	-	73	-
TRH C10-C36 (Total)	50	mg/kg	55	-	73	-
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	%	83	-	97	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016836	N23-No0016837	N23-No0016838	N23-No0016839
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
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	-
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	%	101	-	99	-
p-Terphenyl-d14 (surr.)	1	%	89	-	86	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	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	-
Heavy Metals						
Arsenic	2	mg/kg	4.7	4.5	4.3	5.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	86	29	35	110
Copper	5	mg/kg	36	16	17	43
Lead	5	mg/kg	8.5	< 5	6.1	7.7
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	52	17	28	65
Zinc	5	mg/kg	180	47	80	73
Sample Properties						
% Moisture	1	%	25	18	9.6	21
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	-	-	-

Client Sample ID			SS11	SS12	SS13	SS14
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016836	N23-No0016837	N23-No0016838	N23-No0016839
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	%	99	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	100	-	-	-

Client Sample ID			SS15	SS16	SS17	SS18
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016840	N23-No0016841	N23-No0016842	N23-No0016843
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
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-C36 (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	%	83	-	144	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-

Client Sample ID			SS15	SS16	SS17	SS18
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016840	N23-No0016841	N23-No0016842	N23-No0016843
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
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	-
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	%	101	-	96	-
p-Terphenyl-d14 (surr.)	1	%	93	-	86	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	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	-
Heavy Metals						
Arsenic	2	mg/kg	9.3	4.5	3.6	4.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	74	53	97	120
Copper	5	mg/kg	50	24	59	60
Lead	5	mg/kg	10.0	24	6.4	6.1
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	53	36	76	67
Zinc	5	mg/kg	190	140	110	65
Sample Properties						
% Moisture	1	%	20	19	14	23

Client Sample ID			SS19	SS20	SS21	SS22
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016844	N23-No0016845	N23-No0016846	N23-No0016847
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	-	-	71	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	-	-	8.7	-
Heavy Metals						
Arsenic	2	mg/kg	4.6	3.5	5.7	4.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	68	28	18	18
Copper	5	mg/kg	33	16	13	12
Lead	5	mg/kg	9.2	< 5	6.7	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	52	26	24	18
Zinc	5	mg/kg	120	58	68	35
Cation Exchange Capacity						
Cation Exchange Capacity	0.5	meq/100g	-	-	24	-
Sample Properties						
% Moisture	1	%	15	16	40	13
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	-	-	-
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	%	112	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	96	-	-	-

Client Sample ID			SS23	SS24	SS25	SS26
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016848	N23-No0016849	N23-No0016850	N23-No0016851
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.1	2.6	4.9	4.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	100	54	110	66
Copper	5	mg/kg	33	23	49	40
Lead	5	mg/kg	7.2	7.6	6.0	18
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	59	40	86	50
Zinc	5	mg/kg	67	77	89	81
Sample Properties						
% Moisture	1	%	29	32	22	31

Client Sample ID			SS27	SS28	SS29	SS30
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016852	N23-No0016853	N23-No0016854	N23-No0016855
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.6	4.1	2.8	3.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	80	79	100	300
Copper	5	mg/kg	49	44	59	8.9
Lead	5	mg/kg	14	14	9.3	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	66	62	51	8.5
Zinc	5	mg/kg	76	130	54	45
Sample Properties						
% Moisture	1	%	28	25	27	11
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	-

Client Sample ID			SS27	SS28	SS29	SS30
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016852	N23-No0016853	N23-No0016854	N23-No0016855
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
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	%	-	-	127	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	104	-

Client Sample ID			SS31	SS32	SS33	SS34
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016856	N23-No0016857	N23-No0016858	N23-No0016859
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.4	6.7	3.2	4.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	26	30	58	27
Copper	5	mg/kg	5.6	< 5	26	< 5
Lead	5	mg/kg	10	16	12	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.6	< 5	34	5.1
Zinc	5	mg/kg	27	10	54	19
Sample Properties						
% Moisture	1	%	21	18	30	26
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			SS31	SS32	SS33	SS34
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016856	N23-No0016857	N23-No0016858	N23-No0016859
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
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	%	-	-	-	123
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	100

Client Sample ID			SP2-1	SP3-1	SP4-1	SP4-2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016860	N23-No0016861	N23-No0016862	N23-No0016863
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.1	3.2	4.2	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	66	53	13	25
Copper	5	mg/kg	25	18	< 5	5.2
Lead	5	mg/kg	13	9.7	9.1	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	31	19	< 5	7.2
Zinc	5	mg/kg	34	27	26	30
Sample Properties						
% Moisture	1	%	22	34	17	21

Client Sample ID			SP4-3	SP4-4	SP4-5	D.6.11.23
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016864	N23-No0016865	N23-No0016866	N23-No0016867
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	640
TRH C29-C36	50	mg/kg	-	-	-	1100
TRH C10-C36 (Total)	50	mg/kg	-	-	-	1740
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	96

Client Sample ID			SP4-3	SP4-4	SP4-5	D.6.11.23
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N23-No0016864	N23-No0016865	N23-No0016866	N23-No0016867
Date Sampled			Nov 06, 2023	Nov 06, 2023	Nov 06, 2023	Nov 06, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
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	%	-	-	-	99
p-Terphenyl-d14 (surr.)	1	%	-	-	-	87
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	1400
TRH >C34-C40	100	mg/kg	-	-	-	480
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	1880
Heavy Metals						
Arsenic	2	mg/kg	4.2	2.5	16	3.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.7
Chromium	5	mg/kg	33	8.7	27	130
Copper	5	mg/kg	22	9.2	< 5	42
Lead	5	mg/kg	8.6	< 5	25	8.3
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	33	9.2	< 5	78
Zinc	5	mg/kg	130	28	17	110
Sample Properties						
% Moisture	1	%	27	27	18	24

Client Sample ID			SS01A
Sample Matrix			Soil
Eurofins Sample No.			N23-No0016869
Date Sampled			Nov 06, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	340
TRH C29-C36	50	mg/kg	560
TRH C10-C36 (Total)	50	mg/kg	900
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
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	%	95
p-Terphenyl-d14 (surr.)	1	%	72
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	740
TRH >C34-C40	100	mg/kg	320
TRH >C10-C40 (total)*	100	mg/kg	1060

Client Sample ID			SS01A
Sample Matrix			**Soil**
Eurofins Sample No.			**N23-No0016869**
Date Sampled			**Nov 06, 2023**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	760
Cadmium	0.4	mg/kg	0.5
Chromium	5	mg/kg	370
Copper	5	mg/kg	570
Lead	5	mg/kg	18
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	62
Zinc	5	mg/kg	700
Sample Properties			
% Moisture	1	%	45

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Sydney	Nov 11, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Nov 15, 2023	7 Days
- Method: LTM-INO-4030 Conductivity			
Cation Exchange Capacity	Melbourne	Nov 16, 2023	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Nov 11, 2023	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Organochlorine Pesticides	Sydney	Nov 11, 2023	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Nov 08, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: PSI - LOCHINVAR
Project ID: NEW23P-0216

Order No.:
Report #: 1042040
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 7, 2023 2:30 PM
Due: Nov 14, 2023
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	SP1-1	Nov 02, 2023		Soil	N23-No0016816	X		X			X	X	X
2	SP1-2	Nov 02, 2023		Soil	N23-No0016817	X				X	X		
3	SP1-3	Nov 02, 2023		Soil	N23-No0016818	X				X	X		
4	SP1-4	Nov 02, 2023		Soil	N23-No0016819	X				X	X		
5	SP1-5	Nov 02, 2023		Soil	N23-No0016820	X					X		X
6	SP1-6	Nov 02, 2023		Soil	N23-No0016821	X				X	X		
7	SP1-7	Nov 02, 2023		Soil	N23-No0016822	X				X	X		
8	SP1-8	Nov 02, 2023		Soil	N23-No0016823	X				X	X		
9	SP1-9	Nov 02, 2023		Soil	N23-No0016824	X				X	X		
10	SP1-10	Nov 02, 2023		Soil	N23-No0016825	X					X		X
11	SS01	Nov 06, 2023		Soil	N23-No0016826						X		X
12	SS02	Nov 06, 2023		Soil	N23-No0016827					X	X		

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web: www.eurofins.com.au
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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
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Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
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Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
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Auckland 1061	Christchurch 7675	Tauranga 3112
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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
13	SS03	Nov 06, 2023		Soil	N23-No0016828					X	X		
14	SS04	Nov 06, 2023		Soil	N23-No0016829					X	X		
15	SS05	Nov 06, 2023		Soil	N23-No0016830					X	X		
16	SS06	Nov 06, 2023		Soil	N23-No0016831						X		X
17	SS07	Nov 06, 2023		Soil	N23-No0016832				X		X		X
18	SS08	Nov 06, 2023		Soil	N23-No0016833					X	X		
19	SS09	Nov 06, 2023		Soil	N23-No0016834						X		X
20	SS10	Nov 06, 2023		Soil	N23-No0016835					X	X		
21	SS11	Nov 06, 2023		Soil	N23-No0016836				X		X		X
22	SS12	Nov 06, 2023		Soil	N23-No0016837					X	X		
23	SS13	Nov 06, 2023		Soil	N23-No0016838						X		X
24	SS14	Nov 06, 2023		Soil	N23-No0016839					X	X		
25	SS15	Nov 06, 2023		Soil	N23-No0016840						X		X
26	SS16	Nov 06, 2023		Soil	N23-No0016841					X	X		
27	SS17	Nov 06, 2023		Soil	N23-No0016842						X		X

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web: www.eurofins.com.au
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ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
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Auckland	Christchurch	Tauranga
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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
28	SS18	Nov 06, 2023		Soil	N23-No0016843					X	X		
29	SS19	Nov 06, 2023		Soil	N23-No0016844	X			X	X	X		
30	SS20	Nov 06, 2023		Soil	N23-No0016845	X				X	X		
31	SS21	Nov 06, 2023		Soil	N23-No0016846	X		X		X	X	X	
32	SS22	Nov 06, 2023		Soil	N23-No0016847	X				X	X		
33	SS23	Nov 06, 2023		Soil	N23-No0016848	X				X	X		
34	SS24	Nov 06, 2023		Soil	N23-No0016849	X				X	X		
35	SS25	Nov 06, 2023		Soil	N23-No0016850	X				X	X		
36	SS26	Nov 06, 2023		Soil	N23-No0016851					X	X		
37	SS27	Nov 06, 2023		Soil	N23-No0016852					X	X		
38	SS28	Nov 06, 2023		Soil	N23-No0016853					X	X		
39	SS29	Nov 06, 2023		Soil	N23-No0016854				X	X	X		
40	SS30	Nov 06, 2023		Soil	N23-No0016855					X	X		
41	SS31	Nov 06, 2023		Soil	N23-No0016856	X				X	X		
42	SS32	Nov 06, 2023		Soil	N23-No0016857					X	X		

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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Welshpool
WA 6106
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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
43	SS33	Nov 06, 2023		Soil	N23-No0016858					X	X		
44	SS34	Nov 06, 2023		Soil	N23-No0016859				X	X	X		
45	SP2-1	Nov 06, 2023		Soil	N23-No0016860	X				X	X		
46	SP3-1	Nov 06, 2023		Soil	N23-No0016861	X				X	X		
47	SP4-1	Nov 06, 2023		Soil	N23-No0016862	X				X	X		
48	SP4-2	Nov 06, 2023		Soil	N23-No0016863	X				X	X		
49	SP4-3	Nov 06, 2023		Soil	N23-No0016864	X				X	X		
50	SP4-4	Nov 06, 2023		Soil	N23-No0016865	X				X	X		
51	SP4-5	Nov 06, 2023		Soil	N23-No0016866	X				X	X		
52	D.6.11.23	Nov 06, 2023		Soil	N23-No0016867						X		X
53	SW01	Nov 06, 2023		Water	N23-No0016868				X	X			
54	SS01A	Nov 06, 2023		Soil	N23-No0016869	X					X		X
55	TP10 0.2-1.0	Nov 02, 2023		Soil	N23-No0016870		X						
56	SP1-PACM	Nov 02, 2023		Building Materials	N23-No0016871		X						

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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Melbourne Laboratory - NATA # 1261 Site # 1254					X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X	X	X	X
Test Counts	26	2	2	6	41	53	2	13

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They 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 weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

Holding times apply from the date of sampling; therefore, compliance with 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, 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
CFU: Colony forming unit

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
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 moisture has been determined on a solid sample, the result is expressed on a dry weight 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 represents 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. SVOCs recoveries 20 – 150%

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

QC Data General Comments

1. Where a result is reported as 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 are 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							
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	
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							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Organochlorine Pesticides							
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-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (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	< 0.5			0.5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	97			70-130	Pass	
TRH C10-C14	%	91			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	89			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	90			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total*	%	93			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	100			70-130	Pass	
TRH C6-C10	%	83			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	86			70-130	Pass	
Acenaphthylene	%	86			70-130	Pass	
Anthracene	%	84			70-130	Pass	
Benz(a)anthracene	%	91			70-130	Pass	
Benzo(a)pyrene	%	79			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g.h.i)perylene	%	83			70-130	Pass	
Benzo(k)fluoranthene	%	91			70-130	Pass	
Chrysene	%	85			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	80			70-130	Pass	
Fluorene	%	83			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	84			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	%	82			70-130	Pass	
Pyrene	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	85			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	103			80-120	Pass	
Cadmium	%	105			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	103			80-120	Pass	
Mercury	%	102			80-120	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	101			80-120	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	86			70-130	Pass	
4.4'-DDD	%	85			70-130	Pass	
4.4'-DDE	%	87			70-130	Pass	
4.4'-DDT	%	93			70-130	Pass	
a-HCH	%	82			70-130	Pass	
Aldrin	%	85			70-130	Pass	
b-HCH	%	85			70-130	Pass	
d-HCH	%	87			70-130	Pass	
Dieldrin	%	88			70-130	Pass	
Endosulfan I	%	81			70-130	Pass	
Endosulfan II	%	84			70-130	Pass	
Endosulfan sulphate	%	90			70-130	Pass	
Endrin	%	88			70-130	Pass	
Endrin aldehyde	%	79			70-130	Pass	
Endrin ketone	%	93			70-130	Pass	
g-HCH (Lindane)	%	86			70-130	Pass	
Heptachlor	%	91			70-130	Pass	
Heptachlor epoxide	%	85			70-130	Pass	
Hexachlorobenzene	%	91			70-130	Pass	
Methoxychlor	%	87			70-130	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	S23-No0029399	NCP	%	88			70-130	Pass	
TRH C10-C14	N23-No0007871	NCP	%	74			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S23-No0029399	NCP	%	90			70-130	Pass	
Toluene	S23-No0029399	NCP	%	77			70-130	Pass	
Ethylbenzene	S23-No0029399	NCP	%	78			70-130	Pass	
m&p-Xylenes	S23-No0029399	NCP	%	79			70-130	Pass	
o-Xylene	S23-No0029399	NCP	%	85			70-130	Pass	
Xylenes - Total*	S23-No0029399	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	R23-No0014676	NCP	%	78			70-130	Pass	
TRH C6-C10	S23-No0029399	NCP	%	87			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N23-No0007871	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N23-No0016827	CP	%	97			75-125	Pass	
Cadmium	N23-No0016827	CP	%	111			75-125	Pass	
Chromium	N23-No0016827	CP	%	83			75-125	Pass	
Copper	N23-No0016827	CP	%	86			75-125	Pass	
Lead	N23-No0016827	CP	%	95			75-125	Pass	
Mercury	N23-No0016827	CP	%	113			75-125	Pass	
Nickel	N23-No0016827	CP	%	87			75-125	Pass	
Zinc	N23-No0016827	CP	%	91			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N23-No0016837	CP	%	95			75-125	Pass	
Cadmium	N23-No0016837	CP	%	101			75-125	Pass	
Chromium	N23-No0016837	CP	%	88			75-125	Pass	
Copper	N23-No0016837	CP	%	91			75-125	Pass	
Lead	N23-No0016837	CP	%	96			75-125	Pass	
Mercury	N23-No0016837	CP	%	101			75-125	Pass	
Nickel	N23-No0016837	CP	%	90			75-125	Pass	
Zinc	N23-No0016837	CP	%	99			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N23-No0016844	CP	%	92			70-130	Pass	
Acenaphthylene	N23-No0016844	CP	%	89			70-130	Pass	
Anthracene	N23-No0016844	CP	%	82			70-130	Pass	
Benz(a)anthracene	N23-No0016844	CP	%	92			70-130	Pass	
Benzo(a)pyrene	N23-No0016844	CP	%	78			70-130	Pass	
Benzo(b&j)fluoranthene	N23-No0016844	CP	%	73			70-130	Pass	
Benzo(g.h.i)perylene	N23-No0016844	CP	%	78			70-130	Pass	
Benzo(k)fluoranthene	N23-No0016844	CP	%	89			70-130	Pass	
Chrysene	N23-No0016844	CP	%	84			70-130	Pass	
Dibenz(a.h)anthracene	N23-No0016844	CP	%	78			70-130	Pass	
Fluoranthene	N23-No0016844	CP	%	85			70-130	Pass	
Fluorene	N23-No0016844	CP	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	N23-No0016844	CP	%	77			70-130	Pass	
Naphthalene	N23-No0016844	CP	%	94			70-130	Pass	
Phenanthrene	N23-No0016844	CP	%	88			70-130	Pass	
Pyrene	N23-No0016844	CP	%	91			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	N23-No0016844	CP	%	92			70-130	Pass	
4.4'-DDD	N23-No0016844	CP	%	99			70-130	Pass	
4.4'-DDE	N23-No0016844	CP	%	92			70-130	Pass	
4.4'-DDT	N23-No0016844	CP	%	74			70-130	Pass	
a-HCH	N23-No0016844	CP	%	83			70-130	Pass	
Aldrin	N23-No0016844	CP	%	93			70-130	Pass	
b-HCH	N23-No0016844	CP	%	83			70-130	Pass	
d-HCH	N23-No0016844	CP	%	87			70-130	Pass	
Dieldrin	N23-No0016844	CP	%	99			70-130	Pass	
Endosulfan I	N23-No0016844	CP	%	93			70-130	Pass	
Endosulfan II	N23-No0016844	CP	%	89			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	N23-No0016844	CP	%	97			70-130	Pass	
Endrin	N23-No0016844	CP	%	102			70-130	Pass	
Endrin ketone	N23-No0016844	CP	%	116			70-130	Pass	
g-HCH (Lindane)	N23-No0016844	CP	%	86			70-130	Pass	
Heptachlor	N23-No0016844	CP	%	92			70-130	Pass	
Heptachlor epoxide	N23-No0016844	CP	%	88			70-130	Pass	
Hexachlorobenzene	N23-No0016844	CP	%	94			70-130	Pass	
Methoxychlor	N23-No0016844	CP	%	77			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N23-No0016857	CP	%	105			75-125	Pass	
Cadmium	N23-No0016857	CP	%	108			75-125	Pass	
Chromium	N23-No0016857	CP	%	92			75-125	Pass	
Copper	N23-No0016857	CP	%	104			75-125	Pass	
Lead	N23-No0016857	CP	%	114			75-125	Pass	
Mercury	N23-No0016857	CP	%	109			75-125	Pass	
Nickel	N23-No0016857	CP	%	104			75-125	Pass	
Zinc	N23-No0016857	CP	%	102			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	N23-No0016867	CP	%	73			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N23-No0016867	CP	%	77			70-130	Pass	
Toluene	N23-No0016867	CP	%	71			70-130	Pass	
Ethylbenzene	N23-No0016867	CP	%	86			70-130	Pass	
m&p-Xylenes	N23-No0016867	CP	%	82			70-130	Pass	
o-Xylene	N23-No0016867	CP	%	78			70-130	Pass	
Xylenes - Total*	N23-No0016867	CP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	N23-No0016867	CP	%	71			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N23-No0016816	CP	mg/kg	0.6	< 0.5	51	30%	Fail	Q15
Benzo(a)pyrene	N23-No0016816	CP	mg/kg	0.5	< 0.5	52	30%	Fail	Q15
Benzo(b&j)fluoranthene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N23-No0016816	CP	mg/kg	0.6	< 0.5	50	30%	Fail	Q15
Chrysene	N23-No0016816	CP	mg/kg	0.6	< 0.5	31	30%	Fail	Q15
Dibenz(a.h)anthracene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N23-No0016816	CP	mg/kg	1.2	0.7	45	30%	Fail	Q15
Fluorene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N23-No0016816	CP	mg/kg	0.7	< 0.5	68	30%	Fail	Q15
Pyrene	N23-No0016816	CP	mg/kg	1.2	0.8	37	30%	Fail	Q15

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016816	CP	mg/kg	5.8	5.1	13	30%	Pass	
Cadmium	N23-No0016816	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016816	CP	mg/kg	24	21	13	30%	Pass	
Copper	N23-No0016816	CP	mg/kg	16	17	3.8	30%	Pass	
Lead	N23-No0016816	CP	mg/kg	49	52	7.1	30%	Pass	
Mercury	N23-No0016816	CP	mg/kg	0.2	0.3	45	30%	Fail	Q15
Nickel	N23-No0016816	CP	mg/kg	24	23	3.9	30%	Pass	
Zinc	N23-No0016816	CP	mg/kg	120	120	3.5	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	N23-No0016816	CP	%	4.5	4.7	4.7	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N23-No0016816	CP	mg/kg	< 1	< 1	<1	30%	Pass	
4.4'-DDD	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDE	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4.4'-DDT	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
a-HCH	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aldrin	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
b-HCH	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
d-HCH	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dieldrin	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan I	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan II	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endosulfan sulphate	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin aldehyde	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Endrin ketone	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
g-HCH (Lindane)	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Heptachlor epoxide	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Hexachlorobenzene	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methoxychlor	N23-No0016816	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016817	CP	mg/kg	6.5	6.1	7.3	30%	Pass	
Cadmium	N23-No0016817	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016817	CP	mg/kg	25	23	8.0	30%	Pass	
Copper	N23-No0016817	CP	mg/kg	23	21	11	30%	Pass	
Lead	N23-No0016817	CP	mg/kg	65	62	4.0	30%	Pass	
Mercury	N23-No0016817	CP	mg/kg	0.2	0.2	11	30%	Pass	
Nickel	N23-No0016817	CP	mg/kg	29	25	16	30%	Pass	
Zinc	N23-No0016817	CP	mg/kg	160	170	7.0	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	N23-No0016826	CP	%	22	22	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N23-No0016831	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N23-No0016831	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N23-No0016831	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N23-No0016831	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N23-No0016831	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N23-No0016831	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N23-No0016831	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	N23-No0016831	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N23-No0016831	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	N23-No0016832	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N23-No0016832	CP	mg/kg	65	< 50	42	30%	Fail	Q15
TRH C29-C36	N23-No0016832	CP	mg/kg	110	95	14	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N23-No0016832	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N23-No0016832	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	N23-No0016832	CP	mg/kg	120	< 100	32	30%	Fail	Q15
TRH >C34-C40	N23-No0016832	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016832	CP	mg/kg	3.8	3.5	6.9	30%	Pass	
Cadmium	N23-No0016832	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016832	CP	mg/kg	100	94	9.4	30%	Pass	
Copper	N23-No0016832	CP	mg/kg	57	54	5.0	30%	Pass	
Lead	N23-No0016832	CP	mg/kg	12	12	1.1	30%	Pass	
Mercury	N23-No0016832	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016832	CP	mg/kg	58	53	9.4	30%	Pass	
Zinc	N23-No0016832	CP	mg/kg	110	130	13	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N23-No0016832	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
a-HCH	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	N23-No0016832	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016834	CP	mg/kg	3.5	3.7	4.7	30%	Pass	
Cadmium	N23-No0016834	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016834	CP	mg/kg	110	120	5.4	30%	Pass	
Copper	N23-No0016834	CP	mg/kg	68	74	8.0	30%	Pass	
Lead	N23-No0016834	CP	mg/kg	13	12	7.1	30%	Pass	
Mercury	N23-No0016834	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016834	CP	mg/kg	66	73	11	30%	Pass	
Zinc	N23-No0016834	CP	mg/kg	96	91	6.1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016836	CP	mg/kg	4.7	4.4	7.9	30%	Pass	
Cadmium	N23-No0016836	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016836	CP	mg/kg	86	78	9.0	30%	Pass	
Copper	N23-No0016836	CP	mg/kg	36	33	7.8	30%	Pass	
Lead	N23-No0016836	CP	mg/kg	8.5	7.9	7.2	30%	Pass	
Mercury	N23-No0016836	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016836	CP	mg/kg	52	47	11	30%	Pass	
Zinc	N23-No0016836	CP	mg/kg	180	170	7.3	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	N23-No0016836	CP	%	25	24	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	N23-No0016842	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	N23-No0016842	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	N23-No0016842	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	N23-No0016842	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	N23-No0016842	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	N23-No0016842	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	N23-No0016842	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	N23-No0016842	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	N23-No0016842	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	N23-No0016842	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	N23-No0016842	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N23-No0016842	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	N23-No0016842	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	N23-No0016842	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	N23-No0016842	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N23-No0016842	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	N23-No0016842	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract at 25 °C as rec.)	S23-No0012515	NCP	pH Units	8.0	8.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016847	CP	mg/kg	4.5	6.4	36	30%	Fail	Q15
Cadmium	N23-No0016847	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016847	CP	mg/kg	18	25	37	30%	Fail	Q15
Copper	N23-No0016847	CP	mg/kg	12	13	12	30%	Pass	
Lead	N23-No0016847	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	N23-No0016847	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016847	CP	mg/kg	18	22	16	30%	Pass	
Zinc	N23-No0016847	CP	mg/kg	35	45	24	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016856	CP	mg/kg	3.4	5.1	40	30%	Fail	Q15
Cadmium	N23-No0016856	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016856	CP	mg/kg	26	41	46	30%	Fail	Q15
Copper	N23-No0016856	CP	mg/kg	5.6	6.2	10	30%	Pass	
Lead	N23-No0016856	CP	mg/kg	10	14	29	30%	Pass	
Mercury	N23-No0016856	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016856	CP	mg/kg	9.6	11	9.6	30%	Pass	
Zinc	N23-No0016856	CP	mg/kg	27	31	15	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	N23-No0016856	CP	%	21	22	5.5	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0016866	CP	mg/kg	16	23	36	30%	Fail	Q15
Cadmium	N23-No0016866	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N23-No0016866	CP	mg/kg	27	41	42	30%	Fail	Q15
Copper	N23-No0016866	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	N23-No0016866	CP	mg/kg	25	29	18	30%	Pass	
Mercury	N23-No0016866	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N23-No0016866	CP	mg/kg	< 5	5.2	37	30%	Fail	Q15
Zinc	N23-No0016866	CP	mg/kg	17	19	16	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	N23-No0016866	CP	%	18	18	<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
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Andrew Black	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Dilani Samarakoon	Senior Analyst-Inorganic
Fang Yee Tan	Senior Analyst-Metal
Mary Makarios	Senior Analyst-Metal
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Ryan Phillips	Senior Analyst-Inorganic
Sayeed Abu	Senior Analyst-Asbestos

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Libby Betz**

Report **1042040-W**
Project name PSI - LOCHINVAR
Project ID NEW23P-0216
Received Date Nov 07, 2023

Client Sample ID			**SW01**
Sample Matrix			**Water**
Eurofins Sample No.			**N23-No0016868**
Date Sampled			**Nov 06, 2023**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.002	mg/L	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002
Endrin	0.0002	mg/L	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002
Toxaphene	0.005	mg/L	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002
Dibutylchlorendate (surr.)	1	%	137
Tetrachloro-m-xylene (surr.)	1	%	125
Heavy Metals			
Arsenic	0.001	mg/L	0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.001
Copper	0.001	mg/L	0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005

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
Organochlorine Pesticides	Sydney	Nov 12, 2023	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	Nov 13, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

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NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

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NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
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IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: PSI - LOCHINVAR
Project ID: NEW23P-0216

Order No.:
Report #: 1042040
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 7, 2023 2:30 PM
Due: Nov 14, 2023
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
External Laboratory													
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
1	SP1-1	Nov 02, 2023		Soil	N23-No0016816	X		X			X	X	X
2	SP1-2	Nov 02, 2023		Soil	N23-No0016817	X				X	X		
3	SP1-3	Nov 02, 2023		Soil	N23-No0016818	X				X	X		
4	SP1-4	Nov 02, 2023		Soil	N23-No0016819	X				X	X		
5	SP1-5	Nov 02, 2023		Soil	N23-No0016820	X					X		X
6	SP1-6	Nov 02, 2023		Soil	N23-No0016821	X				X	X		
7	SP1-7	Nov 02, 2023		Soil	N23-No0016822	X				X	X		
8	SP1-8	Nov 02, 2023		Soil	N23-No0016823	X				X	X		
9	SP1-9	Nov 02, 2023		Soil	N23-No0016824	X				X	X		
10	SP1-10	Nov 02, 2023		Soil	N23-No0016825	X					X		X
11	SS01	Nov 06, 2023		Soil	N23-No0016826						X		X
12	SS02	Nov 06, 2023		Soil	N23-No0016827					X	X		

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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
13	SS03	Nov 06, 2023		Soil	N23-No0016828					X	X		
14	SS04	Nov 06, 2023		Soil	N23-No0016829					X	X		
15	SS05	Nov 06, 2023		Soil	N23-No0016830					X	X		
16	SS06	Nov 06, 2023		Soil	N23-No0016831						X		X
17	SS07	Nov 06, 2023		Soil	N23-No0016832				X		X		X
18	SS08	Nov 06, 2023		Soil	N23-No0016833					X	X		
19	SS09	Nov 06, 2023		Soil	N23-No0016834						X		X
20	SS10	Nov 06, 2023		Soil	N23-No0016835					X	X		
21	SS11	Nov 06, 2023		Soil	N23-No0016836				X		X		X
22	SS12	Nov 06, 2023		Soil	N23-No0016837					X	X		
23	SS13	Nov 06, 2023		Soil	N23-No0016838						X		X
24	SS14	Nov 06, 2023		Soil	N23-No0016839					X	X		
25	SS15	Nov 06, 2023		Soil	N23-No0016840						X		X
26	SS16	Nov 06, 2023		Soil	N23-No0016841					X	X		
27	SS17	Nov 06, 2023		Soil	N23-No0016842						X		X

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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
28	SS18	Nov 06, 2023		Soil	N23-No0016843					X	X		
29	SS19	Nov 06, 2023		Soil	N23-No0016844	X			X	X	X		
30	SS20	Nov 06, 2023		Soil	N23-No0016845	X				X	X		
31	SS21	Nov 06, 2023		Soil	N23-No0016846	X		X		X	X	X	
32	SS22	Nov 06, 2023		Soil	N23-No0016847	X				X	X		
33	SS23	Nov 06, 2023		Soil	N23-No0016848	X				X	X		
34	SS24	Nov 06, 2023		Soil	N23-No0016849	X				X	X		
35	SS25	Nov 06, 2023		Soil	N23-No0016850	X				X	X		
36	SS26	Nov 06, 2023		Soil	N23-No0016851					X	X		
37	SS27	Nov 06, 2023		Soil	N23-No0016852					X	X		
38	SS28	Nov 06, 2023		Soil	N23-No0016853					X	X		
39	SS29	Nov 06, 2023		Soil	N23-No0016854				X	X	X		
40	SS30	Nov 06, 2023		Soil	N23-No0016855					X	X		
41	SS31	Nov 06, 2023		Soil	N23-No0016856	X				X	X		
42	SS32	Nov 06, 2023		Soil	N23-No0016857					X	X		

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Melbourne Laboratory - NATA # 1261 Site # 1254										X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X
43	SS33	Nov 06, 2023		Soil	N23-No0016858					X	X		
44	SS34	Nov 06, 2023		Soil	N23-No0016859				X	X	X		
45	SP2-1	Nov 06, 2023		Soil	N23-No0016860	X				X	X		
46	SP3-1	Nov 06, 2023		Soil	N23-No0016861	X				X	X		
47	SP4-1	Nov 06, 2023		Soil	N23-No0016862	X				X	X		
48	SP4-2	Nov 06, 2023		Soil	N23-No0016863	X				X	X		
49	SP4-3	Nov 06, 2023		Soil	N23-No0016864	X				X	X		
50	SP4-4	Nov 06, 2023		Soil	N23-No0016865	X				X	X		
51	SP4-5	Nov 06, 2023		Soil	N23-No0016866	X				X	X		
52	D.6.11.23	Nov 06, 2023		Soil	N23-No0016867						X		X
53	SW01	Nov 06, 2023		Water	N23-No0016868				X	X			
54	SS01A	Nov 06, 2023		Soil	N23-No0016869	X					X		X
55	TP10 0.2-1.0	Nov 02, 2023		Soil	N23-No0016870		X						
56	SP1-PACM	Nov 02, 2023		Building Materials	N23-No0016871		X						

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Melbourne Laboratory - NATA # 1261 Site # 1254					X		X	X
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X	X	X	X	X
Test Counts	26	2	2	6	41	53	2	13

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They 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 weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

Holding times apply from the date of sampling; therefore, compliance with 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, 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
CFU: Colony forming unit

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
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 moisture has been determined on a solid sample, the result is expressed on a dry weight 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 represents 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. SVOCs recoveries 20 – 150%

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

QC Data General Comments

1. Where a result is reported as 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 are 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							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	102			80-120	Pass	
Cadmium	%	99			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	99			80-120	Pass	
Mercury	%	103			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-No0015652	NCP	%	108			75-125	Pass	
Cadmium	S23-No0015652	NCP	%	106			75-125	Pass	
Chromium	S23-No0015652	NCP	%	105			75-125	Pass	
Copper	S23-No0015652	NCP	%	102			75-125	Pass	
Lead	S23-No0015652	NCP	%	104			75-125	Pass	
Mercury	S23-No0015652	NCP	%	108			75-125	Pass	
Nickel	S23-No0015652	NCP	%	100			75-125	Pass	
Zinc	S23-No0015652	NCP	%	93			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N23-No0011757	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	N23-No0011757	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	N23-No0011757	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	N23-No0011757	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	N23-No0011757	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	N23-No0011757	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	N23-No0011757	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	N23-No0011757	NCP	mg/L	0.011	0.012	<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

Authorised by:

Andrew Black	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304

NATA Accredited
Accreditation Number 1261
Site Number 18217

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: **Libby Betz**

Report **1046255-S**
Project name ADDITIONAL: PSI - LOCHINVAR
Project ID ADDITIONAL: NEW23P-0216
Received Date Nov 17, 2023

Client Sample ID			**SS01**	**SS18**	**SS30**
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S23-No0051045**	**S23-No0051046**	**S23-No0051047**
Date Sampled			**Nov 02, 2023**	**Nov 02, 2023**	**Nov 02, 2023**
Test/Reference	LOR	Unit			
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	120	120	300
Heavy Metals					
Chromium	5	mg/kg	120	120	300
Sample Properties					
% Moisture	1	%	23	21	11

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
Chromium (speciated)			
Chromium (hexavalent)	Sydney	Nov 21, 2023	28 Days
- Method: In-house method E057.2			
Chromium (trivalent)	Sydney	Nov 21, 2023	28 Days
- Method: E043 /E057 Total Speciated Chromium			
Heavy Metals	Sydney	Nov 21, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Nov 21, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			

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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Order No.:
Report #: 1046255
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Nov 17, 2023 2:43 PM
Due: Nov 24, 2023
Priority: 5 Day
Contact Name: Libby Betz

Project Name: ADDITIONAL: PSI - LOCHINVAR
Project ID: ADDITIONAL: NEW23P-0216

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Chromium (speciated)	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	SS01	Nov 02, 2023		Soil	S23-No0051045	X	X
2	SS18	Nov 02, 2023		Soil	S23-No0051046	X	X
3	SS30	Nov 02, 2023		Soil	S23-No0051047	X	X
Test Counts						3	3

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They 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 weight basis unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion unless otherwise stated.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with blue colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the '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 before sample receipt deadlines as stated on the SRA.

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

Holding times apply from the date of sampling; therefore, compliance with 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, 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
CFU: Colony forming unit

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
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 moisture has been determined on a solid sample, the result is expressed on a dry weight 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 represents 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. SVOCs recoveries 20 – 150%

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

QC Data General Comments

1. Where a result is reported as 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 are 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							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Chromium	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	105			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Chromium	%	92			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Chromium	S23-No0022430	NCP	%	106			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	S23-No0051045	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Chromium	S23-No0022371	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S23-No0050830	NCP	%	6.8	6.4	6.3	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

Authorised by:

Andrew Black	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Ryan Phillips	Senior Analyst-Inorganic

Glenn Jackson
Managing Director

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- Indicates Not Requested

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

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

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