Preliminary and Detailed Site Investigation Report

Project

Proposed Ambulance Station, University of Wollongong
Portion of 7 Squires Way, Fairy Meadow NSW 2519

Prepared for

Health Infrastructure

Date

5/08/2022

Report No

15348-ER-1-1

alliance
geotechnical & environmental solutions

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Report 15348-ER-1-1 dated 5 August 2022 reviewed for and on behalf of Alliance Geotechnical Pty Ltd

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The findings presented in this report are based on specific data and information made available during the course of this project. To the best of Alliance's knowledge, these findings represent a reasonable interpretation of the general condition of the site at the time of report completion.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Alliance.

Logs, figures, and drawings are generated for this report based on individual Alliance consultant interpretations of nominated data, as well as observations made at the time fieldwork was undertaken.

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Should additional information that may impact on the findings of this report be encountered or site conditions change, Alliance reserves the right to review and amend this report.

Executive Summary

Alliance Geotechnical Pty Ltd (Alliance) was engaged by Health Infrastructure to undertake a stage 2 detailed site investigation (DSI) at a portion of 7 Squires Way, Fairy Meadow (refer **Figure 1**)**,** with the 'site' boundaries outlined in **Figure 2**)**.**

At the commencement of the project, Alliance had the following project appreciation:

- The site is currently owned by The University of Wollongong;
- The site appears to be a vacant grassed area with a concrete footpath, which is part of the broader university campus;
- The site is proposed for redevelopment, comprising office, kitchen, relief room for shift workers, plant room and carparking. In the context of NEPC (2013a), this is considered to be a land use scenario[1] comprising:
    - Commercial / industrial such as shops, offices, factories and industrial sites.
- The assumed maximum depth of excavation for the proposed development, is 2m below existing ground level, to allow for installation of services and construction of a bioretention basin;
- The proposed land use scenario assumes a reticulated potable water supply will be available at the site; and
- A combined PSI and DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) Resilience and Hazards 2021[2].

The objectives of this project were to:

- Assess the potential for land contamination to be present at the site as a result of current and previous land use activities;
- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario;
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted); and

[1] Adopted from Section 2.2 of NEPC (2013a) and Section 3 of NEPC (2013f)
[2] 'SEPP55 – Remediation of Land' was repealed on 1 March 2022

- Assess the potential for acid sulfate soils to be present at the site, in the context of the proposed development work.

The following scope of works was undertaken address the project objectives:

- A desktop review of the site history;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was undertaken with reference to relevant sections of NEPC (2013), NSW EPA (2020b), HEPA (2020), Sullivan et al (2018) and WA DOH (2009).

A number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) associated with potential land contaminating activities undertaken at the site, have been identified as part of this project. The AEC, land contaminating activity and COPC are presented in the table below. The locations of the identified AEC are presented in **Figure 3**.

ID	AEC	Land Contaminating Activity (Source)	COPC
AEC01	Site footprint (3,271m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.
AEC02	Former sports courts (945m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.
AEC03	Concrete walkway (200m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.
AEC04	Demolished structures (570m^2)	Uncontrolled filling, hazardous building materials and termite treatment	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- Unacceptable land contamination human health and ecological exposure risks have not been identified for the site;
- The site is suitable for a commercial / industrial land use, such as shops, offices, factories and industrial sites;

- Potential acid sulfate soils (PASS) are likely to be encountered in soils from the surface to at least a depth 3m below ground level (based on an assumed maximum disturbance depth of 2m below ground level). In the event the proposed development requires soil disturbance below a depth of 2m below ground level, further assessment would be required;

- Specific assumptions that apply to the adopted land use scenario, are presented in **Section 9** of this report.

Based on those conclusions, Alliance makes the following recommendations:

- Further assessment of soils classified as PASS should be undertaken to:

    - Assess the nature and extent of natural soil layers that have a pH of 5.5 or more, and that would meet the definition of virgin excavated natural material (VENM) even though they contain sulfidic ores. This assessment could facilitate offsite disposal of those soils (if excavated) below the permanent water table without treatment, at a suitably licensed facility with reference to NSW EPA 2014, 'Waste classification guidelines, Part 4: Acid sulfate soils; and

    - Assist with delineation of relevant PASS layers that cannot be disposed of below the permanent water table without treatment, to better inform relevant liming rates for acid sulfate soil treatment of those soils, prior to waste classification and offsite disposal.

- An acid sulfate soils management plan should be prepared to address identified acid sulfate soils; and

- Further assessment and management plan works should be undertaken by a suitably experienced environmental consultant.

This report must be read in conjunction with the ***Important Information About This Report*** statements at the front of this report.

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1 Introduction

1.1 Background

Alliance Geotechnical Pty Ltd (Alliance) was engaged by Health Infrastructure to undertake a stage 2 detailed site investigation (DSI) at a portion of 7 Squires Way, Fairy Meadow (refer **Figure 1**)**,** with the 'site' boundaries outlined in **Figure 2**)**.**

At the commencement of the project, Alliance had the following project appreciation:

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- The site is proposed for redevelopment, comprising office, kitchen, relief room for shift workers, plant room and carparking. In the context of NEPC (2013a), this is considered to be a land use scenario[3] comprising:
    - Commercial / industrial such as shops, offices, factories and industrial sites.
- The assumed maximum depth of excavation for the proposed development, is 2m below existing ground level, to allow for installation of services and construction of a bioretention basin;
- The proposed land use scenario assumes a reticulated potable water supply will be available at the site; and
- A combined PSI and DSI is required to assist the client to address development consent decision making processes set out in State Environmental Planning Policy (SEPP) Resilience and Hazards 2021[4].

1.2 Objectives

The objectives of this project were to:

- Assess the potential for land contamination to be present at the site as a result of current and previous land use activities;

[3] Adopted from Section 2.2 of NEPC (2013a) and Section 3 of NEPC (2013f)
[4] 'SEPP55 – Remediation of Land' was repealed on 1 March 2022

- Assess whether identified potential land contamination would present an unacceptable human health or ecological exposure risk, based on the proposed land use scenario;
- Assess whether the site is suitable, in the context of land contamination, for the proposed land use scenario;
- Provide recommendations for further investigations, and management or remediation of land contamination (if warranted); and
- Assess the potential for acid sulfate soils to be present at the site, in the context of the proposed development work.

1.3 Scope of Work

The following scope of works was undertaken address the project objectives:

- A desktop review of the site history;
- Preparation of a sampling and analysis quality plan;
- Intrusive investigations on site;
- Laboratory analysis; and
- Assessment of data and reporting.

The nominated scope of works was undertaken with reference to relevant sections of NEPC (2013), NSW EPA (2020b), HEPA (2020), Sullivan et al (2018) and WA DOH (2009).

2 Site Identification

2.1 Site Details

Site identification details are presented in **Table 2.1**.

Table 2.1 Site Identification Details

Cadastral Identification	Portion of Lot 1 in DP1172135
Geographic Coordinates (Google Earth)	34º23'52" S and 150º53'55" E
Site Area	3,271m^2 by survey
Local Government Authority	Wollongong City Council
Current Zoning	SP1 – Special Activities (Innovation Campus)

2.2 Site Layout

The layout of the site is present in **Figure 2**. The layout plan also includes locations on site of:

- Site access points; and
- Site infrastructure.

A copy of extracted detail and level survey data for the site is presented in **Appendix F**.

3 Site Environmental Setting

3.1 Geology

The Department of Minerals and Energy Geological Survey of Wollongong 1:100,000 Geological Series Sheet 9030 (Edition 1) 1991, indicated that the site is likely to be underlain by Podzolic soils, comprising quartz, and lithic fluvial sand, silt and clay.

3.2 Site Topography and Elevation

A detail and level survey plan of the site indicated that:

- the topography of the site is generally flat with a slight north-east facing slope; and
- the surface of the site was located at an elevation of approximately 3.5m Australian Height Datum (AHD) in the north-east and 4.5m AHD in the south-west.

3.3 Acid Sulfate Soils

A review of https://www.environment.nsw.gov.au/eSpade2Webapp indicated that the site Is located in an area mapped as:

- X4: disturbed terrain

Further assessment of acid sulfate soils, in the context of this project is considered warranted.

3.4 Hydrogeology and Hydrology

A review of maps held on file by Alliance, indicated that surface water bodies located on or near the site included:

- Cabbage Tree Creek, located approximately 125m to the south-west; and
- Towradgi Arm, located approximately 350m to the east

Based on the location of the identified surface water bodies and the site surface topography, the inferred groundwater flow direction at the site is considered likely to be towards the north-east to east.

Based on site surface topography and site elevation, the inferred surface water flow direction at the site is considered likely to be towards the south-west.

A search of https://www.environment.nsw.gov.au/eSpade2WebApp was undertaken by Alliance and no data was obtained for this site.

A search of https://realtimedata.waternsw.com.au/water.stm indicated that:

- there are no registered groundwater features located within a 500m radius of the site; and

A copy of the online search record is presented in **Appendix B**.

4 Regulatory Records

4.1 Contaminated Land Management Act 1997

A search of the NSW EPA online contaminated land record of notices indicated that the site (and land located immediately adjacent to the site) was not the subject of:

- orders made under Part 3 of the Contaminated Land Management (CLM) Act 1997;
- notices available to the public under section 58 of the CLM Act
- an approved voluntary management proposal under the CLM Act that has not been fully carried out and where NSW EPA approval has not been revoked;
- site audit statements provided to the NSW EPA under section 53B of the CLM Act that relate to significantly contaminated land;
- where practicable, copies of anything formerly required to be part of the public record; or
- actions taken by NSW EPA (or the previous State Pollution Control Commission) under section 35 or 36[5] of the Environmentally Hazardous Chemicals Act 1985.

A copy of the search record is presented in **Appendix D**.

A search of the NSW EPA online list of NSW contaminated sites notified to NSW EPA indicated that the site (and land located immediately adjacent to the site) was not on the list. A copy of a relevant extract of the search record is presented in **Appendix D**.

4.2 Protection of the Environment Operations (POEO) Act 1997

A search of the NSW EPA online POEO public register indicated that the site (and land located immediately adjacent to the site) was not the subject of a licence, application, notice, audit, pollution study or reduction program.

A copy of the search record is presented in **Appendix D**.

4.3 Work Health and Safety Regulation 2017

A SafeWork NSW Schedule 11 hazardous chemicals (dangerous goods)[6] search for the site was not undertaken.

[5] Sections 35 and 36 of the Environmentally Hazardous Chemicals Act 1985 have been repealed. Notices under these sections are treated by the CLM Act as management orders.
[6] Under the Work Health and Safety Regulation

The review of historical aerial photography and historical land title ownership records undertaken by Alliance (refer Section 5.1 and 5.2 of this report), did not suggest a potential for licensable quantities of Schedule 11 hazardous chemicals (dangerous goods) to have been stored on the site.

Alliance considers that further assessment of the storage of licensable quantities of Schedule 11 hazardous chemicals (dangerous goods), within the context and objectives of this project, is considered not warranted.

4.4 Environmental Planning and Assessment (EP&A) Act 1979

A copy of the planning certificate issued under section 10.7(2) & (5)of the EP&A Act was obtained, and indicated that within the meaning of the CLM Act, the site was not:

- significantly contaminated land;
- subject to a management order;
- the subject of an approved voluntary management proposal;
- subject to an ongoing maintenance order; or
- the subject of a site audit statement.

A copy of the certificate is presented in **Appendix E**.

4.5 Heritage NSW Website

A search of the publicly available *NSW State Heritage Inventory* website was conducted by Alliance. The following information was gathered about the historical land use of the site and land surrounding the site:

- A migrant hostel was constructed in late 1950 and 1951 to meet the demand for housing for increased migration;
- One Nissen hut and two Quonset huts were located to the north-east of the site. These huts were used as a kitchen/dining room, laundry and staff residence for the migrant hostel;
- The hostel was originally named the Balgownie Migrant Hostel and later renamed Fairy Meadow Migrant Hostel and continued operation until 1982;The property was purchased by The University of Wollongong for student accommodation in 1987; and
- The three huts were used by Wollongong University after the closure of the migrant hostel, including as a childcare facility.

The review of the *NSW State Heritage Inventory* indicated a potential for land contaminating activities to have been undertaken on the site, specifically:

- Use of hazardous building materials during construction;
- Use of pesticides for termite treatment; and
- Uncontrolled demolition of structures after the closure of the migrant hostel between 1972 and 1980 (based on the aerial photographs in Section 5.2).

The aerial photograph review indicates that use of the huts for defence purposes is unlikely. The 1951 aerial photograph indicated the site was vacant and in 1955 the huts and migrant camp were visible. The migrant hostel is known to have been constructed in late 1950 and 1951.

Further assessment of these identified potential land contaminating activities, in the context of other historical evidence reviewed during this project, and observations made during the site walkover, is considered warranted.

Image 4.5.1 Photograph of one of the Nissen huts from the NSW Heritage website

5 Site History

5.1 Historical Land Titles

Alliance undertook a review of a selection of historical land title ownership records of the site. Information obtained during that review, indicated that registered proprietors of the site since 1924, have included:

- A farmer between 1924 and 1952
- The Council of The City of Greater Wollongong between 1952 and 1987; and
- The University of Wollongong between 1987 and 2022.

There were no leases reported for the site.

There were no easements reported for the site.

The review of historical land titles indicated potential land contaminating activities have been undertaken on the site specifically with its historical use as a farmland. However, subsequent review of historical aerial photographs (refer **Section 5.2**) indicated the site was vacant grassland and likely used for grazing, with no evidence of to suggest a for potential livestock dips or farm sheds on the site prior to 1952.

Further assessment of these land contaminating activities, in the context of other historical evidence reviewed during this project, and observations made during the site walkover (refer **Section 6** of this report), is considered not warranted.

A copy of the historical land title search record is presented in **Appendix A**.

5.2 Aerial Photography

Alliance undertook a desktop review of a selection of readily available historical aerial photographs of the site. Copies of each of the aerial photographs reviewed, including an indicative site boundary, are presented below.

Image 5.2.1 Aerial Photograph - 1951

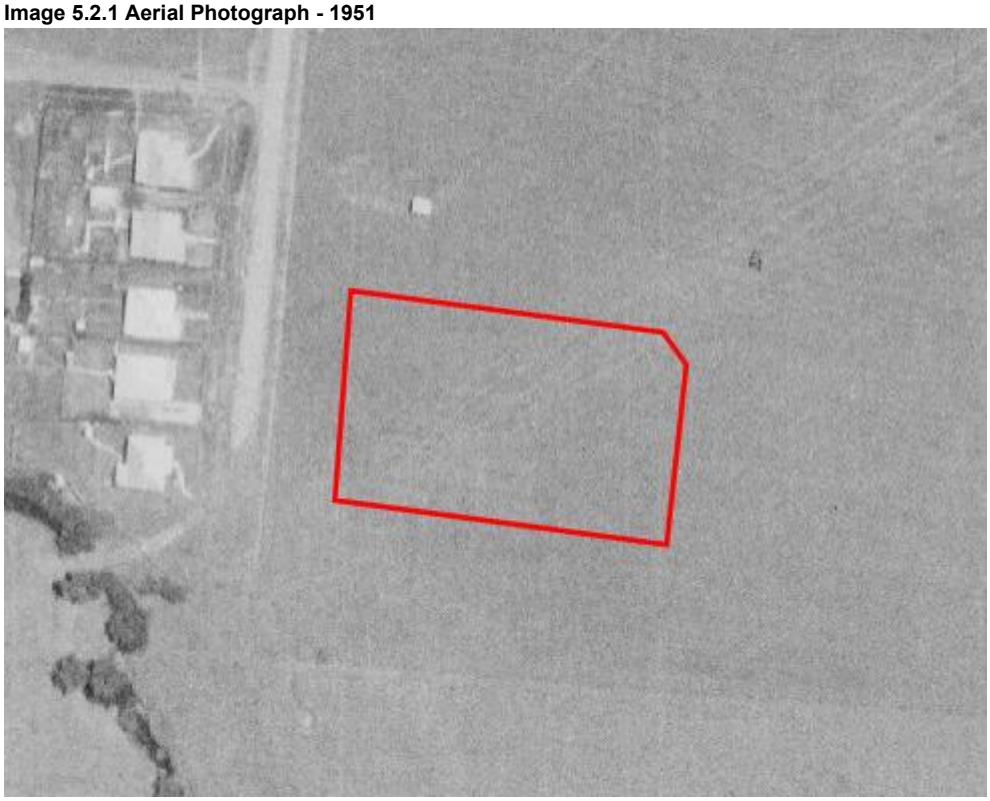

Image 5.2.2 Aerial Photograph - 1955

Image 5.2.2 Aerial Photograph - 1966

Image 5.2.3 Aerial Photograph - 1972

Image 5.2.4 Aerial Photograph - 1980

Image 5.2.1 Aerial Photograph - 1990

Image 5.2.5 Aerial Photograph - 2004

Image 5.2.6 Aerial Photograph - 2010

Image 5.2.7 Aerial Photograph - 2011

Image 5.2.8 Aerial Photograph - 2016

Image 5.2.9 Aerial Photograph - 2022

The findings of the historical aerial photography review are presented in **Table 5.2**.

Table 5.2 Historical Aerial Photography Review

Photograph Date	Observations of Site	Observations of Surrounding Land
1951	Appears to be vacant grazing land.	Appears residential land to the west, and vacant undeveloped land to the north, south and east.
1955	Appears to be two structures within the site adjacent to the eastern boundary with grassed land in the remaining portions of the site.	Appears to be low density residential to the west and several structures in a grid pattern to the north, south and east.
1966	Appears to be sport courts in the western portion of the site, in addition to the existing structures adjacent to the eastern boundary.	No significant change since previous image.
1972	Sports courts appear to be disused. A footpath leading from the north-western corner of the site to the south-eastern corner of the site is visible. Photograph is of poor quality.	No significant change since previous image.
1980	Appears the structures adjacent to the eastern boundary have been demolished. Minor landscaping observed along the northern and eastern boundaries.	Many of the structures to the north, east and south appear to have been demolished.
1990	No significant change since previous image.	No significant change from previous image.
2004	No significant change since previous image.	No significant change since previous image
2010	No significant change since previous image	No significant change since previous image
2011	A wider concrete pathway appears to have been constructed leading from the north-western corner to the south-eastern corner of the site. Some ground disturbance is visible near the pathway is visible and is likely associated with the construction of the pathway.	No significant change since previous image.
2016	No significant change since previous image.	No significant change since previous image.
2022	No significant change since previous image.	No significant change since previous image.

The review of historical aerial photography indicated a potential for land contaminating activities to have been undertaken on the site, specifically:

- Uncontrolled demolition of structures between 1972 and 1980;
- Use of hazardous building materials;
- Termite treatment of buildings; and
- Uncontrolled filling associated with the sports courts and pathway.

Further assessment of these identified potential land contaminating activities, is considered warranted.

5.3 Meteorology

The Bureau of Meteorology website (http://www.bom.gov.au/climate/data/index.shtml?bookmark=200) was accessed and a search conducted for climatic information measured by the nearest bureau station to the site. A summary of data obtained from that search is presented in **Table 5.3**.

Table 5.3 Local Meteorology Data Summary

Weather Station Location and Identifier	Mean Annual Temperature (ºC)		Mean Annual Rainfall (mm)
	Maximum	Minimum	
Bellambi - 068228	21.4	14.7	1127.9

A copy of the meteorology search record is presented in **Appendix C**.

5.4 Incidents

There was no evidence provided to Alliance regarding incidents at the site.

5.5 Complaints

There was no evidence provided to Alliance regarding complaints about the site.

5.6 Anecdotal Evidence

There was no anecdotal evidence regarding the site, provided to Alliance.

5.7 Previous Contamination Assessments

Alliance was not provided with copies of any previous contamination assessments.

6 Site Walkover

A site walkover was undertaken by a suitably experienced Alliance environmental consultant Sam Scully, on 29 June 2022. During the walkover, Alliance made observations of the general condition of the site and of land use activities being undertaken on the site, as well as land use activities on the land located immediately adjacent to the site. Information on these observations is presented in **Section 6.1** to **Section 6.14**.

6.1 Current Land Use

The land use scenario at the time of the walkover appeared to be a vacant grassed area, which is part of the broader university campus.

Image 6.1.1 View of the site facing north-west

6.2 Site Boundaries

The northern, eastern, western and southern site boundaries were fenced.

Image 6.2.1 View of the site boundaries to the north and east.

6.3 Surfaces and Buildings

The following site surfaces were observed during the walkover:

- Majority of the site surface was covered with grass;
- a concrete walkway was observed to lead from the north-western corner to the south-eastern corner of the site.

6.4 Infrastructure

The following infrastructure was observed during the walkover:

- Concrete walkway leading from the north-western corner to the south-eastern corner;
- Light poles along the concrete walkway; and
- Metal boundary fence on the northern and eastern boundaries.

Image 6.4.1 View of concrete walkway

6.5 Surface Water and Drainage

There were no surface water bodies observed on site.

Based on observations made during the walkover, site drainage mechanisms on site are considered likely to include:

- Infiltration into site soils, if soil permeability allows it.

6.6 Hazardous Building Materials

There was no visual evidence observed during the walkover, of potential asbestos containing materials on the surface of the site.

A hazardous building materials survey was not within the scope of this project.

6.7 Chemical Handling and Storage

There was no visual evidence observed during the walkover, of chemical handling or storage on the site.

6.8 Underground and Aboveground Storage Tanks

There was no visual evidence observed during the walkover, of aboveground storage tanks (AST).

6.9 Septic Systems

There was no visual evidence observed of septic systems on the site.

6.10 Waste

There was no visual evidence observed during the walkover, to indicate the storage of wastes on the site.

6.11 Fill Material

There was no visual evidence observed to suggest widespread or significant filling at the site. Shallow fill (<0.2m) may be present adjacent to the concrete footpath, indicated by mounding of the ground.

6.12 Staining and Odours

There was no olfactory evidence detected of significant or widespread odours at the site.

6.13 Phytotoxicity

There was no visual evidence observed to suggest widespread or significant phytotoxic impact in the form of plant stress and/or dieback in vegetation present on the site. Similar observations were made of vegetation on land immediately beyond the site boundaries.

Image 6.13.1 View of grassed portion of the site

6.14 Land Use on Adjacent Land

Observations made from the site boundary, indicated land use activities on adjacent land were comprised of the following:

- North and east – Innovation way and vacant grassed land which is part of the university campus beyond;
- West – Low and medium density residential; and
- South – Vacant grassed land and carparking and buildings associated with the university beyond.

Image 6.14.1 Residential area adjacent to the site eastern boundary

6.15 Physical Indicators of ASS

Physical indicators of ASS were not observed during the site walkover. Specifically, the following was not observed:

- Surface water and waterlogged soils; and
- Bare patches or scalding of vegetation.

7 Per and Poly-Fluoroalkyl Substances (PFAS)

Per and Poly-Fluoroalkyl Substances (PFAS) are a group of chemicals that are manufactured for their unique properties. There are numerous PFASs that may be present in the environment. Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are two major PFASs, that were originally found as components in products used to provide stain resistance or as firefighting foams. Some PFASs have been recognised as highly persistent, potentially bio-accumulative and toxic, and have been detected in the environment, wildlife, people and food. When considering potential for PFAS to be present on a site, Section 6 of HEPA (2020) advises that consideration should be given to identifying the presence of:

- Major primary sources of PFAS, including major commercial, industrial and government facilities, infrastructure and activities that historically or currently use or store PFAS containing products, nothing that all PFAS formulations should be considered, such as surfactants used in chrome plating or firefighting, hydraulic fluids and lubricants, and wastes and liquid wastes;

- Other primary sources where PFAS is or has been used, such as firefighting training facilities, foam deluge system installations, metal plating works, car washes, and electricity generation and distribution facilities;

- Secondary sources where diffuse PFAS inputs are or have been received, such as landfills, wastewater treatment facilities, liquid waste treatment facilities, and bio-solids stockpiles.

Along with the guidance in Section 6 of HEPA (2020), Alliance has also adapted the PFAS decision matrix presented in EnRisk (2016), to facilitate a preliminary screening of the potential for PFAS to be present on site. That screening process is presented in Table 7.

Table 7 PFAS Screening Process

Preliminary PFAS Screening Questions	Evidence
Is there evidence of major commercial, industrial and government facilities, infrastructure and activities that historically or currently use or store PFAS containing products?	No
Is there evidence of fuel[7] fires on the site?	No
Is there evidence of foam deluge systems, metal plating works, car washes, or electricity generation / distribution on the site?	No
Is there evidence of landfill, wastewater treatment, liquid waste treatment, bio-solid stockpiles or paper mill wastes on site?	No
Is there evidence of fire training occurring at the site?	No
Is there evidence of fire training occurring up gradient or adjacent to the site?	No
Is there evidence of the presence of an airport or fire station, up-gradient of, or adjacent to, the site?	No

Based on the results of the preliminary PFAS screening questions above, further assessment of PFAS related land contamination risks at the site, is considered not warranted.

[7] Fuels could include solvents, petrol, diesel and kerosene

8 Chemical Control Orders

Chemical control orders (CCO) are created under Part 3, Division 5 of the Environmentally Hazardous Chemicals Act 1985, and are used to selectively and specifically control particular chemicals, or chemical wastes, to limit their potential or actual impact on the environment. Alliance has adopted the matrix presented in Table 8 (which is based on the NSW EPA CCO available at the time of this project), to facilitate a preliminary screening of the potential for those control order chemicals to be present on site.

Table 8 Chemical Control Order Preliminary Screening

Preliminary CCO Screening Questions	Assessment
Were aluminium smelter wastes used or stored on site?[8]	No
Were dioxin contaminated wastes generated or stored on site?[9]	No
Were organotin wastes generated or stored on site?[10]	No
Were polychlorinated biphenyls (PCB) used or stored on site?[11]	No
Were scheduled chemicals[12] used, or wastes stored, on site?[13]	Yes

The historical records review and observations made during the site walkover, identified the following potential sources of CCO related chemicals for the site:

- Termite treatment of buildings.

Based on the results of the preliminary CCO screening questions above, further assessment of CCO related land contamination risks at the site, is considered not warranted.

[8] SPCC 1986, 'Chemical Control Order In Relation to Aluminium Smelter Wastes Containing Fluoride and/or Cyanide' dated 21 March 1986
[9] NSW EPA 1986, 'Chemical Control Order In Relation to Dioxin-Contaminated Waste Materials' dated 14 March 1986
[10] NSW EPA 1989, 'Chemical Control Order In Relation to Organotin Wastes' dated 11 March 1989
[11] NSW EPA 1997, 'Polychlorinated Biphenyl Chemical Control Order' dated 20 June 1997
[12] Primarily organochlorine pesticide (OCP) compounds, with some industrial by-products
[13] NSW EPA 2004, 'Chemical Control Order in Relation to Scheduled Chemical Wastes

9 Conceptual Site Model

9.1 Preamble

A conceptual site model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The initial CSM is constructed from the information obtained during the PSI and it can be used to identify data gaps and inform a decision on whether a detailed site investigation (DSI) is required.

The CSM identifies complete and potential pathways between the known or potential source(s) and the receptors. Where a pathway between a source and a receptor is incomplete, the exposure to chemical substances via that pathway cannot occur, but the potential for that pathway to be completed (for example, by abstraction of groundwater or a change in land use) should be considered in the assessment.

9.2 Land Use

9.2.1 Adopted Land use Scenario

For the purpose of this project, Alliance understands that the proposed land use scenario for the site includes:

- Commercial / industrial such as shops, offices, factories and industrial sites.

9.2.2 Assumptions for Adopted Land Use Scenario

Section 3 of NEPC (2013i) advises that the commercial/industrial land use scenario, which assumes typical commercial or light industrial properties, consisting of single or multistorey buildings where work areas are on the ground floor (constructed on a ground level slab) or above subsurface structures (such as basement car parks or storage areas).

The dominant users of commercial / industrial sites are adult employees who are largely involved in office-based or light industrial activities.

The outdoor areas of the commercial/industrial facilities are largely covered by hardstand, with some limited areas of landscaping or lawns and facilities. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into direct dermal contact with dust particulates derived from the soil on the site.

The land use scenario does not include more sensitive uses that may be permitted under relevant commercial or industrial zonings. These more sensitive uses include childcare, educational facilities, caretaker residences and hotels and hostels, etc. Information on uses permitted under local council zoning schemes for commercial/industrial land use can be obtained from local council planning zones/schemes. Should these more sensitive uses be permitted, then ‘residential with accessible soil’, ‘residential with minimal access to soil’, or ‘public open space’ land use scenarios should be considered.

9.3 Sources of Contamination

A number of potential land contaminating activities have been identified for the site, based on the site history review and site walkover observations. These include:

- Uncontrolled filling;
- Uncontrolled demolition;
- Use of hazardous building materials; and
- Termite treatment of buildings;

Table J1 in Appendix J of AS 4482.1-2005 and Appendix A in DUAP (1998) provides guidance on chemicals associated with land uses activities. That guidance provides a basis for deciding on contaminants of potential concern (COPC) for each relevant land use activity. Information on COPC adopted for this project is presented in Section 9.4 of this report.

9.4 Receptors

9.4.1 Identified Receptors

Based on the adopted land use scenario in Section 9.2, receptors at the site may include commercial / industrial workers, intrusive maintenance workers, ecological (terrestrial/aquatic) ecosystems.

9.4.2 Assumptions for Identified Receptors

The receptors at a commercial/industrial site are predominantly adult employees, who are largely involved in office-based or light indoor industrial activities. The employees who are most susceptible to health risks associated with volatile soil contaminants are the employees who work in offices on the ground floor, as the greatest potential for vapour intrusion occurs with workspaces immediately overlying contaminated soil.

Employees may make use of outdoor areas of a commercial/industrial premises for activities such as meal breaks. Opportunities for direct access to soil by employees using these facilities are likely to be minimal, but there may be potential for employees to inhale, ingest or come into direct dermal contact with dust particulates derived from the soil on the site.

9.5 Exposure Pathways

9.5.1 Human Health

9.5.1.1 Dermal Contact / Ingestion / Dust Inhalation

Site history information and observations made during the site walkover, indicated a potential for contaminants to be present in soils at the site, which could present a dermal contact, ingestion or dust inhalation risk to human health.

The proposed land use scenario is likely to include unsealed and open space areas, where a pathway between identified receptors and direct contact, ingestion and dust inhalation contaminant sources, may be complete.

Further assessment of dermal contact, dust inhalation and ingestion risk is considered warranted.

9.5.1.2 Vapour Intrusion / Inhalation

A vapour intrusion / inhalation exposure risk to human health can be present when a vapour source (either primary or secondary[14]) is present.

Site history information and observations made during the site walkover, did not indicate a potential for a source of vapour to be present on the site.

Further assessment of vapour intrusion / inhalation risks associated with the uncontrolled filling, is considered not warranted.

9.5.1.3 Asbestos

Bonded asbestos containing material (ACM) is comprised of asbestos bound in a matrix (including cement or resin), which is in sound condition, although possibly broken or fragmented.

Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheeting, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).

Asbestos fines (AF) include free fibres, small fibre bundles and small fragments of ACM[15] that would pass through a 7mm x 7mm aperture sieve.

FA and AF are considered to be ‘friable’ asbestos, which is material that is in a powder form or that can be crumbled, pulverised or reduced to powder by hand pressure when dry.

Asbestos poses a risk to human health when asbestos fibres are made airborne and inhaled. The assessment of sites contaminated with asbestos in soil should aim to describe the nature and quantity of asbestos in soil in sufficient detail to enable a risk management plan to be developed for the proposed land use scenario.

Site history information and observations made during the site walkover, indicated a potential for ACM, FA and/or AF to be present in soils at the site.

[14] Primary sources typically include underground storage tanks. Secondary sources typically include significantly contaminated soil or groundwater.
[15] For bonded ACM fragments to pass through a 7mm x 7mm sieve implies a substantial degree of damage which increases the potential for fibre release.

The proposed land use scenario is likely to include unsealed and open space areas, where a pathway between identified receptors and asbestos in soils, may be complete.

Further assessment of asbestos exposure risk is considered warranted.

9.5.2 Management Limits for Petroleum Hydrocarbons

Section 2.9 of NEPC (2013a) states that there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

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

Section 2.9 of NEPC (2013a) notes that:

- CCME (2008) includes management limits to avoid or minimise these potential effects. Application of management limits requires consideration of site-specific factors such as depth of building basements and services, and depth to groundwater, to determine the maximum depth to which the limits should apply.
- management limits may have less relevance at operating industrial sites (including mine sites) which have no or limited sensitive receptors in the area of potential impact.
- the presence of site total petroleum hydrocarbon (TPH) contamination at the levels of the management limits does not imply that there is no need for administrative notification or controls in accordance with jurisdiction requirements.

Site history information and walkover observations indicated a potential for these policy considerations to be associated with relevant identified areas of environmental concern (AEC) at the site, in the context of the proposed future land use scenario. On that basis, further assessment of petroleum hydrocarbons in soils in the context of those policy considerations, is considered warranted.

9.5.3 Hazardous Ground Gases

NSW EPA (2020a) provides advice on ground gases that if present in the pore space of soils and rocks and can adversely impact human health and safety or the integrity of structures. The ground gases that are generally of concern in this context are:

- Bulk ground gases, including methane, carbon dioxide, carbon monoxide, hydrogen, hydrogen sulphide, and petroleum vapours; and
- Trace ground gases including radon, volatile organic compounds and mercury vapour.

Alliance has reviewed site history information review and site walkover observations in the context of sources and origins of hazardous ground gases in Table 1 and Table 2 of NSW EPA (2020a). Based on that review, Alliance considers that further assessment of hazardous ground gases in the context of this project, is considered not warranted.

9.5.4 Aesthetics

Aesthetic issues generally relate to the presence of low-concern or non-hazardous inert foreign material (refuse) in soil or fill resulting from human activity. Sites that are assessed as being acceptable from a human health and environmental perspective may still contain foreign material[16]. Sites may have some soil discolouration from relatively inert chemical waste (e.g. ferric metals) or residual odour (e.g. natural sulfur odour).

Assessment should be undertaken in the context of the sensitivity of the proposed land use scenario (e.g. higher expectations apply to residential properties with gardens compared with industrial settings). General assessment considerations should include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users;
- The depth of the materials, including chemical residues, in relation to the final surface of the site;
- The need for, and practicality of, any long-term management of foreign material;
- The presence of small quantities of non-hazardous material and low odour residue (e.g. weak petroleum odours) that will decrease over time should not be a cause of concern in most circumstances
- Sites with large quantities of well-covered known inert material that present no health hazard such as brick fragments and cement wastes, are usually of low concern for non-sensitive and sensitive land uses; and
- Caution should be used when assessing sensitive land uses, such as residential, when large quantities of various fill types and demolition rubble are present.

Alliance has adapted guidance in Section 3.6.2 and Section 3.6.3 of NEPC (2013a) to facilitate a preliminary assessment of potential aesthetic risks, identified during review of site history information and site walkover observations. The results of the preliminary assessment are presented in Table 9.5.4, and they are used to assess whether the need for further assessment to be undertaken, has been triggered.

[16] Geotechnical issues related to the presence of fill should be treated separately to assessment of site contamination.

Table 9.5.4 Preliminary Aesthetics Screening

Preliminary Aesthetics Screening Question	Assessment
Is there potential for highly malodorous soils or extracted groundwater (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds) to be present on site?	No
Is there hydrocarbon sheen on surface waters at site?	No
Is there potential for discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature, to be present in site soils;	No
Is there potential for large monolithic deposits of otherwise low risk material, e.g. gypsum as powder or plasterboard or cement kiln dust, to be present in site soils;	No
Is there potential for putrescible refuse including material that may generate hazardous levels of methane such as a deep fill profile of green waste or large quantities of timber waste, to be present in site soils?	No
Is there potential for residue from animal burial (e.g. former abattoir sites) to be present in site soils.	No
Is there potential for large quantities of non-hazardous inert material to be present in site soils?	Yes
Is there potential for high odour residue material to be present in site soils?	No
Is there potential for large quantities of various fill types and demolition rubble to be present in site soils proposed for residential land use?	No

Site history information and observations made during the site walkover, and considered during the aesthetics risk assessment, indicated the following potential aesthetics risks for the site:

- Uncontrolled fill across the site surface which may contain building and demolition wastes.

Further assessment of aesthetic risks is considered warranted.

9.5.5 Terrestrial Ecosystems

Site history information and observations made during the site walkover, indicated a potential for contaminants, which may present a risk to terrestrial ecosystems, may be present on site.

Section 3.4.2 of NEPC (2013a) states that:

- a pragmatic risk-based approach should be taken when assessing ecological risk in residential and commercial / industrial land use settings;
- in existing residential and urban development sites, there are often practical considerations that enable soil properties to be improved by addition of ameliorants with a persistent modifying effect or by the common practice of backfilling or top dressing with clean soil;
- in other cases, all of the site soils will be removed during site development works or relocated for the formation of new landforms;
- sites may also be backfilled with clean soil/fill and the fate of any excavated contaminated soil should be considered in this process; and

- commercial and industrial sites may have large building structures and extensive areas covered with concrete, other pavement or hardstand materials and may have limited environmental values requiring consideration while in operational use.

Alliance has considered the potential for sensitive ecological receptors to be present at the site, in the context of site history information, site walkover observations and the proposed land use scenario.

Alliance notes that:

- The proposed land use scenario is likely to include retention of existing flora species and open space areas, where an ecological exposure pathway may be complete.

On that basis, further assessment of terrestrial ecosystem exposure risks is considered warranted.

9.5.6 Groundwater

Section 2.2 of NSW DEC (2007) provides guidance on the need for the potential for groundwater contamination to be assessed, for the purposes of evaluating whether it may pose an unacceptable risk to human health and/or the environment.

Section 3.2 of NEPC (2013h) provides guidance on the environmental values (that are conducive to public benefit, welfare, safety or health) and that require protection from the effects of pollution, waste discharge and deposits. These values include:

- Ecosystem protection;
- Aquaculture and human consumers of food;
- Agricultural water (irrigation and stock water);
- Recreation and aesthetics;
- Drinking water; and
- Industrial water.

Each of these values is considered in sub-sections 9.5.6.1 to 9.5.6.6.

9.5.6.1 Aquatic Ecosystem Protection

In the context of aquatic ecosystems, ANZG (2018) defines level of protection is the degree of protection afforded to a water body based upon its ecosystem condition (current or desired health status of an ecosystem relative to the human degree of disturbance). Selecting a level of protection should consider:

- Maintaining the existing ecosystem condition, or
- Enhancing a modified ecosystem by targeting the most appropriate level of condition.

ANZG (2018) recognises three categories of current or desired ecosystems:

- High conservation or ecological value systems
- Slightly to moderately disturbed ecosystems; and
- Highly disturbed ecosystems.

Alliance has undertaken an assessment of the likely nearest aquatic ecosystem to the site (refer Section 3.4) and considers that it is a marine system. Following review of site-specific attributes, and in the context of guidance provided in ANZG (2018) [17], Alliance considers that the nearest aquatic ecosystem is:

- a slightly to moderately disturbed ecosystem, on the basis that:
- aquatic biological diversity may have been adversely affected to a relatively small but measurable degree by human activity;
- the biological communities are likely to remain in a healthy condition and ecosystem integrity is largely retained;
- the marine system is likely to have slightly to moderately cleared catchments and a reasonably intact riparian vegetation (e.g. a rural stream receiving runoff from land disturbed to varying degrees by grazing or pastoralism).

Groundwater at the site is considered likely to discharge to the nearest surface water body identified for the site (refer Section 3.4).

Based on the potential sources of contamination (i.e. minor uncontrolled filling and demolition), it is considered unlikely that contamination of soils which would cause unacceptable impacts to groundwater is present.

Furthermore, Towradgi Arm is located approximately 350m to the east of the site. Due to the distance from the site, and the likely nature of potential contamination at the site, it is considered unlikely that those contaminants would leach into groundwater and migrate that distance to the identified surface water in concentrations which would present an unacceptable exposure risk to aquatic ecosystems in that water body.

Based on this, Alliance considers that further assessment of aquatic ecosystem protection as a groundwater value, is not warranted.

9.5.6.2 Aquaculture and Human Consumers of Food

Groundwater at the site is considered likely to discharge to the nearest surface water body identified for the site (refer Section 3.4).

[17] https://www.waterquality.gov.au/anz-guidelines/resources/key-concepts/level-of-protection

The nearest surface water body to the site is located adjacent to the site and is located a significant distance 350m from the site. Alliance considers it unlikely that occupants of the site would frequent that surface water body for the collection and consumption of aquatic-based foods, at a rate that the intake would present an unacceptable risk to human health.

The nature of the contamination likely associated with identified potential sources at the site is, in Alliance's experience, highly unlikely to leach into groundwater underlying the site, and then migrate the 350m to the nearest surface water body, in concentrations that would present an unacceptable risk of exposure for aquaculture and human consumers of food.

Based on this, Alliance considers that further assessment of aquaculture and human consumers of food as a groundwater value, is not warranted.

9.5.6.3 Agricultural (Irrigation and Stock Water)

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for irrigation or stock watering purposes.

Commercial development on the site, and urban development (recreational) and estuary on land down gradient of the site, is considered likely to prevent agricultural land use activities from being undertaken, which would mitigate the potential for abstraction of groundwater for irrigation and stock watering.

Based on this, Alliance considers that further assessment of agricultural water as a groundwater value, is not warranted.

9.5.6.4 Recreation and Aesthetics

Section 3.4 of this report did not identify licensed recreational water abstraction bores within a 500m radius of the site. On that basis, installation of groundwater wells on site for the purpose of groundwater abstraction and use are a recreational water source (e.g. filling up swimming pools or ponds on site) is considered unlikely.

The future land use scenario for the site includes a reticulated drinking water system. Urban development surrounding the site is also considered likely to include a reticulated drinking water system. Alliance considers use of reticulated water for use as a recreational water source (e.g. filling up swimming pools or ponds on site) a more plausible scenario.

Groundwater at the site is considered likely to discharge to the nearest surface water body identified for the site (refer Section 3.4). The nature of the contamination likely associated with identified potential sources at the site is, in Alliance's experience, highly unlikely to leach into groundwater underlying the site, and then migrate the 350m to the nearest surface water body, in concentrations that would present an unacceptable risk of exposure for recreation and aesthetics.

Based on this, Alliance considers that further assessment of recreation and aesthetics as a groundwater value, is not warranted.

9.5.6.5 Drinking Water

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for drinking water purposes.

The future land use scenario for the site includes a reticulated drinking water system. Urban development near the site is also considered likely to include a reticulated drinking water system. Alliance considers use of reticulated water for as a drinking water source a more plausible scenario.

Installation of rainwater collection tanks on site (for use as a secondary source of drinking water) is also considered a more plausible scenario.

On that basis, further assessment of drinking water as a groundwater value, is considered not warranted.

9.5.6.6 Industrial Use

The groundwater bore search in Section 3.4 did not identify any registered groundwater bores within a 500m radius of the site, that were authorised for industrial purposes.

Commercial development on the site, and urban development (recreational) and estuary on land down gradient of the site, is considered likely to prevent industrial land use activities from being undertaken, which would mitigate the potential for abstraction of groundwater for industrial use.

The future land use scenario for the site includes a reticulated drinking water system. Urban development surrounding the site is also considered likely to include a reticulated drinking water system.

Based on this, Alliance considers that further assessment of industrial water as a groundwater value, is not warranted.

9.6 Source, Pathway and Receptor Links

Based on:

- The identified sources of contamination associated with the locations of where potential land contaminating activities have been undertaken at the site (areas of environmental concern or AEC);
- The identified contaminants of potential concern (COPC) associated with those land contaminating activities;
- The receptors identified for the site, based on the proposed land use scenario; and
- The exposure pathways between the identified sources and receptors that have been assessed as being potentially or actually complete,

a conceptual site model (CSM) that identifies plausible south-pathway-receptor linkages for the site, is presented **Table 9.6**.

The locations of the AEC are presented in **Figure 3**.

Table 9.6 Source, Pathway and Receptor Links

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor
AEC01	Site footprint (3,271m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems
AEC02	Former sports courts (945m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems
AEC03	Concrete walkway (200m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems

Table 9.6 Source, Pathway and Receptor Links

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor
AEC04	Demolished structures ($570m^2$)	Uncontrolled filling, hazardous building materials and termite treatment	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems

10 Data Quality Objectives

10.1 Step 1: State the problem

The reason the project is being undertaken, is set out in **Section 1.1** of this report.

The objective of this project is set out in **Section 1.2** of this report.

The project team and technical support experts identified for the project include the Alliance project director, Alliance project manager, Alliance field staff and Alliance's subcontractors.

The design and undertaking of this project will be constrained by the client's financial and time budgets.

The regulatory authorities associated with this project include NSW EPA, the local planning authority, and SafeWork NSW.

10.2 Step 2: Identify the decision / goal of the study

The decisions that need to be made during this project, to address the project objectives, include:

- Is the data collected for the project, suitable for assessing land contamination exposure risks?
- Do the detected concentrations of contaminants of potential concern identified in the CSM, present an unacceptable exposure risk to the receptors identified in the CSM, based on the proposed land use scenario?
- Is the site suitable, in the context of land contamination, for the proposed commercial/industrial land use?
- Are acid sulfate soils present on the site, assuming maximum depth of disturbance during development of 2m below ground level?

10.3 Step 3: Identify the information inputs

The information inputs required to make the decisions for the project set out in **Section 10.2**, include:

- Data obtained during the site history review and site walkover;
- Identification of sample media that needs to be collected, as set out in **Section 10.7**;
- Parameters that will be measured in each relevant sample, as set out in **Section 10.7**;
- The analytical methods required for each identified COPC, so that assessment can be made relative to adopted site criteria. These are set out in **Section 10.7** of this report; and

- The site criteria for the media of concern. These criteria are set out in Table 10.3 and will be adopted based on the proposed land use scenario[18], identified receptors, and site-specific soil and groundwater conditions (where relevant).

Table 10.3 Adopted Tier 1 Site Assessment Screening Criteria

Exposure Pathway	Land Use Scenario[19]	Criteria Reference
Human health dermal contact / ingestion / dust inhalation	HIL D – Commercial / industrial	Table 1A(1) in NEPC (2013a) Table B4 in Friebel, E & Nadebaum P (2011)
Human health (asbestos)	Commercial / Industrial D	Table 7 in NEPC (2013a)[20]
Human health (aesthetics)	All	Characteristics and processes in Section 3.6.2 and 3.6.3 in NEPC (2013a)
Ecological	Commercial / industrial	Table 1B (1) in NEPC (2013a) Table 1B (2) in NEPC (2013a) Table 1B (3) in NEPC (2013a) Table 1B (4) in NEPC (2013a) Table 1B (5) in NEPC (2013a) Table 1B (6) in NEPC (2013a)
Management Limits (Petroleum hydrocarbons)	Commercial / industrial	Table 1B (7) in NEPC (2013a)
Acid sulfate soils	-	Table 5.1 and Table 5.4 in Sullivan et al (2018)

Additional information inputs for acid sulfate soil include:

- The basis for decisions to be made from field screening, and what action is to be taken if a defined concentration is attained, as set out in:
    - The field pH and peroxide testing result indicators Section 5.1 and Figure 5.2 of Sullivan et al (2018); and
    - The action criteria presented in Table 5.4 of Sullivan et al (2018).
- Visual observations made that indicate potential acid sulfate soils, including:
    - presence of shell, jarositic horizons, substantial iron oxide mottling in soils;
    - scalded or bare low-lying areas; or
    - corrosion of concrete or steel structures.

[18] The land use scenarios in Section 2.2 of NEPC (2013a) will be considered when adopting human health assessment criteria. The land use scenarios in Section 2.5 of NEPC (2013a) will be considered when adopting ecological assessment criteria.
[19] Consideration will be given to soil type, soil texture, soil depth, groundwater depth and appropriate species protection levels.
[20] A depth of up to 10cm below ground level is adopted to define 'surface soil'.

- Visual indicators of the actual acid sulfate soils including:
    - Unripe muds (soft, buttery, blue grey or dark greenish grey);
    - Estuarine silty sands or sands (mid to dark grey);
    - Bottom sediments of estuaries or tidal lakes (dark grey to black); or
    - Presence of shell.

10.4 Step 4: Define the boundaries of the study

The spatial extent of the project will be limited to:

- The boundaries of the site as set out in **Section 2** and **Figure 2**; and
- Physical constraints or infrastructure on site or on land adjacent to the site which prevent safe and reasonable access for project team members and/or typical and readily available equipment used for projects of this nature.

The scale of the decisions required (as set out in **Section 10.2**) will be based on the boundaries of the site set out in **Section 2** and **Figure 2**.

The vertical and lateral extents of investigation will be limited to the distribution of contamination assessed in the CSM (refer **Section 9.6**), based on the CSM, which are likely to be:

- The inferred vertical extent of each identified AEC, likely to be to the base of fill material in those AEC and to 3m depth for assessment of acid sulfate soils (assuming a maximum disturbance depth of 2m, based on guidance in Section 6.5 of Sullivan et al (2018); and
- The inferred lateral boundaries of each identified AEC.

The time and budget constraints of this project will be as per those set out in the contract (and any subsequent variations to that contract) between the client and Alliance.

The temporal boundaries of the project will include:

- Availability of project team members (including subcontractors and subconsultants) to collect and assess relevant project data;
- The availability of site access to undertake fieldwork; and
- Meteorological conditions including heat, cold, wind, rain and snow, which may constrain undertaking of fieldwork, or may affect the quality of the data being collected.

10.5 Step 5: Develop the analytical approach

10.5.1 Field Duplicates and Triplicates

A minimum of one set of field duplicates and triplicates will be collected for each set of 20 samples collected (an equivalent of 5%), excluding asbestos samples.

Field duplicate and triplicate samples will be collected by splitting one bulk sample across three separate sample containers. Soil samples will not be homogenised, particularly where volatile or semi volatile COPC are being considered.

Analysis of the duplicate samples and triplicate samples will be scheduled based on at least one of the analytes that the relevant parent sample is being analysed for.

The relative percent difference (RPD) of the detected concentrations in the parent and duplicate, and the parent and triplicate, will be calculated, and the result compared to the relevant data quality indicator (DQI), as set out in **Section 10.5.6**.

10.5.2 Trip Spikes and Trip Blanks

One trip spike and one trip blank will be used for each day of sampling[21].

A minimum of one trip spike and one trip blank will be scheduled for BTEX analysis, during the project, provided the sample preservation, handling, transport and storage procedures used are the same for each day of sampling undertaken.

10.5.3 Equipment Rinsate Blanks

One rinsate blank will be used for each day of sampling[22].

A minimum of one rinsate blank will be scheduled for analysis for at least one of the COPC, during the project, provided sample collection and equipment decontamination procedures are the same for each day of sampling.

Analysis of the rinsate blank will be based on at least one of the analytes that the parent sample is being analysed for (excluding asbestos).

10.5.4 Field Blanks

One field blank will be used for each day of sampling[23].

10.5.5 Analytical Laboratory Quality Assurance and Quality Control

The primary analytical laboratory will:

[21] When samples are being collected on that day, that will be analysed for BTEX and/or TRH C_6-C_{10}.
[22] Only where non-disposable sampling equipment is being used on that day.
[23] When samples are being collected on that day, that will be analysed for PFAS.

- be NATA accredited for the methods used; and
- use a quality assurance and quality control (QA/QC) program that will typically include analysis of method blanks, matrix spikes, surrogate spikes, laboratory control samples and laboratory duplicates.

The primary analytical laboratory will report on whether the analytical results of the QA/QC program are within the criteria set out in the laboratory's adopted data quality objectives.

10.5.6 Data Quality Indicators

A set of data quality indicators (DQI) will be adopted for assessing the completeness, comparability, representativeness, precision and bias (accuracy) of data collected during fieldwork, the analytical data produced by the laboratory. Each of these DQI, and associated target criteria are set out in **Table 10.5.6**.

Table 10.5.6. Data Quality Indicators and Target Criteria

Completeness			
Field Considerations	***Target Criteria***	***Laboratory Considerations***	***Target Criteria***
Experienced sampling team used	Yes	Complete sample receipt advice and chain of custody attached	Yes
Sampling devices and equipment set out in sampling plan were used (refer **Section 10.7**).	Yes	Critical samples identified in sampling plan, analysed	Yes
Critical locations in sampling plan, sampled (refer **Section 10.7**).	Yes	Analysis undertaken addresses COPC in sampling plan (refer **Section 10.7**)	Yes
Critical samples in sampling plan, collected (refer **Section 10.7**).	Yes	Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes
Completed field and calibration logs attached	Yes	Sample holding times met (refer **Section 10.7**)	Yes
Completed chain of custody attached	Yes		

Comparability			
Field Considerations	***Target Criteria***	***Laboratory Considerations***	***Target Criteria***
Same sampling team used for all work.	Yes	Same laboratory used for all analysis (refer **Section 10.7**).	Yes
Weather conditions suitable for sampling.	Yes	Comparable methods if different laboratories used Refer **Section 10.7**).	Yes
Same sample types collected and preserved in same way (refer **Section 10.7**).	Yes	Comparable limits of reporting if different laboratories used.	Yes
Relevant samples stored in insulated containers and chilled (refer **Section 10.7**).	Yes	Comparable units of measure if different laboratories have been used (refer **Section 10.7**).	Yes

Table 10.5.6. Data Quality Indicators and Target Criteria

Representativeness			
Field Considerations	***Target Criteria***	***Laboratory Considerations***	***Target Criteria***
Media identified in sampling plan, sampled (refer **Section 10.7**).	Yes	Samples identified in sampling plan, analysed.	Yes
Samples required by sampling plan, collected (refer **Section 10.7**).	Yes		

Precision			
Field Considerations	***Target Criteria***	***Laboratory Considerations***	***Target Criteria***
Minimum 5% duplicates and triplicates collected and analysed (refer **Section 10.5**).	Yes	All laboratory duplicate RPDs within laboratory acceptance criteria (refer **Section 10.5**).	Yes
Minimum 10% duplicates and triplicates collected and analysed where PFAS is a contaminant of concern (refer **Section 10.5**.	Yes		
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes		
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes		
RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes		

Bias (Accuracy)			
Field Considerations	***Target Criteria***	***Laboratory Considerations***	***Target Criteria***
Trip blank analyte results less than limit of reporting (refer **Section 10.5**).	Yes	Laboratory method blank results within laboratory acceptance limits (refer **Section 10.5**).	Yes
Trip spike analyte results less between 60% and 140% (refer **Section 10.5**).	Yes	Laboratory control sample results within laboratory acceptance limits (refer **Section 10.5**).	Yes
Rinsate blank analyte results less than limit of reporting (refer **Section 10.5**).	Yes	Laboratory spike sample results within laboratory acceptance limits.	Yes
Field (PFAS) blank analyte results less than limit of reporting (refer **Section 10.5**).	Yes		

10.5.7 If / Then Statements

If the field and laboratory analytical dataset meets the DQI target assessment criteria, then the data may be considered adequately complete, comparable, representative, precise and unbiased, for the purpose of addressing the decisions / goals of this project as set out in **Section 10.2**.

If the field and laboratory analytical dataset does not meet the DQI target assessment criteria, then additional data may need to be collected to address gaps identified in the data.

If the field and laboratory analytical results are within the adopted land contamination assessment criteria (refer **Section 10.3**), then it may be assessed that identified land contamination at the site does not present an unacceptable human health and/or ecological exposure risk.

If the field and laboratory analytical results are outside adopted land contamination assessment criteria (refer **Section 10.3**), then it may be assessed that identified land contamination at the site presents an unacceptable human health and/or ecological exposure risk, or that supplementary site specific qualitative / quantitative risk assessment may be required.

If the field and laboratory analytical results are within the acid sulfate soil assessment criteria (refer **Section 10.3**), then it may be assessed that acid sulfate soils are present.

If the field and laboratory analytical results are outside the acid sulfate soil assessment criteria (refer **Section 10.3**), then it may be assessed that acid sulfate soils are not present.

10.6 Step 6: Performance and Acceptance Criteria

10.6.1 If / The Decisions

There are two types of decision error:

- Sampling errors – these occur when the sampling program does not adequately detect variability of a contaminant from point to point across a site. That is, the samples collected are not representative of site conditions (e.g. an appropriate number of representative samples have not been collected from each stratum, to account for estimated variability in that contaminant); and
- Measurement errors - these occur during sample collection, preparation, analysis and reduction of data.

During land contamination assessment, these errors can result in either:

- a Type I error, where land contamination human health and/or ecological exposure risks are considered to be acceptable, when they are not acceptable; or
- a Type II error, where land contamination human health and/or ecological exposure risks are considered to be unacceptable, when they are acceptable.

During acid sulfate soil assessment, these errors can result in either:

- a Type I error, where acid sulfate soils are considered to be present, when they are present; or

- a Type II error, where acid sulfate soils are considered to not be present, when they are present.

For decision rules to be sound, they should be designed to mitigate risk of decision errors occurring. The risk of decision error on this project will be mitigated by:

- Ensuring fieldwork is undertaken by suitably experienced field staff and sub-contractors, with reference to the DQO adopted for this project;
- Ensuring laboratory analysis is undertaken by NATA accredited laboratories; and
- Ensuring assessment of field and laboratory analytical data is undertaken by suitably experienced environmental consultants and/or outsourcing assessment to technical experts (if warranted).

10.7 Step 7: Develop the plan for obtaining data

10.7.1 Sampling Point Densities and Locations

Table A in NSW EPA (1995) provides guidance on minimum sampling point densities required for characterising a site, based on detecting circular hot spots, by using a systematic sampling pattern. Application of sampling densities in Table A can be appropriate when:

- There is little knowledge about the probable locations of the contamination;
- The distribution of the contamination is expected to be random (e.g. landfill sites); or
- The distribution of the contamination is expected to be fairly homogenous (e.g. agricultural lands).

Section 3.1 of NSW EPA (1995) advises that judgemental or stratified sampling methods can be used if there is sufficient information about the probable distribution of the contamination.

Section 6.2.1 in NEPC (2013b) advises that judgemental sampling and the selection of samples (number, location, timing, etc) should be based on knowledge of the site and professional judgement. In these instances, sampling would be expected to be localised to known or potentially contaminated areas identified from knowledge of the site either from the site history or an earlier phase of laned contamination assessment. Judgemental sampling can be used to investigate sub-surface contamination issues in site assessment.

Section 4.1 and Table 1 of WA DOH (2009) provides guidance on asbestos in soil sampling densities (in-situ and stockpiles), relative to the likelihood of asbestos being present on the site, based on assessment of site history.

Table 6.1 of Sullivan et al (2018) provides guidance on acid sulfate soil sampling densities for in-situ and stockpile materials, relative to the volume of soil disturbance proposed or the extent of the site. For the purpose of this investigation, a volume of disturbance of 501-1000m^3 has been adopted.

The scope of this project has included collection of data that provides an understanding of:

- site history;

- the locations of potentially contaminated areas;
- the identified COPC;
- laydown mechanisms for COPC in each AEC;
- the likely lateral and vertical extent of potential contamination in each AEC; and
- constraints on site which may restrict the use of certain sampling techniques.

On that basis, it is considered reasonable to adopt a mix of systematic grid based and judgemental sampling patterns, using the sampling point densities set out in **Table 10.7.1** and **Figure 4.**

Table 10.7.1 Sampling Point Densities and Locations

ID	AEC	Sampling Point ID	Method	Target Depth (m bgl)
AEC01	Site footprint ($3,271m^2$ to ~0.5m depth)	TP01-TP13	Test pit	1.5m, 0.3m into natural, or practical refusal
		BH01-BH04	Borehole (solid flight augers)	3m or practical refusal (for acid sulfate soils)
AEC02	Former sports courts ($945m^2$ to ~0.5m depth)	TP05-TP09	Test pit	1.5m, 0.3m into natural, or practical refusal
AEC03	Concrete walkway ($200m^2$ to ~0.5m depth)	TP05-TP07	Test pit	1.5m, 0.3m into natural, or practical refusal
AEC04	Demolished buildings ($570m^2$)	TP10-TP13	Test pit	1.5m, 0.3m into natural, or practical refusal
Ambient Background Concentration (ABC)	Inferred natural surface soils	ABC01	Surface sample	0.1m

10.7.2 Sampling Methods

10.7.2.1 Soils

Soil samples will be collected from each relevant sampling point, at the surface, and at regular intervals thereafter, or where there is a change in lithology, or where there is visual/olfactory evidence of potential contamination.

Soil samples for acid sulfate soil assessment will be collected at the surface and at every 0.5m interval thereafter. If visual indicators of ASS are present, additional samples will be collected targeting these soils.

Samples requiring asbestos gravimetric screening for asbestos containing material (ACM) and fibrous asbestos (FA) will be 10L in volume and will be collected and screened with reference to Table 5 in WA DOH (2009).

Samples requiring asbestos fines (AF) and fibrous asbestos (FA) analysis, will be collected as separate samples to the aforementioned 10L bulk samples.

Samples will be submitted to a NATA accredited laboratory for analysis.

10.7.3 Decontamination

Non-disposable sampling equipment will be decontaminated between sampling points to mitigate potential for cross contamination of samples. Decontamination will include the following procedure:

- Washing off the non-disposable sampling equipment with a solution of potable water and phosphate free detergent (e.g. Decon 90), noting that Decon 90 will not be used on equipment used for collection of samples that will be analysed for PFAS compounds;
- Rinsing the washed equipment with distilled or de-ionised water; and
- Air drying of the rinsed equipment.

10.7.4 Headspace Screening

When COPC identified for the site include volatiles (e.g. BTEX, TRH or VOC), collected soil samples will be subjected to headspace screening for ionisable volatile organic compounds, using a calibrated photo-ionisation detector (PID) fitted with a 10.6 eV lamp. A sub sample from each collected sample will be placed in a zip lock bag, sealed, and shaken. Each zip lock bag will then be pierced with the tip of a PID and the results recorded on the relevant sampling point borehole or test pit log.

10.7.5 Sample Identification, Handling, Storage and Transport

Soil samples will be identified using the relevant Alliance project number, the sampling point identification number and the sampling depth interval (e.g. TP01/0.0-0.2 or TP05/0.5-0.7), and date the sample was collected.

Samples will be placed in laboratory prepared containers (containing preservatives as appropriate), bulk sample bags and zip lock bags. Soil, water and vapour samples will be stored in insulated containers with ice.

Samples for acid sulfate soil analysis will be collected in laboratory prepared zip lock bags specially labelled for acid sulfate soils. Bags will be filled to the top and air squeezed out of the bags before they are sealed.

Samples will be transported to the relevant analytical laboratory by Alliance or a third-party courier, using chain of custody (COC) documentation.

10.7.6 Selection of Laboratory

The analytical laboratories used for this project will be reputable industry recognised environmental laboratories, that are NATA accredited for the analytical methods used.

10.7.7 Scheduling of Laboratory Analysis

Collected samples will be scheduled for laboratory analysis based on:

- The COPC identified for the AEC the sample was collected from;
- Observations made of the sample when collected (including staining, odour, presence of anthropogenic materials, and presence of potential asbestos containing materials);
- The results of sample headspace screening (if applicable); and
- The need for specific qualitative or quantitative data to inform assessment of risk associated with other laboratory analytical data (e.g. pH, cation exchange capacity, clay content, organic carbon content).

The laboratory analytical schedule (including upper limiting sample quantities) adopted for this project, is set out in **Table 10.7.7**.

Table 10.7.7 Schedule of Laboratory Analysis

ID	AEC	Sampling Point ID	TRH/BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.01%)	Asbestos ID	pH_F/pH_{FOX}	CRS	pH	CEC
AEC01	Site footprint	TP01-TP13 BH01-BH04	2	2	2	2	2	2	-	28	4	1	1
AEC02	Former sports courts	TP05-TP09	5	5	5	5	9	5	-	-	-	-	-
AEC03	Concrete walkway	TP05-TP07	3	3	3	3	5	3	-	-	-	-	-
AEC04	Demolished buildings	TP10-TP13	4	4	4	4	6	4	-	-	-	-	-

10.7.8 Analytical Methods, Limits of Reporting and Holding Times

The analytical methods, limits of reporting and sample holding times adopted for this project, are set out in **Table 10.7.8**

Table 10.7.8 Analytical Methods, Limits of Reporting and Holding Times

Analyte	Method	Limit of Reporting (mg/kg)	Limit of Reporting (µg/L)	Holding Time
BTEX and TRH C_6-C_{10}	USEPA 5030, 8260B and 8020	0.2-0.5	1-2 and 50	14 days
TRH C_{10}-C_{40}	USEPA 8015B & C	20-100	50-500	14 days
PAH	USEPA 8270	0.1-0.2	0.5-10	14 days
PCB	USEPA 8270	0.2	-	14 days
OCP	USEPA 8081	0.2	-	14 days
Metals (Hg and Cr^{vi})	USEPA 8015B & C	0.05-2	0.1-5	6 months (28 days)
Asbestos ID	AS4926	Absence / presence	-	No limit
Asbestos (WA DOH)	Inhouse	0.001% w/w	-	No limit
pH	APHA 4500 pH	-	0.1 pH unit	24 hours (up to 7 days allowed)
pHF and pHFox	AN104	0.1 pH unit	-	24 hours
CRS / SPOCAS	AS 4969	0.005%	-	24 hours / 7 days if frozen/dried

11 Fieldwork

11.1 Soils

11.1.1 Sampling

Soil sampling works were undertaken on 13 July 2022 by a suitably experienced Alliance environmental consultant (Ayodeji Awopetu). Soil sampling works for the acid sulfate soil investigation were undertaken on 14 July 2022 by a suitably experienced geotechnical engineer (Emerson You).

These works included:

- Undertaking a survey of each sampling point by a service locating contractor for buried metallic services;
- Excavation of thirteen test pits (TP01 to TP13) using a 3.5 tonne tracked hydraulic excavator; and
- Drilling of four boreholes (BH01 to BH04) using a track mounted drill rig with solid flight auger attachments.

Soil samples were collected at each sampling point, at the surface and at regular intervals thereafter, or at depths where visual or olfactory evidence of contamination was encountered.

Samples were collected either directly from excavated soils, or from the centre of soils while still in the excavator bucket (to avoid cross contamination), as grab samples, using a fresh pair of nitrile gloves.

Samples for acid sulfate soil analysis were collected directly from the auger cuttings, using a fresh pair of nitrile gloves. Soil samples were collected at each sampling point, at 0.5m and at each half metre thereafter, until target depth was achieved.

A 10L bulk sample was collected at each test pit sampling point, at the surface and for each metre (or part thereof) of inferred fill material encountered. Sub samples of 500ml volume were taken as separate samples to 10L bulk samples.

Samples were placed in suitable laboratory prepared containers and labelled. Samples collected for acid sulfate soils assessment had the air removed from the zip lock bag.

Test pits were backfilled with excavated soils and track rolled. Boreholes were backfilled with auger cuttings to the surface.

Duplicate and triplicate samples were collected by splitting the primary sample across three sample containers (without homogenising, to avoid loss of volatiles).

A trip spike, trip blank and field blank were used for each day of fieldwork.

Samples were placed in insulated containers with ice bricks .

Sampling point locations were confirmed on a site plan. The sampling point location plan is presented in **Figure 4.**

Image 11.1.1.1 View of TP08

Image 11.1.1.2 View of natural soil material at TP05

11.1.2Site Specific Geology

Observations made of the soils encountered during intrusive investigation works on site, were recorded on relevant field logs. A copy of those logs is presented in **Appendix G**.

A summary of those observations, in the context of subsurface conditions at the site, is presented in **Table 11.1.2.**

Table 11.1.2. Site Specific Geology

Unit	Description	Depth (m bgs)
Fill	Silty Sandy CLAY, low plasticity, brown or dark brown or dark grey with rootlets, grass. Fragments of broken glass, pieces of brick and trace of asphalt gravels in TP01 to TP04 and TP09 to TP13 only. Mild organic odour in TP04.	0.0-0.6
Fill	Sandy Gravel, fine to medium grained, dark grey / dark brown, with rootlets and grass in TP06 to TP08 only.	0.0-0.4
Natural	Silty CLAY/Sandy CLAY, low to high plasticity, orange or orange/brown or yellow brown mottled grey or red-brown, becoming grey-light grey below 1.2m to 3.2m, with trace fine gravels (TP5 and TP6), moist to wet.	0.3-5.3
Natural	Clayey SAND, fine to medium grained, dark grey and grey or red-brown and orange	5.0-8.0

11.1.3 Soil Staining and Odours

Visual evidence of staining was not observed in the soil samples collected.

A weak organic odour was detected in the sample collected from 0-0.2m at TP04. Olfactory evidence of odours was not detected at the other soil sampling locations.

11.1.4 Headspace Screening

Sample headspace screening was undertaken, by placing a sub sample from each relevant sample at each relevant sampling point, in a zip lock bag, sealing it, shaking it, then piercing the bag with the tip of the PID and the results recorded on the relevant field log. The results of the headspace screening are presented in the logs in **Appendix G**.

The results of the headspace screening indicated the potential for ionisable volatile organic compounds (VOC) to be present in the samples screened was generally low, with a maximum reading of 1.1ppm.

A copy of the calibration certificate for the PID is presented in **Appendix J**.

11.1.5 Asbestos Containing Materials and Fibrous Asbestos

Evidence of visual asbestos in surface soils was not observed on the surface of the site during the site walkover or fieldwork for intrusive investigations.

The 10L bulk soil samples were weighed and the weights recorded (to inform assessment of site-specific soil densities). The samples were then screened by spreading on contrasting plastic.

Visual evidence of potential asbestos containing materials (ACM) was not observed in the samples collected.

Image 11.1.5.1 View of gravimetric assessment at TP5

Image 11.1.5.2 View of gravimetric assessment at TP12

11.1.6 Acid Sulfate Soil Characteristics

Visual observations made on site, with reference to the indicators set out in **Section 10.3**, suggest that visual indicators of acid sulfate soils were not observed in the soil samples collected to the depth of investigation for acid sulfate soils (3m depth).

12 Laboratory Analysis

The collected samples were transported to the analytical laboratory using chain of custody (COC) protocols. A selection of those samples were scheduled for laboratory analysis, taking into consideration the laboratory analytical schedule presented in **Table 10.7.7**, observations made in the field, and the results of field and headspace screening.

A copy of the COC, sample receipts and certificates of analysis, is presented in **Appendix H**.

The relevant laboratory analytical results were tabulated and presented in the attached Table LR1, Table LR2, Table LR3 and Table LR4, to allow comparison with assessment criteria adopted for this project.

13 Data Quality Indicator (DQI) Assessment

In order to assess the quality of the field and laboratory analytical data collected for this project, that data was compared against the data quality indicators (DQI) established for this project (refer **Section 10.5.6**).

The results of that comparison is presented in **Appendix I**.

The DQI comparison results indicate that the field and laboratory data are adequately complete, comparable, representative, precise and unbiased (accurate), with in the context and objectives of this project.

14 Site Characterisation Discussion

14.1 Exposure Pathways

14.1.1 Human Health

14.1.1.1 Dermal Contact / Ingestion / Dust Inhalation

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the adopted human health direct contact assessment criteria.

Further assessment of dermal contact, ingestion and dust inhalation human health exposure risks is considered not warranted.

14.1.1.2 Asbestos Containing Materials

Fragments of ACM encountered during field screening, that would not pass through a 7mm x 7mm sieve, were not observed during field screening of relevant bulk soil samples.

The results of the ACM quantification in soil assessment are presented in **Table LR3**.

Further assessment of ACM in soil human health exposure risks is considered not warranted.

14.1.1.3 Fibrous Asbestos / Asbestos Fines

Fibrous asbestos and asbestos fines were not detected soil samples analysed.

Further assessment of fibrous asbestos / asbestos fines in soil human health exposure risks is considered not warranted.

14.1.1.4 Asbestos in Surface Soils

Evidence of visible asbestos in surface soils was not observed during fieldwork.

Further assessment of visible asbestos in surface soil risks is considered not warranted.

14.1.2 Management Limits for Petroleum Hydrocarbons

The detected concentrations of the relevant COPC in the soil samples analysed, were less than the laboratory limit of reporting, with the exception of samples TP4_0-0.2 and TP6_0-0.2. However, the detected concentration of TRH in these samples was significantly less than the adopted management limits for petroleum hydrocarbon assessment criteria.

Further assessment of management limit factors in the context of this project, is considered not warranted.

14.1.3 Aesthetics

Visual and olfactory observations made of soils encountered during fieldwork, indicated the presence of some glass, brick, ceramic and asphalt in the fill material at some sampling points. Section 3.6.3 of NEPC (2013a) advises that:

- Small quantities of non-hazardous inert material should not be a cause of concern or limit the use of the site in most circumstances.

The foreign materials observed in the fill material was observed to be of a small quantity. Furthermore, the site is proposed for commercial/industrial use, which is a less sensitive land use. Guidance in Section 3.6.3 of NEPC (2013a) does allow for lower expectations for soil quality to be applied to commercial / industrial settings, compared to residential properties with gardens.

Further assessment of aesthetic risks is considered not warranted.

14.1.4 Terrestrial Ecosystems

The detected concentrations of the relevant COPC in the soil samples analysed were compared against the ecological investigation limits (EILs) and ecological screening limits (ESLs) outlined in NEPC (2013a).

For relevant contaminants with no EILs set out in NEPC (2013a), site specific EILs were derived using guidance provided in NEPC (2013a), on the assumption that the contamination detected was aged (present for 2 years of more). Parameters considered to derive the site specific EILs were the adopted land use scenario, the ambient background concentration (ABC) of contaminants in residual soils onsite using the detected concentrations reported by the laboratory for pH and cation exchange capacity (CEC). The percentage of clay content analysis was not undertaken. However, based on the observation that natural soil onsite comprised of clay, an assumed 5% clay content[24] was considered reasonable and adequately conservative in the context of this project. Derived site specific EILs are presented in Table 14.1.4.

[24] Refer Table 1B93) in NEPC (2013a)

Table 14.1.4 Site Specific Derived EILs

Aged Contaminant in Soils	Ambient Background Concentration (ABC) (mg/kg)	Added Contaminant Limit (ACL) (mg/kg)	ABC + ACL	Site Specific Derived EIL (mg/kg)[25]
Chromium (III)	30	530	560	560
Copper	16	85	101	100
Lead	12	1100	1112	1110
Nickel	11	55	66	65
Zinc	36	210	246	250

The detected concentrations of the relevant COPC in the soil samples, were less than the adopted terrestrial ecosystems assessment criteria, with the exception of:

- Copper in sample QAQC1A (150mg/kg) which exceeded the adopted assessment criterion of 100mg/kg;
- Zinc in sample TP4_0-0.2, TP5_0-0.2, QAQC1A and QAQC1B (410mg/kg, 1,000mg/kg, 590mg/kg and 419mg/kg respectively) which exceeded the adopted assessment criterion of 250mg/kg.

Samples QAQC1A and QAQC1B are duplicates of sample TP4_0-0.2.

A site-specific ecological risk assessment was undertaken for the detected concentrations of copper and zinc in soils at the site. Based on guidance provided in Section 2.2.1 of NEPC (2013f), the following ecological receptors should be considered during risk assessment:

- Biota supporting ecological processes, including microorganisms and soil invertebrates;
- Native flora and fauna;
- Introduced flora and fauna; and
- Wildlife, i.e. secondary poisoning in birds and small rodents

Observations of the surface soils encountered in each of the test pits TP01 to TP05 and TP09 to TP13 indicated the same surface soil type was present. On that basis, a statistical analysis of the detected copper concentrations in the samples collected from the surface soils was undertaken using ProUCL. In order for the statistical analysis output to be considered reliable, the maximum value in any one analyte dataset cannot be greater than 250% of the relevant adopted screening criterion value, and the standard deviation of any one analyte dataset, cannot be greater than 50% of the relevant adopted screening criterion value.

[25] ABC + ACL result rounded for consistency and avoidance of false accuracy (NEPC 2013a, Case Study 5 in Section 5 of Schedule B1)

A copy of the output of the ProUCL statistical analysis undertaken is presented in **Appendix K**. The output of the statistical analysis indicated that:

- the maximum detected copper concentration value in the data set was 150mg/kg, which is less than 250% of the adopted criterion value (100mg/kg);
- the standard deviation of the detected zinc concentrations in the data set was 38mg/kg, which is less than 50% of the adopted criterion value (100mg/kg); and
- there is a 95% probability that the arithmetic average concentration of zinc in the fill material will not exceed 73mg/kg, which is less than the adopted criterion value of 100mg/kg.

On that basis, the detected concentrations of copper in soils are considered unlikely to present an unacceptable risk to local ecosystems, and further assessment of copper in soil terrestrial ecosystem risks is not warranted.

A statistical analysis of the detected zinc concentrations in the samples collected from the surface soils was undertaken using ProUCL. The output of the statistical analysis indicated that,

- the maximum detected zinc concentration value in the data set was 1,000g/kg, which is more than 250% of the adopted criterion value (250mg/kg);
- the standard deviation of the detected zinc concentrations in the data set was 295.8mg/kg, which is more than 50% of the adopted criterion value (250mg/kg); and
- there is a 95% probability that the arithmetic average concentration of zinc in the fill material will not exceed 495.4mg/kg, which is more than the adopted criterion value of 250mg/kg.

Some of the detected concentrations of zinc were only marginally higher than the adopted EILs (250mg/kg), but generally within the same order of magnitude as the relevant adopted site assessment criteria which is a tier 1 screening criteria only, and inherently conservative.

The detected concentrations of zinc in the soil samples collected at nearby sampling points TP01 to TP03 and TP06 to TP13, were well below the adopted EIL, which suggests that the elevated concentration of zinc at TP04 and TP05, is likely to be highly localised. Further, visual observations made by Alliance in the vicinity of TP04 and TP05 during fieldwork tasks, did not indicate evidence of phytotoxic impact in the form of die back or plant stress.

Information in Table 2 of NEPC (2013g) indicates that no observed effect concentrations (NOEC) of added zinc on individual soil processes, ranged from 56 to 674mg/kg. While some detected zinc concentrations may impact soil processes, the impacts would be localised to the upper 0.2m of soil, and only in some parts of the site. The concentrations of zinc detected at the surface may be above some reported NOEC values, but the arithmetic average concentration of zinc in those samples is unlikely to be greater than 495.4mg/kg with 95% confidence (well below many of the aforementioned NOEC values), and many of the assessed soil processes would not be impacted by the detected concentrations. It is also noted that the standard deviation of the zinc data set (295.8mg/kg) is less than 50% of the upper NOEC (674mg/kg), which suggests it is reasonable to compare the arithmetic average zinc concentration to the NOEC range.

Information in Table 3 of NEPC (2013g) indicates that no observed effect concentrations (NOEC) of added zinc in soil for invertebrate species and an invertebrate community, ranged from 23mg/kg to 1,062mg/kg. While some detected zinc concentrations may impact invertebrates, the impacts would be localised to the upper 0.2m of soil, and only in some parts of the site. The concentrations of zinc detected at the surface may be above some reported NOEC values, but the arithmetic average concentration of zinc in those samples is unlikely to be greater than 495.4mg/kg with 95% confidence (well below many of the aforementioned NOEC values), and many of the assessed invertebrates would not be impacted by the detected concentrations. It is also noted that the standard deviation of the zinc data set (295.8mg/kg) is less than 50% of the upper NOEC (1,062mg/kg), which suggests it is reasonable to compare the arithmetic average zinc concentration to the NOEC range.

Information in Table 4 of NEPC (2013g) indicates that no observed effect concentrations (NOEC) of added zinc in soil for individual plant species, ranged from 39mg/kg to 3,220mg/kg. While some detected zinc concentrations may impact invertebrates, the impacts would be localised to the upper 0.2m of soil, and only in some parts of the site. The concentrations of zinc detected at the surface may be above some reported NOEC values, but the arithmetic average concentration of zinc in those samples is unlikely to be greater than 495.4mg/kg with 95% confidence (well below many of the aforementioned NOEC values), and many of the assessed plant species would not be impacted by the detected concentrations. It is also noted that the standard deviation of the zinc data set (295.8mg/kg) is less than 50% of the upper NOEC (1,062mg/kg), which suggests it is reasonable to compare the arithmetic average zinc concentration to the NOEC range.

On that basis, the detected concentrations of copper in soils are considered unlikely to present an unacceptable risk to local ecosystems, and further assessment of copper in soil terrestrial ecosystem risks is not warranted.

On that basis, the detected concentrations of zinc in soil at the site is unlikely to present an unacceptable risk to local terrestrial ecosystems, and that further assessment of zinc in soil terrestrial ecosystem risks is not warranted.

14.2 Acid Sulfate Soils

14.2.1 Field Peroxide Screening

None of the reported pH_F analytical results were less than the preliminary ‘actual acid sulfate soils’ screening criteria of pH<4, indicating that actual acid sulfate soils are unlikely to be present in the soils assessed.

Out of the 32 samples analysed for pH_{Fox}, 4 results were less than the preliminary ‘potential acid sulfate soils’ screening criteria of pH<3.5. Of the samples analysed, 28 also reported a pH drop greater than the preliminary screening criterion of 1 pH unit. 8 of the samples analysed reported a hydrogen peroxide reaction as being ‘extreme / vigorous’. These results indicate that potential acid sulfate soils may be present in the soils assessed.

14.2.2 Chromium Reducible Sulfur

A selection of samples reporting exceedances of pHfox or pH drop criteria or strong/high or ‘extreme/vigorous’ reactions (or a combination of these, taking into account spatial and depth representativeness), were subjected to chromium reducible sulphur (CRS) laboratory analysis.

The CRS laboratory analytical results were compared with action criteria that would trigger the need for an acid sulfate soils management plan. Based on the soil types encountered in the test pits and boreholes, generally silty/sandy clays and clayey sands, Alliance has adopted the action criteria for ‘medium clayey sand to light clays’ and disturbance of more than 1,000 tonnes of material from Table 5.4 of Sullivan et al. (2018), based on the basis for sampling densities set out in **Section 10.7.1** of this investigation.

The sulfur trail and acid trail analytical results for multiple samples triggered the adopted action criteria (0.03% and 18 mol H+ / tonne), as set out in **Table LR4**, indicating that potential acid sulfate soils are likely present across the site, at depths of between site surface down to the depth of assessment 3m below ground level (based on an assumed maximum disturbance depth of 2m below ground level).

15 Revised Conceptual Site Model

Consistent with guidance provided in Section 4.2 of NEPC (2013b), the conceptual site model (CSM) presented in **Section 9.6** has reviewed to reflect the data collected during this project, and subsequent assessment of that data against the screening criteria adopted for this project.

An updated CSM is presented in **Table 15**.

Table 15 Revised Conceptual Site Model

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor	Outcome
AEC01	Site footprint (3,271m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems	The field and laboratory analytical data for site soils were less than the adopted Tier 1 screening criteria. No further assessment warranted.
AEC02	Former sports courts (945m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems	The field and laboratory analytical data for site soils were less than the adopted Tier 1 screening criteria. No further assessment warranted.
AEC03	Concrete walkway (200m^2 to ~0.5m depth)	Uncontrolled filling	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems	The field and laboratory analytical data for site soils were less than the adopted Tier 1 screening criteria. No further assessment warranted.

Table 15 Revised Conceptual Site Model

ID	AEC	Land Contaminating Activity (Source)	COPC	Exposure Pathway	Receptor	Outcome
AEC04	Demolished structures ($570m^2$)	Uncontrolled filling, hazardous building materials and termite treatment	Petroleum hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl, BTEX, heavy metals, asbestos, anthropogenic materials.	Dermal contact Soil Ingestion Dust inhalation Inhalation (asbestos) Management limits Aesthetics Ecosystem uptake	Commercial / industrial workers Intrusive maintenance workers Terrestrial ecosystems	The field and laboratory analytical data for site soils were less than the adopted Tier 1 screening criteria. No further assessment warranted.

16 Duty to Report Contamination

Section 1.3 of NSW EPA (2020b) states that contaminated land consultants should take reasonable steps to draw the client's attention to its potential duty to report contamination under section 60 of the Contaminated Land Management Act 1997.

Section 2 in NSW EPA (2015) includes guidance on how to address reporting obligations under section 60 of the Contaminated Land Management Act 1997, including those parties required to notify EPA as soon as practical after they become aware of contamination. Those parties include:

- Anyone whose activities have contaminated land; or
- An owner of land that has been contaminated.

Alliance understands that the client is:

- not the occupier of the land, and as a consequence, is unlikely to have undertaken activities on the site that have contaminated the land, or
- not the owner of the land that may have been contaminated

On that basis, further assessment of the duty to report in the context of the guidance provided in NSW EPA (2015) is considered not warranted.

However, if the client was to become the owner and/or occupier of the land that the site is located on, and

- the client undertakes activities on the site that contaminates the land; or
- the client is the owner of the land that may have been contaminated;

then NSW EPA (2015) includes guidance on when the client should seek further advice about site contamination and its obligations regarding the duty to report. Additional information on the client's duty to report can be found at www.epa.nsw.gov.au.

17 Conclusions and Recommendations

Based on the assessment undertaken by Alliance of site history information, fieldwork observations and data, and laboratory analytical data, in the context of the proposed land use scenario and objectives of this project, Alliance has made the following conclusions:

- Unacceptable land contamination human health and ecological exposure risks have not been identified for the site;
- The site is suitable for a commercial / industrial land use, such as shops, offices, factories and industrial sites;
- Potential acid sulfate soils (PASS) are likely to be encountered in soils from the surface to at least a depth 3m below ground level (based on an assumed maximum disturbance depth of 2m below ground level). In the event the proposed development requires soil disturbance below a depth of 2m below ground level, further assessment would be required;
- Specific assumptions that apply to the adopted land use scenario, are presented in **Section 9** of this report.

Based on those conclusions, Alliance makes the following recommendations:

- Further assessment of soils classified as PASS should be undertaken to:
    - Assess the nature and extent of natural soil layers that have a pH of 5.5 or more, and that would meet the definition of virgin excavated natural material (VENM) even though they contain sulfidic ores. This assessment could facilitate offsite disposal of those soils (if excavated) below the permanent water table without treatment, at a suitably licensed facility with reference to NSW EPA 2014, 'Waste classification guidelines, Part 4: Acid sulfate soils; and
    - Assist with delineation of relevant PASS layers that cannot be disposed of below the permanent water table without treatment, to better inform relevant liming rates for acid sulfate soil treatment of those soils, prior to waste classification and offsite disposal.
- An acid sulfate soils management plan should be prepared to address identified acid sulfate soils; and
- Further assessment and management plan works should be undertaken by a suitably experienced environmental consultant.

This report must be read in conjunction with the ***Important Information About This Report*** statements at the front of this report.

18 References

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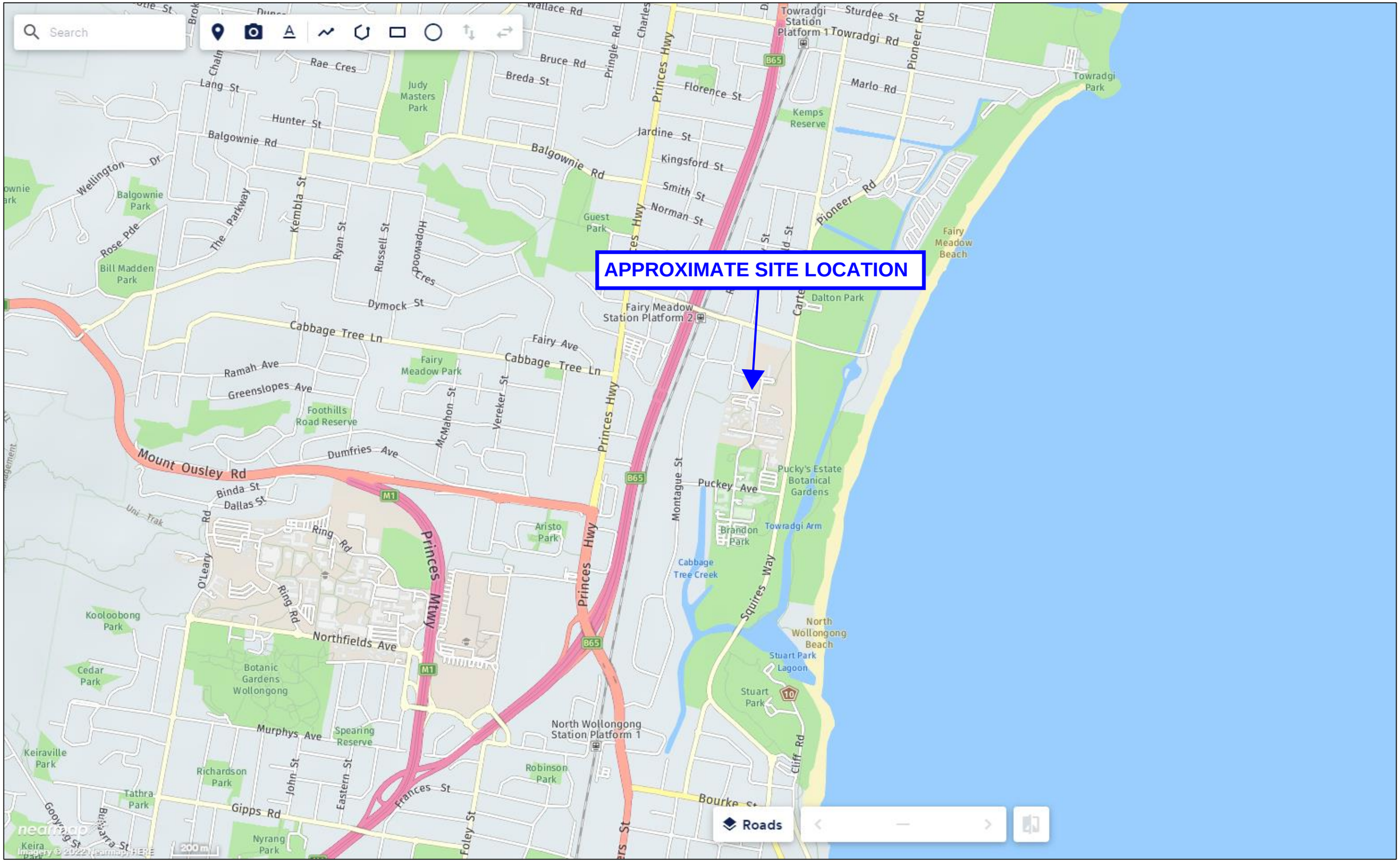
FIGURES



SOURCE: www.nearmap.com

750.00 m

Site Locality

alliance

Client Name:	Health Infrastructure	Figure Number:	1
Project Name:	Preliminary and Detailed Site Investigation	Figure Date:	29 June 2022
Project Location:	7 Squires Way Fairy Meadow	Report Number:	15348-ER-1-1

N

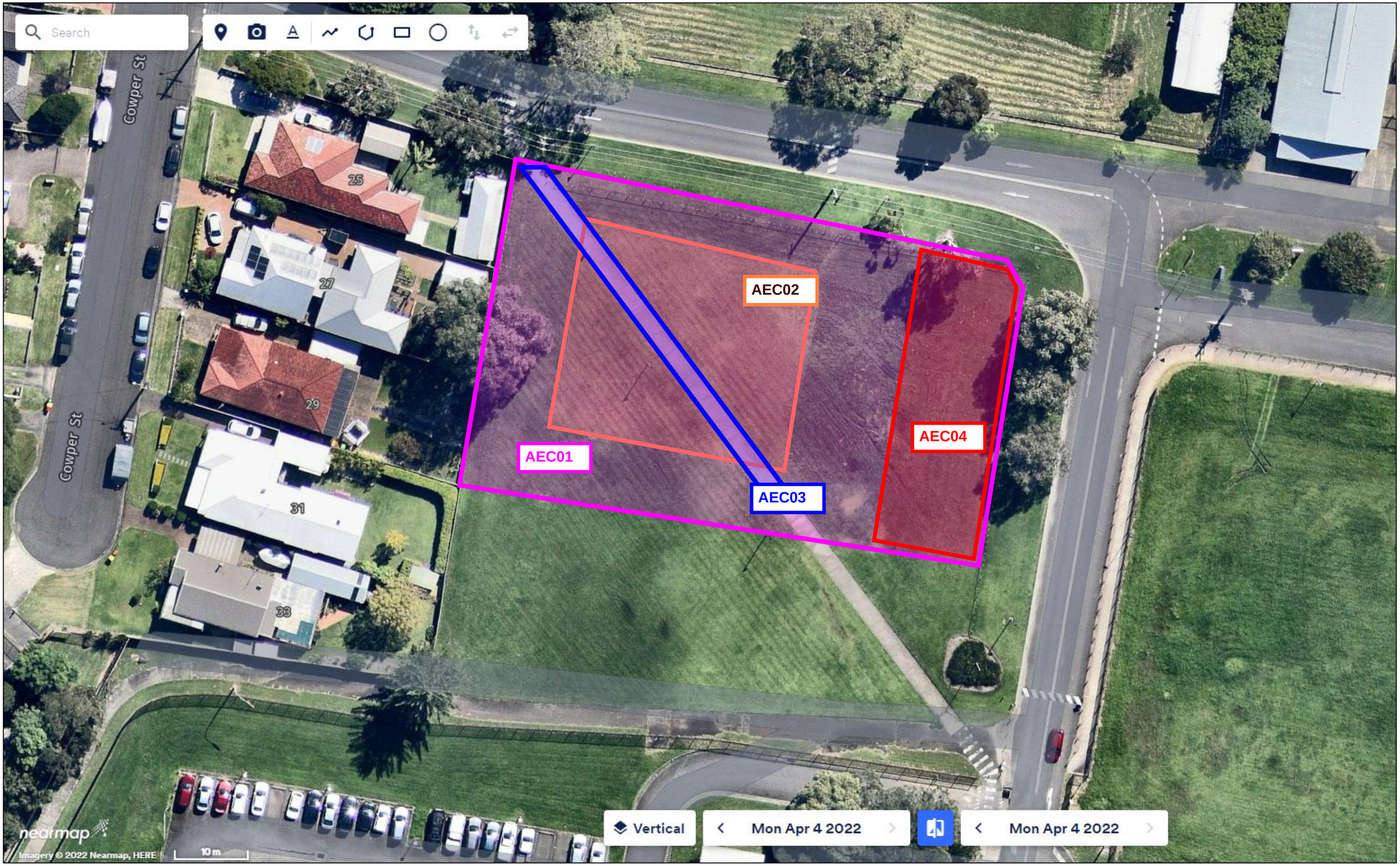
SOURCE: www.nearmap.com

25.00 m

Site Layout

Client Name:	Health Infrastructure	Figure Number:	2
Project Name:	Preliminary and Detailed Site Investigation	Figure Date:	11 July 2022
Project Location:	7 Squires Way Fairy Meadow	Report Number:	15348-ER-1-1

N



SOURCE: www.nearmap.com

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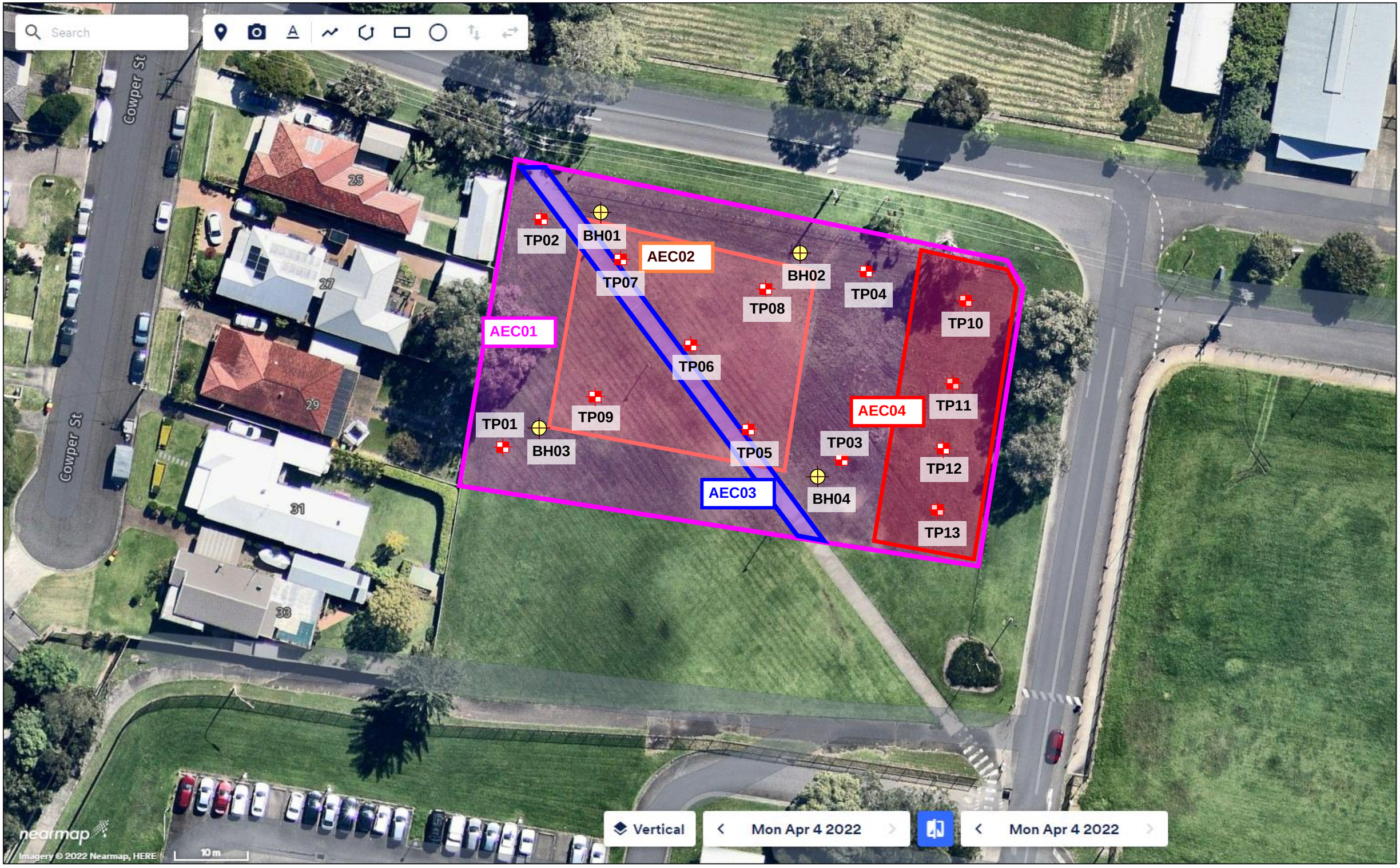
Areas of Environmental Concern

alliance

Client Name:	Health Infrastructure	Figure Number:	3
Project Name:	Preliminary and Detailed Site Investigation	Figure Date:	29 June 2022
Project Location:	7 Squires Way Fairy Meadow	Report Number:	15348-ER-1-1

N



SOURCE: www.nearmap.com

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Areas of Environmental Concern

alliance

Client Name:	Health Infrastructure	Figure Number:	4
Project Name:	Preliminary and Detailed Site Investigation	Figure Date:	11 July 2022
Project Location:	7 Squires Way Fairy Meadow	Report Number:	15348-ER-1-1

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TABLES

Table LR1
7 Squires Way Fairy Meadow
Soil Results & Adopted Site Criteria
15348-ER-1-1

Group	Analyte	Units	PQL	Screening Levels for Direct Contact (mg/kg) - CRC Care 2011	Management Limits (mg/Kg) - NEPC 2013	ESLs - NEPC 2013	HILs - NEPC 2013	EILs - NEPM 2013	Data Set Minimum	Data Set Maximum	Sample ID	TP1_0_0.2	TP1_0.3_0.5	TP2_0.4_0.6	TP4_0_0.2	TP5_0_0.2	TP6_0_0.2	TP7_0.2_0.4	TP8_0_0.2	TP9_0_0.2	TP10_0_0.3	TP11_0_0.3
											Reference	S22-JI0030415	S22-JI0030416	S22-JI0030418	S22-JI0030420	S22-JI0030421	S22-JI0030422	S22-JI0030423	S22-JI0030425	S22-JI0030426	S22-JI0030427	S22-JI0030428
											Date Sampled	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022
											Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				HSL - D Commercial / Industrial	Commercial and Industrial Coarse Soil Texture	Commercial and Industrial Coarse Soil Texture	Commercial / Industrial D	Site Derived Criteria - HIL D															
Metals	Arsenic, As	mg/kg	2	-	-	-	3,000	160	< 2	8.4		3.2	4.7	3.7	5.7	4.4	6.2	5.4	2.9	5.2	5.1	4.9
	Cadmium, Cd	mg/kg	0.4	-	-	-	500	-	< 0.4	0.5		< 0.4	< 0.4	< 0.4	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium, Cr	mg/kg	5.0	-	-	-	3,600	560	< 5	30		19	30	17	18	19	18	30	18	20	27	23
	Copper, Cu	mg/kg	5.0	-	-	-	240,000	100	< 5	150		23	16	34	50	19	39	16	42	23	47	43
	Lead, Pb	mg/kg	5	-	-	-	1,500	1,110	< 5	690		30	12	36	290	690	18	16	19	32	31	28
	Mercury (inorganic)	mg/kg	0.10	-	-	-	730	-	< 0.1	< 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, Ni	mg/kg	5.0	-	-	-	6,000	65	< 5	20		7	11	7	11	8.5	20	11	14	9.3	17	18
	Zinc, Zn	mg/kg	5.0	-	-	-	400,000	250	< 5	1000		53	36	64	410	1000	44	32	32	67	130	100
PAH	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	< 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	< 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	< 0.5	< 0.5
	Benzo(a)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	< 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	< 0.5	< 0.5
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5	-	-	-	-	-	< 0.5	< 0.5		< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5	-	-	-	40	-	0.6	0.6		0.6	-	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5	-	-	-	-	-	1.2	1.2		1.2	-	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	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	< 0.5	< 0.5
	Benzo(ghi)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	< 0.5	< 0.5
	Benzo(k)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	< 0.5	< 0.5
	Chrysene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5		< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	Dibenzo(ah)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	< 0.5	< 0.5
	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	< 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	< 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	< 0.5	< 0.5
	Naphthalene	mg/kg	0.5	11,000	-	-	-	-	< 0.5	< 0.5		< 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	-	-	-	-	-	< 0.5	< 0.5		< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	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	< 0.5	< 0.5
	Total PAH	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5		< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
TRH	TRH C10-C36 Total	mg/kg	50	-	-	-	-	-	< 50	< 50		< 50	-	< 50	< 50	< 50	61	< 50	< 50	< 50	< 50	< 50
	TRH C10-C14	mg/kg	20	-	-	-	-	-	< 20	< 20		< 20	-	< 20	23	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C15-C28	mg/kg	50	-	-	-	-	-	< 50	< 50		< 50	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH C29-C36	mg/kg	50	-	-	-	-	-	< 50	< 50		< 50	-	< 50	< 50	< 50	61	< 50	< 50	< 50	< 50	< 50
	TRH C6-C9	mg/kg	20	-	-	-	-	-	< 20	< 20		< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	Naphthalene	mg/kg	0.5	11,000	-	-	-	370	< 0.5	< 0.5		< 0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
	TRH >C10-C16 (F2)	mg/kg	50	20,000	1,000	170	-	-	< 50	< 50		< 50	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	-	-	-	-	-	< 50	< 50		< 50	-	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
	TRH C10-C40 Total (F bands)	mg/kg	100	-	-	-	-	-	< 100	< 100		< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
	TRH >C16-C34 (F3)	mg/kg	100	27,000	3,500	1,700	-	-	< 100	< 100		< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
	TRH >C34-C40 (F4)	mg/kg	100	38,000	10,000	3,300	-	-	< 100	< 100		< 100	-	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
	TRH C6-C10	mg/kg	20	26,000	700	215	-	-	< 20	< 20		< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
	TRH C6-C10 minus BTEX (F1)	mg/kg	20	-	-	-	-	-	< 20	< 20		< 20	-	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
BTEX	Benzene	mg/kg	0.1	430	-	75	-	-	< 0.1	< 0.1		< 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	27,000	-	165	-	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	m/p-xylene	mg/kg	0.2	-	-	-	-	-	< 0.2	< 0.2		< 0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	o-xylene	mg/kg	0.1	-	-	-	-	-	< 0.1	< 0.1		< 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	99,000	-	135	-	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Total Xylenes	mg/kg	0.3	81,000	-	180	-	-	< 0.3	< 0.3		< 0.3	-	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
OCP	4.4 - DDD	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	4.4 - DDE	mg/kg	0.05					-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	4.4 - DDT	mg/kg	0.05	-	-	-	-	640	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	a - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Aldrin	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Aldrin + Dieldrin (total)	mg/kg	0.05	-	-	-	45	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	b - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Chlordanes (total)	mg/kg	0.05	-	-	-	530	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	d - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	DDT + DDE + DDD (total)	mg/kg	0.05	-	-	-	3,600	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Dieldrin	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endosulfan 1	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endosulfan 2	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endosulfan sulphate	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endrin	mg/kg	0.05	-	-	-	100	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endrin Aldehyde	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Endrin Ketone	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Heptachlor	mg/kg	0.05	-	-	-	50	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Hexachlorobenzene	mg/kg	0.05	-	-	-	80	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Methoxychlor	mg/kg	0.05	-	-	-	2,500	-	< 0.05	< 0.05		< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.5	< 0.05	< 0.5	< 0.5	< 0.05	< 0.05
	Toxaphene	mg/kg	1.0	-	-	-	-	-	< 0.1	< 0.1		< 0.5	-	< 0.5	< 0.5	< 0.5	< 10	< 0.5	< 10	< 10	< 0.5	< 0.5
	Vic EPA IWRG 621 OCP 9total)	mg/kg	0.1	-	-	-	-	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Vic EPA IWRG 621 Other OCP (total)	mg/kg	0.1	-	-	-	-	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Alpha + Beta Endosulfan	mg/kg	0.05	-	-	-	2,000	-	-	-		-	-	-	-	-	-	-	-	-	-	-
PCB	Aroclor-1016	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1221	mg/kg	0.1	-	-	-	-	-	< 0.1	< 0.1		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1232	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1242	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1248	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1254	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Aroclor-1260	mg/kg	0.1	-	-	-	-	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1
	Total PCB*	mg/kg	0.1	-	-	-	7	-	< 0.5	< 0.5		< 0.1	-	< 0.1	< 0.1	< 0.1	< 1	< 0.1	< 1	< 1	< 0.1	< 0.1

Highlighted concentration exceeds the adopted site criteria - Screening Levels for Direct Contact (mg/kg) - CRC Care 2011
Highlighted concentration exceeds the adopted site criteria - Inhalation / Vapour Intrusion HSLs (mg/kg) - NEPC 2013 (SAND)
Highlighted concentration exceeds the adopted site criteria - Management Limits for TPH Fractions F1 - F4 in soil (mg/Kg) - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - ESLs for TPH Fractions F1 - F4, BTEX and Benzo(a)pyrene - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - Health Investigation Levels for Soil Contaminants - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - Ecological Investigation Levels for Soil Contaminants - NEPC 2013

- No published criteria or sample not analysed
NL Not Limiting

Table LR1
7 Squires Way Fairy Meadow
Soil Results & Adopted Site Criteria
15348-ER-1-1

Group	Analyte	Units	PQL	Screening Levels for Direct Contact (mg/kg) - CRC Care 2011	Management Limits (mg/Kg) - NEPC 2013	ESLs - NEPC 2013	HILs - NEPC 2013	EILs - NEPM 2013		TP12_0_0.2	TP13_0_0.2	QAQC1A	QAQC1B	TRIP SPIKE	TRIP BLANK
										S22-JI0030429	S22-JI0030430	S22-JI0030431	ES2225446001	S22-JI0030432	S22-JI0030433
									Da	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022	13/7/2022
									Sa	Soil	Soil	Soil	Soil	Soil	Soil
					Commercial and Industrial	Commercial and Industrial									
				HSL - D Commercial / Industrial	Coarse Soil Texture	Coarse Soil Texture	Commercial / Industrial D	Site Derived Criteria - HIL D	Data Set Minimum						
Metals	Arsenic, As	mg/kg	2	-	-	-	3,000	160	< 2	5.2	4.2	8.4	6	-	-
	Cadmium, Cd	mg/kg	0.4	-	-	-	500	-	< 0.4	< 0.4	< 0.4	0.5	<1	-	-
	Chromium, Cr	mg/kg	5.0	-	-	-	3,600	560	< 5	18	18	24	16	-	-
	Copper, Cu	mg/kg	5.0	-	-	-	240,000	100	< 5	28	30	150	50	-	-
	Lead, Pb	mg/kg	5	-	-	-	1,500	1,110	< 5	74	98	360	316	-	-
	Mercury (inorganic)	mg/kg	0.10	-	-	-	730	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.1	-	-
	Nickel, Ni	mg/kg	5.0	-	-	-	6,000	65	< 5	18	11	15	11	-	-
	Zinc, Zn	mg/kg	5.0	-	-	-	400,000	250	< 5	230	240	590	419	-	-
PAH	Acenaphthene	mg/kg	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	-	-
	Anthracene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Benzo(a)anthracene	mg/kg	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	-	-
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5	-	-	-	40	-	0.6	0.6	0.6	0.6	0.6	-	-
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5	-	-	-	-	-	1.2	1.2	1.2	1.2	1.2	-	-
	Benzo(b&j)fluoranthene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Benzo(ghi)perylene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Benzo(k)fluoranthene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Chrysene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Dibenzo(ah)anthracene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Fluoranthene	mg/kg	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	-	-
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Naphthalene	mg/kg	0.5	11,000	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Phenanthrene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Pyrene	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
	Total PAH	mg/kg	0.5	-	-	-	-	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-	-
TRH	TRH C10-C36 Total	mg/kg	50	-	-	-	-	-	< 50	< 50	< 50	< 50	< 50	-	-
	TRH C10-C14	mg/kg	20	-	-	-	-	-	< 20	< 20	< 20	< 20	<50	-	-
	TRH C15-C28	mg/kg	50	-	-	-	-	-	< 50	< 50	< 50	< 50	<100	-	-
	TRH C29-C36	mg/kg	50	-	-	-	-	-	< 50	< 50	< 50	< 50	<100	-	-
	TRH C6-C9	mg/kg	20	-	-	-	-	-	< 20	< 20	< 20	< 20	<10	-	-
	Naphthalene	mg/kg	0.5	11,000	-	-	-	370	< 0.5	< 0.5	< 0.5	< 0.5	<1	-	-
	TRH >C10-C16 (F2)	mg/kg	50	20,000	1,000	170	-	-	< 50	< 50	< 50	< 50	< 50	-	-
	TRH >C10-C16 (F2) - Naphthalene	mg/kg	50	-	-	-	-	-	< 50	< 50	< 50	< 50	< 50	-	-
	TRH C10-C40 Total (F bands)	mg/kg	100	-	-	-	-	-	< 100	< 100	< 100	< 100	<50	-	-
	TRH >C16-C34 (F3)	mg/kg	100	27,000	3,500	1,700	-	-	< 100	< 100	< 100	< 100	< 100	-	-
	TRH >C34-C40 (F4)	mg/kg	100	38,000	10,000	3,300	-	-	< 100	< 100	< 100	< 100	< 100	-	-
	TRH C6-C10	mg/kg	20	26,000	700	215	-	-	< 20	< 20	< 20	< 20	< 20	-	-
	TRH C6-C10 minus BTEX (F1)	mg/kg	20	-	-	-	-	-	< 20	< 20	< 20	< 20	< 20	-	-
BTEX	Benzene	mg/kg	0.1	430	-	75	-	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.2	84	< 0.1
	Ethylbenzene	mg/kg	0.1	27,000	-	165	-	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	81	< 0.1
	m/p-xylene	mg/kg	0.2	-	-	-	-	-	< 0.2	< 0.2	< 0.2	< 0.2	<0.5	78	< 0.2
	o-xylene	mg/kg	0.1	-	-	-	-	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	79	< 0.1
	Toluene	mg/kg	0.1	99,000	-	135	-	-	< 0.1	< 0.1	< 0.1	< 0.1	<0.5	82	< 0.1
	Total Xylenes	mg/kg	0.3	81,000	-	180	-	-	< 0.3	< 0.3	< 0.3	< 0.3	<0.5	79	< 0.3
OCP	4.4 - DDD	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	4.4 - DDE	mg/kg	0.05					-	< 0.05	< 0.5	< 0.5	-	-	-	-
	4.4 - DDT	mg/kg	0.05	-	-	-	-	640	< 0.05	< 0.5	< 0.5	-	-	-	-
	a - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Aldrin	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Aldrin + Dieldrin (total)	mg/kg	0.05	-	-	-	45	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	b - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Chlordanes (total)	mg/kg	0.05	-	-	-	530	-	< 0.1	< 1	< 1	-	-	-	-
	d - BHC	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	DDT + DDE + DDD (total)	mg/kg	0.05	-	-	-	3,600	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Dieldrin	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Endosulfan 1	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Endosulfan 2	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Endosulfan sulphate	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Endrin	mg/kg	0.05	-	-	-	100	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Endrin Aldehyde	mg/kg	0.05	-	-	-	-	-	< 0.05	0.84	1.1	-	-	-	-
	Endrin Ketone	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	g-BHC (Lindane)	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Heptachlor	mg/kg	0.05	-	-	-	50	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Heptachlor epoxide	mg/kg	0.05	-	-	-	-	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Hexachlorobenzene	mg/kg	0.05	-	-	-	80	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Methoxychlor	mg/kg	0.05	-	-	-	2,500	-	< 0.05	< 0.5	< 0.5	-	-	-	-
	Toxaphene	mg/kg	1.0	-	-	-	-	-	< 0.1	< 10	< 10	-	-	-	-
	Vic EPA IWRG 621 OCP 9total)	mg/kg	0.1	-	-	-	-	-	< 0.1	< 1	1.1	-	-	-	-
	Vic EPA IWRG 621 Other OCP (total)	mg/kg	0.1	-	-	-	-	-	< 0.1	< 1	1.1	-	-	-	-
	Alpha + Beta Endosulfan	mg/kg	0.05	-	-	-	2,000	-	-	-	-	-	-	-	-
PCB	Aroclor-1016	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Aroclor-1221	mg/kg	0.1	-	-	-	-	-	< 0.1	< 1	< 1	-	-	-	-
	Aroclor-1232	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Aroclor-1242	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Aroclor-1248	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Aroclor-1254	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Aroclor-1260	mg/kg	0.1	-	-	-	-	-	< 0.5	< 1	< 1	-	-	-	-
	Total PCB*	mg/kg	0.1	-	-	-	7	-	< 0.5	< 1	< 1	-	-	-	-

Highlighted concentration exceeds the adopted site criteria - Screening Levels for Direct Contact (mg/kg) - CRC Care 2011
Highlighted concentration exceeds the adopted site criteria - Inhalation / Vapour Intrusion HSLs (mg/kg) - NEPC 2013 (SAND)
Highlighted concentration exceeds the adopted site criteria - Management Limits for TPH Fractions F1 - F4 in soil (mg/Kg) - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - ESLs for TPH Fractions F1 - F4, BTEX and Benzo(a)pyrene - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - Health Investigation Levels for Soil Contaminants - NEPC 2013
Highlighted concentration exceeds the adopted site criteria - Ecological Investigation Levels for Soil Contaminants - NEPC 2013

- No published criteria or sample not analysed
NL Not Limiting

Table LR2
7 Squires Way Fairy Meadow
Soil RPD Table
15348-ER-1-1

			Sample ID	TP4_0_0.2	QAQC1A		TP4_0_0.2	QAQC1B	
			Reference	S22-Jl0030420	S22-Jl0030431		S22-Jl0030420	ES2225446001	
			Date Sampled	13/7/2021	13/7/2021		13/7/2021	13/7/2021	
			Sample Matrix	Soil	Soil		Soil	Soil	
				Soil					
Group	Analyte	Units	LOR			RPD (%)			RPD (%)
Metals	Arsenic	mg/kg	2	5.7	8.4	38	5.7	6	0
	Cadmium	mg/kg	0.4	0.4	0.5	22	0.4	<1	#VALUE!
	Chromium	mg/kg	5	18	24	29	18	16.0	12
	Copper	mg/kg	5	50	150	100	50	50	0
	Lead	mg/kg	5	290	360	22	290	316	9
	Mercury	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.1	#VALUE!
	Nickel	mg/kg	5	11	15	31	11	11.0	0
	Zinc	mg/kg	5	410	590	36	410	419	2
BTEX	Benzene	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.2	#VALUE!
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.5	#VALUE!
	m&p-Xylenes	mg/kg	0.2	< 0.2	< 0.2	#VALUE!	< 0.2	<0.5	#VALUE!
	o-Xylene	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.5	#VALUE!
	Toluene	mg/kg	0.1	< 0.1	< 0.1	#VALUE!	< 0.1	<0.5	#VALUE!
	Xylenes - Total*	mg/kg	0.3	< 0.3	< 0.3	#VALUE!	< 0.3	<0.5	#VALUE!
TRH	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<1	#VALUE!
	TRH >C10-C16	mg/kg	50	< 50	< 50	#VALUE!	< 50	<50	#VALUE!
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	< 50	< 50	#VALUE!	< 50	<50	#VALUE!
	TRH >C10-C40 (total)*	mg/kg	100	< 100	< 100	#VALUE!	< 100	<50	#VALUE!
	TRH >C16-C34	mg/kg	100	< 100	< 100	#VALUE!	< 100	<100	#VALUE!
	TRH >C34-C40	mg/kg	100	< 100	< 100	#VALUE!	< 100	<100	#VALUE!
	TRH C10-C14	mg/kg	20	23.00	< 20	#VALUE!	23.00	<50	#VALUE!
	TRH C10-C36 (Total)	mg/kg	50	< 50	< 50	#VALUE!	< 50	<50	#VALUE!
	TRH C15-C28	mg/kg	50	< 50	< 50	#VALUE!	< 50	<100	#VALUE!
	TRH C29-C36	mg/kg	50	< 50	< 50	#VALUE!	< 50	<100	#VALUE!
	TRH C6-C10	mg/kg	20	< 20	< 20	#VALUE!	< 20	<20	#VALUE!
	TRH C6-C10 less BTEX (F1)	mg/kg	20	< 20	< 20	#VALUE!	< 20	<20	#VALUE!
	TRH C6-C9	mg/kg	20	< 20	< 20	#VALUE!	< 20	<10	#VALUE!
PAH	Acenaphthene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Acenaphthylene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Anthracene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Benzo(a)anthracene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Benzo(a)pyrene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.5	0.6	0.6	0	0.60	0.60	0
	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.5	1.2	1.2	0	1.20	1.20	0
	Benzo(b&j)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Benzo(ghi)perylene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Benzo(k)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Chrysene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Dibenzo(ah)anthracene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Fluoranthene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Fluorene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Phenanthrene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Pyrene	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!
	Total PAH (18)	mg/kg	0.5	< 0.5	< 0.5	#VALUE!	< 0.5	<0.5	#VALUE!

RPD exceeding criteria
RPD not exceeding criteria
VALUE Primary, Duplicate or Triplicate less than LOR and/or not analysed

Table LR2
Marcia Street, Coffs Harbour NSW
Asbestos Soil Quantification Results
15415-ER-2-1

Sample ID	Date Sampled	Asbestos Health Screening Level NEPM ASC 2013 (% w/w) HIL D - FA/AF	Asbestos Health Screening Level NEPM ASC 2013 (% w/w) HIL D - Bonded ACM	Laboratory Results			On-site gravimetric results		
				Asbestos Detected/ Not-Detected	Percentage of AF/FA <7mm (%w/w)	Percentage of Bonded ACM >7mm (500ml) (%w/w)	Weight of Sample (10L) (g)	Onsite weight of ACM fragment >7mm (g)	Percentage of Bonded ACM >7mm (10L) (%w/w)
TP1-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	18750	Not-Detected	Not-Detected
TP2-0-0.3	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	17250	Not-Detected	Not-Detected
TP3-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	18460	Not-Detected	Not-Detected
TP4-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	17770	Not-Detected	Not-Detected
TP5-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	15970	Not-Detected	Not-Detected
TP6-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	16480	Not-Detected	Not-Detected
TP7-0.2-0.4	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	16770	Not-Detected	Not-Detected
TP8-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	17420	Not-Detected	Not-Detected
TP9-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	18150	Not-Detected	Not-Detected
TP10-0-0.3	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	18420	Not-Detected	Not-Detected
TP11-0-0.3	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	17770	Not-Detected	Not-Detected
TP12-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	16990	Not-Detected	Not-Detected
TP13-0-0.2	13/07/2022	0.001%	0.05%	Not-Detected	Not-Detected	Not-Detected	17410	Not-Detected	Not-Detected

Legend

	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 AF/FA
	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 Bonded ACM
	Highlighted concentration exceeds the adopted site criteria - Asbestos Health Screening Level (w/w) - NEPM ASC 2013 Surface Soil
	Asbestos Detected
ACM	Asbestos Containing Material
FA and AF	Fibrous Asbestos and Asbestos Fines
-	No published criteria or sample not analysed
NL	Not Limiting
*	Detected at below the limit of reporting

Table LR4
15348-ER-1-1
Acid Sulfate Soils Results
7 Squires Way Fairy Meadow

							Reference	TP10_0_0.1	TP10_0.5	TP11_0_0.1	TP11_0.5	BH1_0	BH1_0.5	BH1_1
							Sample ID	S22-JI0030435	S22-JI0030436	S22-JI0030437	S22-JI0030438	S22-JI0032862	S22-JI0032863	S22-JI0032864
Group	**Analyte**	**Units**	**PQL**	**ASSMAC (1998)**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**							
Field Screen	phf	pH Units	0	<4	**5.8**	**5.3**	**6.7**	6.6	5.4	6.4	5.3	6.1	6.0	6.0
	pHfox	pH Units	0	<3.5	**4.1**	**3.1**	**7.3**	3.7	3.9	3.3	4.0	6.4	7.2	4.1
	Difference between pHF & pHFox	pH Units	0	1	**1.8**	**0.3**	**3.1**	2.9	1.5	3.1	1.3	0.3	0.8	1.9
	Reaction Rating	pH Units	0	XX	**1.9**	**1**	**4**	4	2	4	2	4	4	1
Chromium Reducible	Chromium Reducible Sulfur (%S)	% S	0.02	0.03	**0.1**	**0.05**	**0.15**	-	-	-	-	-	-	-
	CRS Suite - Net Acidity (Acidity Units)	mol H+/tonne	10	18	**67.8**	**12**	**92**	-	-	-	-	-	-	-
	Titratable Actual Acidity (mol H+/tonne)	Kg CaCo3/T	1.0		**0.1**	**0.019**	**0.14**	-	-	-	-	-	-	-
	Liming Rate	Kg CaCo3/T	1		**5.69**	**2.3**	**6.9**	-	-	-	-	-	-	-

*** =** **No currently available criterion**

- = **No sample analysed**

Table LR4
15348-ER-1-1
Acid Sulfate Soils Results
7 Squires Way Fairy Meadow

								Reference	BH1_1.5	BH1_2	BH1_2.5	BH1_3	BH2_0	BH2_0.5	BH2_1
								Sample ID	S22-JI0032865	S22-JI0032866	S22-JI0032867	S22-JI0032868	S22-JI0032869	S22-JI0032870	S22-JI0032871
Group	**Analyte**	**Units**	**PQL**	**ASSMAC (1998)**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**							
Field Screen	phf	pH Units	0	<4	**5.8**	**5.3**	**6.7**	6.1	5.8	5.6	5.6	6.1	5.4	5.4
	pHfox	pH Units	0	<3.5	**4.1**	**3.1**	**7.3**	4	3.9	3.6	3.8	3.4	3.7	4.1
	Difference between pHF & pHFox	pH Units	0	1	**1.8**	**0.3**	**3.1**	2.1	1.9	2.0	1.8	2.7	1.7	1.3
	Reaction Rating	pH Units	0	XX	**1.9**	**1**	**4**	1	1	1	1	3	1	1
Chromium Reducible	Chromium Reducible Sulfur (%S)	% S	0.02	0.03	**0.1**	**0.05**	**0.15**	0.1	-	-	-	0.05	-	-
	CRS Suite - Net Acidity (Acidity Units)	mol H+/tonne	10	18	**67.8**	**12**	**92**	61	-	-	-	31	-	-
	Titratable Actual Acidity (mol H+/tonne)	Kg CaCo3/T	1.0		**0.1**	**0.019**	**0.14**	0.092	-	-	-	0.049	-	-
	Liming Rate	Kg CaCo3/T	1		**5.69**	**2.3**	**6.9**	4.6	-	-	-	2.3	-	-

*** =** **No currently available criterion**

- = **No sample analysed**

Table LR4
15348-ER-1-1
Acid Sulfate Soils Results
7 Squires Way Fairy Meadow

							Reference	BH2_1.5	BH2_2	BH2_2.5	BH2_3	BH3_0	BH3_0.5	BH3_1
							Sample ID	S22-JI0032872	S22-JI0032873	S22-JI0032874	S22-JI0032875	S22-JI0032876	S22-JI0032877	S22-JI0032878
Group	**Analyte**	**Units**	**PQL**	**ASSMAC (1998)**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**							
Field Screen	phf	pH Units	0	<4	**5.8**	**5.3**	**6.7**	5.4	5.4	5.5	5.5	6.5	6.4	5.8
	pHfox	pH Units	0	<3.5	**4.1**	**3.1**	**7.3**	3.5	3.4	3.3	3.5	4.1	4.6	4.2
	Difference between pHF & pHFox	pH Units	0	1	**1.8**	**0.3**	**3.1**	1.9	2.0	2.2	2.0	2.4	1.8	1.6
	Reaction Rating	pH Units	0	XX	**1.9**	**1**	**4**	1	1	1	1	4	4	2
Chromium Reducible	Chromium Reducible Sulfur (%S)	% S	0.02	0.03	**0.1**	**0.05**	**0.15**	-	0.14	0.13	-	<0.02	-	-
	CRS Suite - Net Acidity (Acidity Units)	mol H+/tonne	10	18	**67.8**	**12**	**92**	-	89	82	-	12	-	-
	Titratable Actual Acidity (mol H+/tonne)	Kg CaCo3/T	1.0		**0.1**	**0.019**	**0.14**	-	0.13	0.12	-	0.019	-	-
	Liming Rate	Kg CaCo3/T	1		**5.69**	**2.3**	**6.9**	-	6.7	6.2	-	<1	-	-

*** =** **No currently available criterion**

- = **No sample analysed**

Table LR4
15348-ER-1-1
Acid Sulfate Soils Results
7 Squires Way Fairy Meadow

								Reference	BH3_1.5	BH3_2	BH3_2.5	BH3_4	BH4_0	BH4_0.5	BH4_1
								Sample ID	S22-JI0032879	S22-JI0032880	S22-JI0032881	S22-JI0032882	S22-JI0032883	S22-JI0032884	S22-JI0032885
Group	**Analyte**	**Units**	**PQL**	**ASSMAC (1998)**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**								
Field Screen	phf	pH Units	0	<4	**5.8**	**5.3**	**6.7**		5.4	5.3	5.6	6.2	6.7	6.4	5.8
	pHfox	pH Units	0	<3.5	**4.1**	**3.1**	**7.3**		3.6	3.9	4.1	4.5	7.3	5.9	3.1
	Difference between pHF & pHFox	pH Units	0	1	**1.8**	**0.3**	**3.1**		1.8	1.4	1.5	1.7	0.6	0.5	2.7
	Reaction Rating	pH Units	0	XX	**1.9**	**1**	**4**		1	1	1	1	4	4	1
Chromium Reducible	Chromium Reducible Sulfur (%S)	% S	0.02	0.03	**0.1**	**0.05**	**0.15**		-	-	-	-	-	-	0.15
	CRS Suite - Net Acidity (Acidity Units)	mol H+/tonne	10	18	**67.8**	**12**	**92**		-	-	-	-	-	-	92
	Titratable Actual Acidity (mol H+/tonne)	Kg CaCo3/T	1.0		**0.1**	**0.019**	**0.14**		-	-	-	-	-	-	0.13
	Liming Rate	Kg CaCo3/T	1		**5.69**	**2.3**	**6.9**		-	-	-	-	-	-	6.9

*** =** **No currently available criterion**

- = **No sample analysed**

Table LR4
15348-ER-1-1
Acid Sulfate Soils Results
7 Squires Way Fairy Meadow

							Reference	BH4_1.5	BH4_2	BH4_2.5	BH4_3
							Sample ID	S22-JI0032886	S22-JI0032887	S22-JI0032888	S22-JI0032889
Group	**Analyte**	**Units**	**PQL**	**ASSMAC (1998)**	**DATASET AVERAGE**	**DATASET MINIMUM**	**DATASET MAXIMUM**				
Field Screen	phf	pH Units	0	<4	**5.8**	**5.3**	**6.7**	5.4	5.7	5.5	5.6
	pHfox	pH Units	0	<3.5	**4.1**	**3.1**	**7.3**	3.3	3.7	3.7	3.6
	Difference between pHF & pHFox	pH Units	0	1	**1.8**	**0.3**	**3.1**	2.1	2.0	1.8	2.0
	Reaction Rating	pH Units	0	XX	**1.9**	**1**	**4**	1	1	1	1
Chromium Reducible	Chromium Reducible Sulfur (%S)	% S	0.02	0.03	**0.1**	**0.05**	**0.15**	0.15	-	-	0.14
	CRS Suite - Net Acidity (Acidity Units)	mol H+/tonne	10	18	**67.8**	**12**	**92**	91	-	-	84
	Titratable Actual Acidity (mol H+/tonne)	Kg CaCo3/T	1.0		**0.1**	**0.019**	**0.14**	0.14	-	-	0.12
	Liming Rate	Kg CaCo3/T	1		**5.69**	**2.3**	**6.9**	6.8	-	-	6.3

*** =** **No currently available criterion**

- = **No sample analysed**

APPENDIX A – Land Titles

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0413 400 020)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

Address: - 7 Squires Way, North Wollongong NSW 2500

Description: - Part Lot 1 in D.P. 1172135

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
05.11.1924 (1924 to 1952)	Francis Merion Collaery (Farmer)	Book 1366 No. 627 Now Volume 4218 Folio 234
20.02.1952 (1952 to 1987)	The Council of The City of Greater Wollongong	Volume 4218 Folio 234 Then Intervening Titles, Now 1/719865
29.06.1987 (1987 to Date)	# The University of Wollongong	1/719865 Then 200/1127540 Now 1/1172135

# Denotes current registered proprietor

Leases: - NIL

Easements: - NIL AFFECTING SUNJECT LAND

Yours Sincerely
Harrison Byrne
25th March 2022

Title:	**SITE LOCATION PLAN**
Location:	7 SQUIRES WAY, NORTH WOLLONGONG, NSW
Project No: E34610PT	Figure No: 1
	JK ENVIRONMENTS

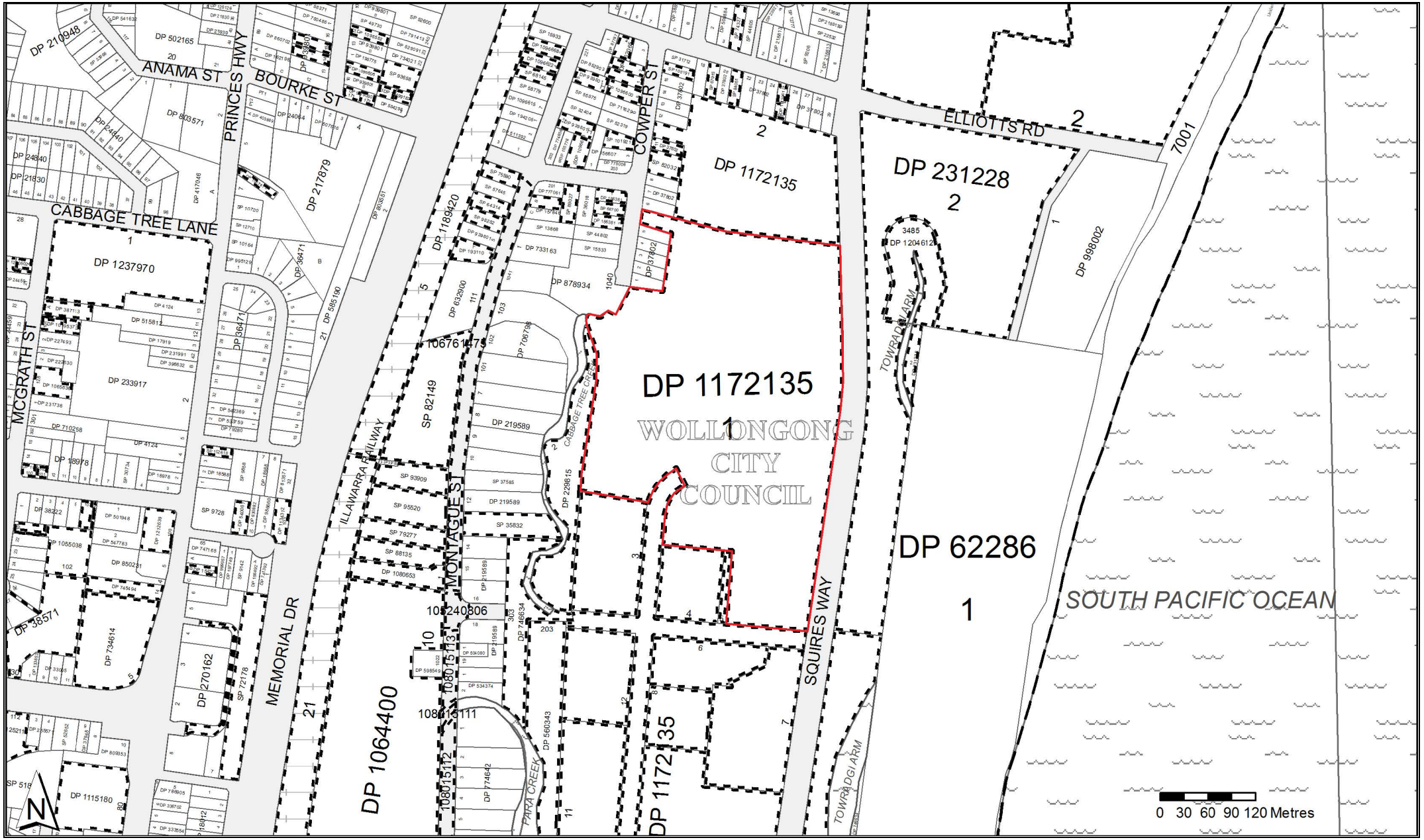
Notes: Reference should be made to the report text for a full understanding of this plan.

Image Sources: https://maps.six.nsw.gov.au/ and UBD on disk v7.0.0

Cadastral Records Enquiry Report : Lot 1 DP 1172135

Ref : 7 Squires Way Nth Wollongong

Locality : NORTH WOLLONGONG
Parish : WOONONA
LGA : WOLLONGONG
County : CAMDEN



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

PLAN FORM 2 (A2)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

SURVEYING AND SPATIAL INFORMATION REGULATION, 2006: CLAUSE 61(2)

MGA CO-ORDINATES

MARK	EAST	NORTH	ZONE	CLASS	ORDER	R.L.	CLASS	ORDER
PM 5588	306 694.748	6 190 411.593	56	B	2	3.548	LC	L3
PM 5591	307 028.827	6 191 918.394	56	B	2	2.646	LC	L3
SSM 88379	306 782.639	6 191 819.509	56	C	U	7	C	U
SSM 166803	306 987.8	6 191 224.6	56	U	U	3	U	U

SOURCE: MGA COORDINATES ADOPTED FROM SCIMS 08 DEC 2011
COMBINED SCALE FACTOR 1.00056

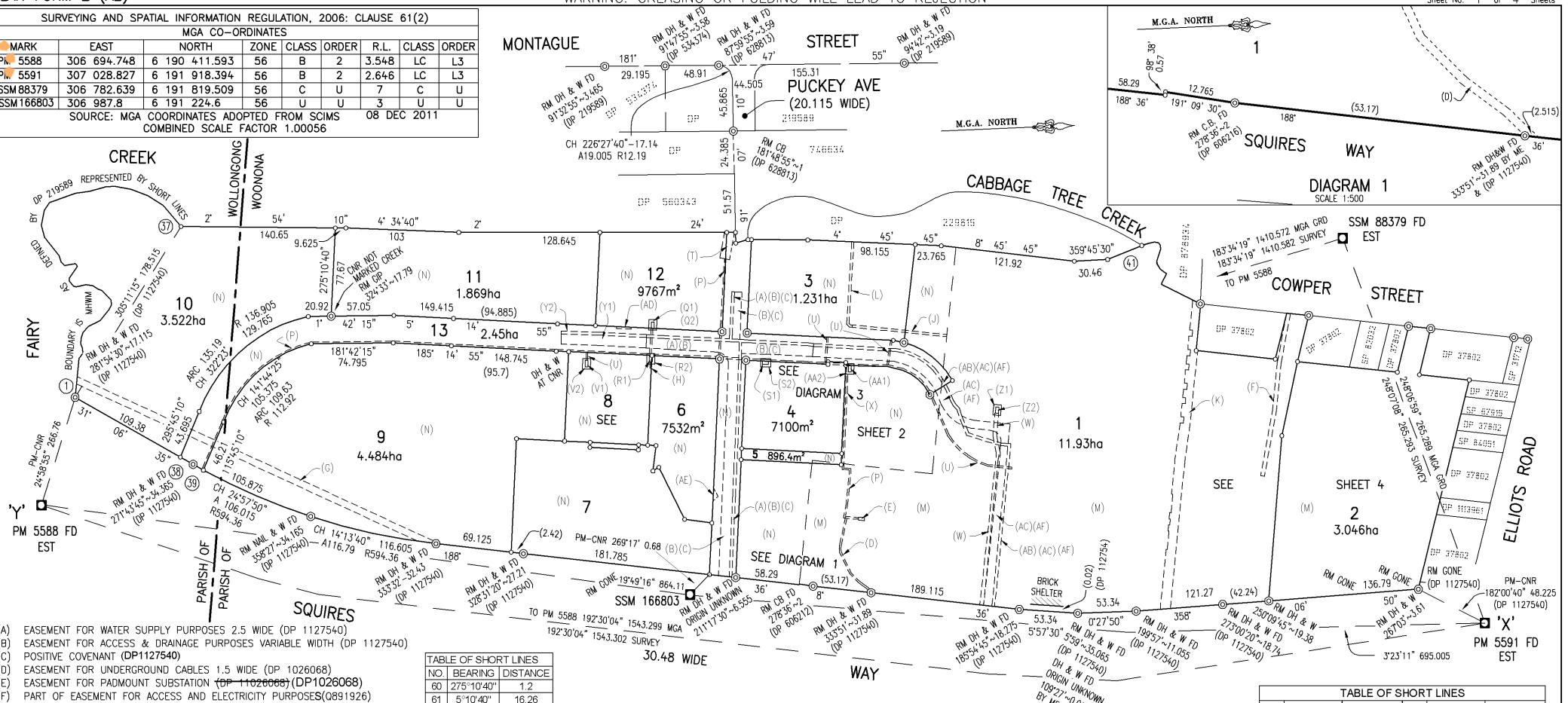


TABLE OF SHORT LINES		
NO.	BEARING	DISTANCE
60	275°10'40"	1.2
61	5°10'40"	16.26
62	95°10'40"	1.2

(A) EASEMENT FOR WATER SUPPLY PURPOSES 2.5 WIDE (DP 1127540)
(B) EASEMENT FOR ACCESS & DRAINAGE PURPOSES VARIABLE WIDTH (DP 1127540)
(C) POSITIVE COVENANT (DP1127540)
(D) EASEMENT FOR UNDERGROUND CABLES 1.5 WIDE (DP 1026068)
(E) EASEMENT FOR PADMOUNT SUBSTATION ~~(DP 1026068)~~ (DP1026068)
(F) PART OF EASEMENT FOR ACCESS AND ELECTRICITY PURPOSES(Q891926)
(G) EASEMENT FOR SEWERAGE PURPOSES (K568198)
(H) EASEMENT FOR UNDERGROUND CABLES 1 WIDE (DP 1127536)
(J) EASEMENT TO DRAIN WATER (DP 719865)(TBR)
(K) EASEMENT FOR SEWERAGE (K932083)
(L) EASEMENT FOR DRAINAGE (Q419162)(TBR)
(M) RESERVATION & CONDITIONS (SEE CROWN GRANT)
(N) POSITIVE COVENANT (9164662)
(P) PART OF EASEMENT FOR UNDERGROUND CABLES 1.5 WIDE (DP 1127534) (SEE ALSO DP 1150439)
(Q1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1127534) #2
(Q2) RESTRICTIONS ON THE USE OF LAND (DP 1127534) #3
(R1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1127534) #4
(R2) RESTRICTIONS ON THE USE OF LAND (DP 1127534) #5
(S1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1127534) #6
(S2) RESTRICTIONS ON THE USE OF LAND (DP 1127534) #7
(T) EASEMENT FOR OVERHEAD POWERLINES 9 WIDE (DP 1127534)
(U) EASEMENT FOR UNDERGROUND CABLES 1.5 WIDE (DP 1174736)
(V1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1174736)
(V2) RESTRICTIONS ON THE USE OF LAND (DP 1174736) #3
(W) EASEMENT FOR UNDERGROUND CABLES 3.5 WIDE (DP 1174736)
(X) EASEMENT FOR UNDERGROUND CABLES 1.5 WIDE (DP 1150439)
(Y1) EASEMENT FOR ACCESS & DRAINAGE *9.125 WIDE (DP 1127535) *PURPOSES
(Y2) EASEMENT FOR WATER SUPPLY 2.5 WIDE (DP 1127535)
(Z1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1174736)
(Z2) RESTRICTION ON THE USE OF LAND (DP 1174736) #7
(AA1) EASEMENT FOR PADMOUNT SUBSTATION 2.75 WIDE (DP 1174736)
(AA2) RESTRICTION ON THE USE OF LAND (DP 1174736) #5
(AB) EASEMENT FOR WATER SUPPLY 2.5 WIDE (DP 1179235)
(AC) EASEMENT FOR ACCESS & DRAINAGE PURPOSES VARIABLES WIDTH (DP 1179235)
(AD) EASEMENT FOR OVERHANG 1.235 WIDE
(AE) EASEMENT FOR OVERHANG VARIABLE WIDTH
(AF) POSITIVE COVENANT (DP 1179235)

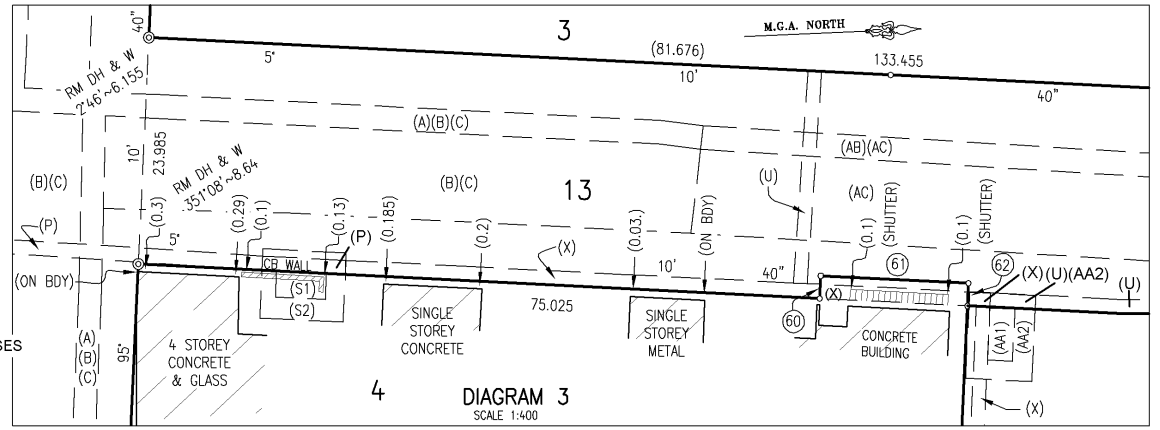


TABLE OF SHORT LINES					
NO.	BEARING	DISTANCE	NO.	BEARING	DISTANCE
1	278°17'25"	34.325	20	307°54'30"	12.39
2	310°35'30"	5.835	21	256°32'00"	1.59
3	268°44'	4.275	22	213°14'	1.57
4	250°48'	4.275	23	173°06'30"	9.69
5	273°56'	4.865	24	224°55'	4.425
6	293°26'	5.065	25	255°15'	5.795
7	312°40'	7.095	26	232°45'25"	21.02
8	335°54'	12.535	27	257°04'	10.89
9	312°44'30"	12.335	28	282°42'	13.505
10	298°08'	4.765	29	308°23'	8.61
11	266°53'30"	4.445	30	343°29'30"	24.89
12	227°54'	11.37	31	355°21'30"	12.675
13	199°50'30"	4.06	32	347°14'30"	15.89
14	214°07'	5.47	33	0°17'30"	8.19
15	191°13'30"	6.45	34	11°50'30"	14.61
16	169°47'30"	8.925	35	22°39'	16.7
17	198°55'	2.6	36	34°30'30"	16.345
18	232°10'	5.945	37	50°35'20"	24.515
19	271°08'30"	2.6	38	31°06'35"	13.3

TABLE OF ARC				
NO.	BEARING	DISTANCE	ARC	RAD
39	30°35'35"	10.78	10.78	594.36

Surveyor: MITCHELL KEITH AYRES
Date of Survey: 27/02/2012
Surveyor's Ref: 060704 SUB

PLAN OF SUBDIVISION WITHIN LOT 200 IN DP 1127540

LGA: WOLLONGONG
Locality: FAIRY MEADOW
Subdivision No: NORTH WOLLONGONG SC-2012/72
Lengths are in metres. Reduction Ratio 1: 2500

REGISTERED 22.2.2013

DP1172135

10mm 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

X:\06JOBS\060704-IC_WOLLONGONG\SUBDIVISION\SUB 200\060704 SUB .dwg

TABLE OF SHORT LINES		
NO.	BEARING	DISTANCE
57	151°07'40"	6.24
58	275°09'	22.405
59	185°10'40"	7.435
60	275°10'40"	1.2
61	5°10'40"	16.26
62	95°10'40"	1.2
63	5°10'50"	16.445
64	3°07'40"	21.48
65	15°19'10"	14.745

NOTE
REFER TO SHEET 1 FOR SCHEDULE OF EXISTING EASEMENTS

Surveyor: MITCHELL KEITH AYRES Date of Survey: 27/02/2012 Surveyor's Ref: 060704 SUB	PLAN OF SUBDIVISION WITHIN LOT 200 IN DP 1127540	LGA: WOLLONGONG Locality: FAIRY MEADOW Subdivision No: NORTH WOLLONGONG SC-2012/72 Lengths are in metres. Reduction Ratio 1:1000	REGISTERED 22.2.2013	DP1172135

10mm 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

X:\06JOBS\060704-IC_WOLLONGONG\SUBDIVISION\SUB 200\060704 SUB .dwg

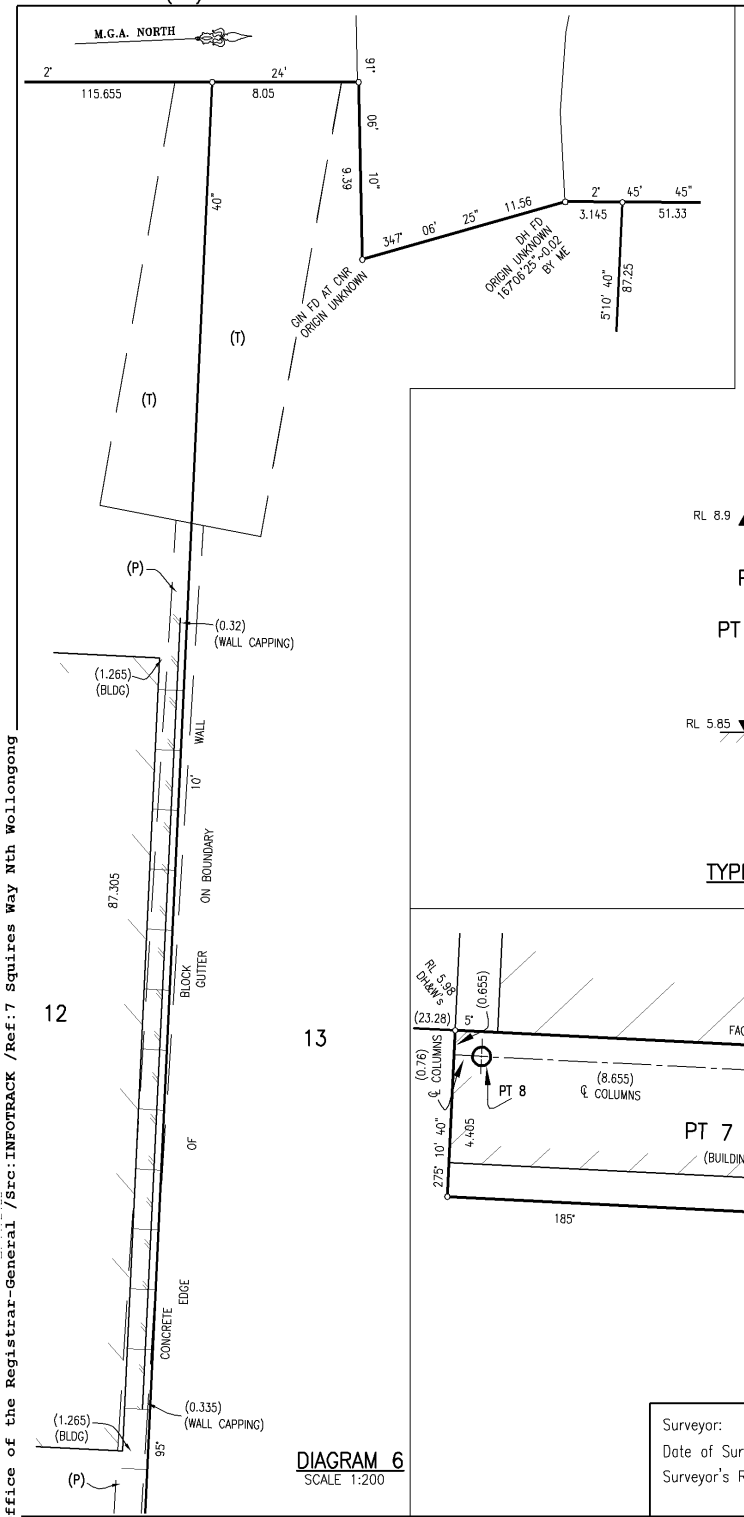
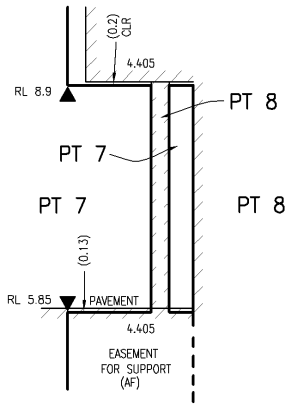
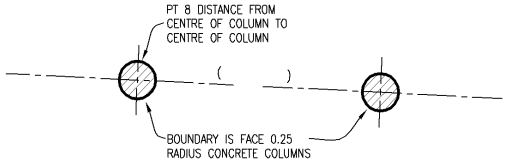


DIAGRAM 6
SCALE 1:200

(AE) EASEMENT FOR OVERHANG VARIABLE WIDTH
(AF) EASEMENT FOR SUPPORT 4.405 WIDE



TYPICAL SECTION A–A
NTS



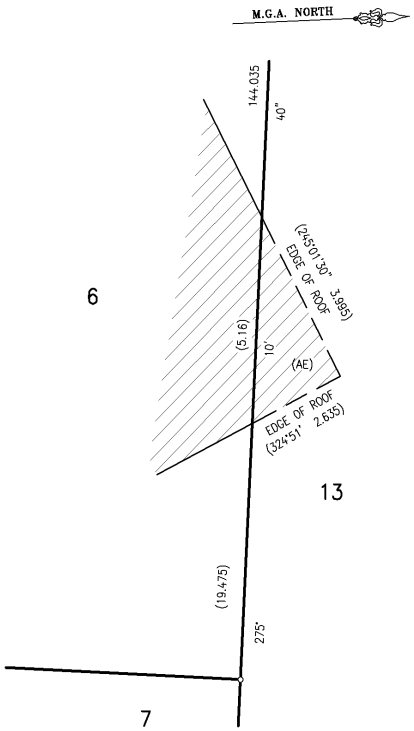


DIAGRAM 5
NTS

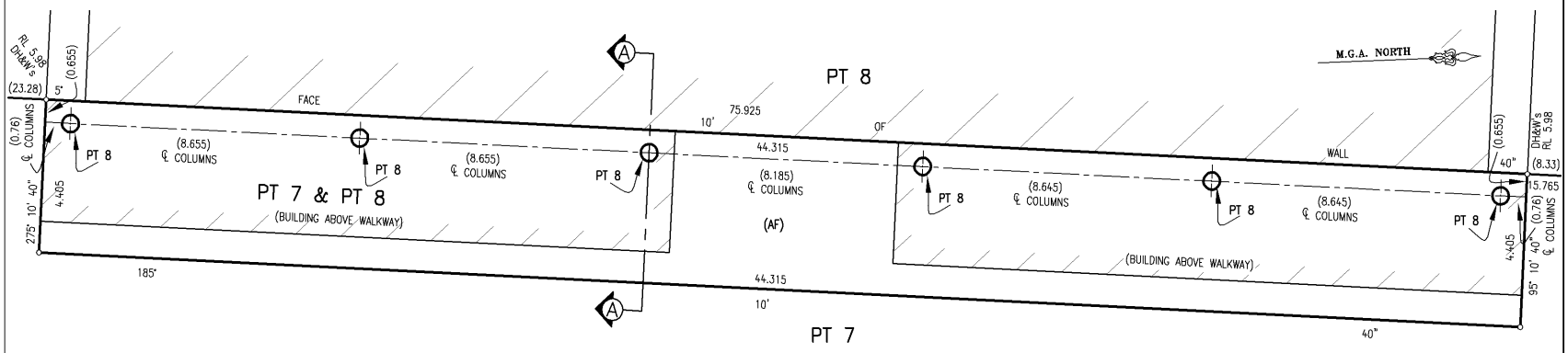


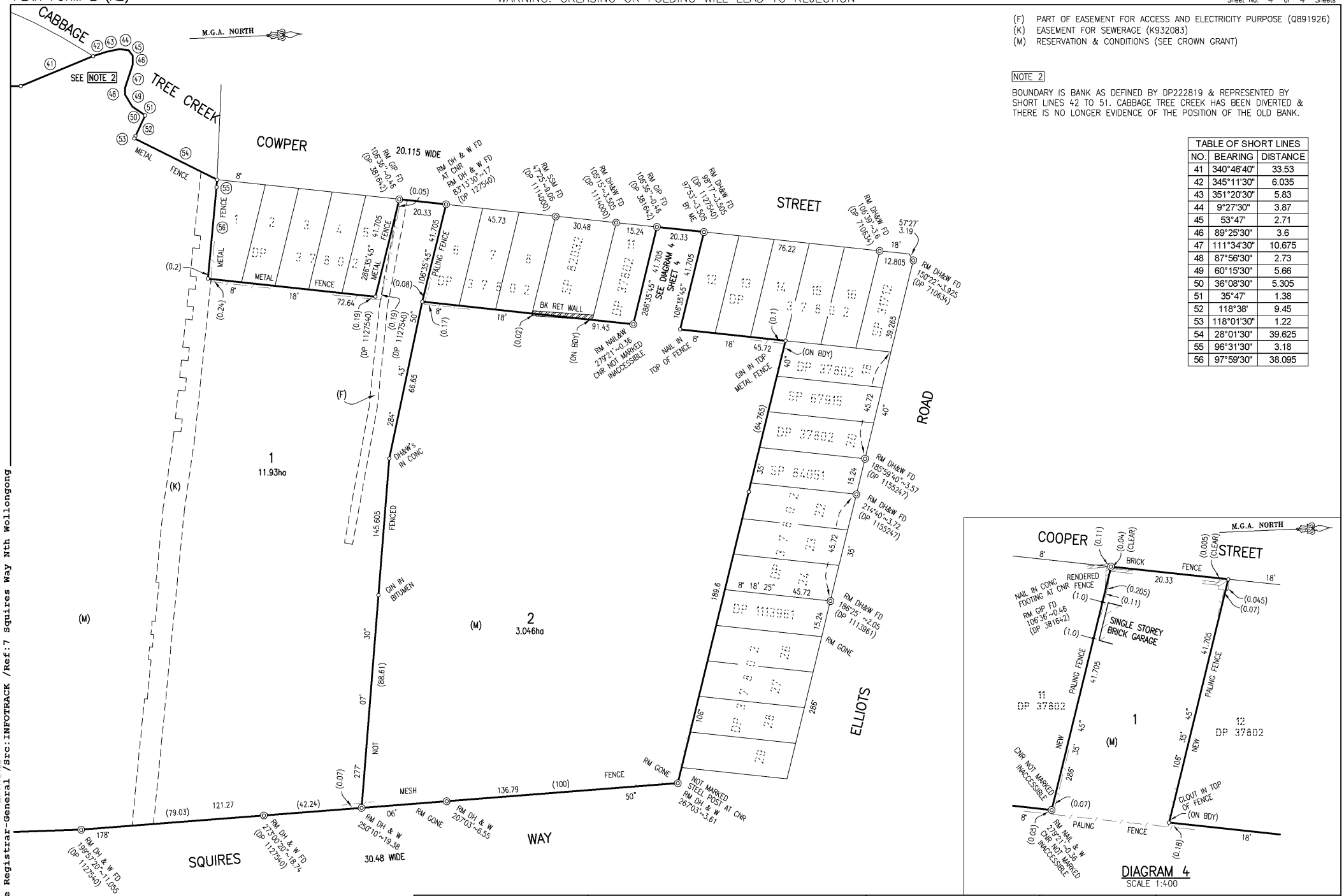
DIAGRAM 2
SCALE 1:100

NOTE
REFER TO SHEET 1 FOR SCHEDULE OF EXISTING EASEMENTS

Surveyor: MITCHELL KEITH AYRES Date of Survey: 27/02/2012 Surveyor's Ref: 060704 SUB	PLAN OF SUBDIVISION WITHIN LOT 200 IN DP 1127540	LGA: WOLLONGONG Locality: FAIRY MEADOW Subdivision No: NORTH WOLLONGONG SC-2012/72 Lengths are in metres. Reduction Ratio 1:1000	REGISTERED 22.2.2013	DP1172135

10mm 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

X:\06JOBS\060704-IC_WOLLONGONG\SUBDIVISION\SUB 200\060704 SUB .dwg



(F) PART OF EASEMENT FOR ACCESS AND ELECTRICITY PURPOSE (Q891926)
(K) EASEMENT FOR SEWERAGE (K932083)
(M) RESERVATION & CONDITIONS (SEE CROWN GRANT)

NOTE 2

BOUNDARY IS BANK AS DEFINED BY DP222819 & REPRESENTED BY SHORT LINES 42 TO 51. CABBAGE TREE CREEK HAS BEEN DIVERTED & THERE IS NO LONGER EVIDENCE OF THE POSITION OF THE OLD BANK.

TABLE OF SHORT LINES		
NO.	BEARING	DISTANCE
41	340°46'40"	33.53
42	345°11'30"	6.035
43	351°20'30"	5.83
44	9°27'30"	3.87
45	53°47'	2.71
46	89°25'30"	3.6
47	111°34'30"	10.675
48	87°56'30"	2.73
49	60°15'30"	5.66
50	36°08'30"	5.305
51	35°47'	1.38
52	118°38'	9.45
53	118°01'30"	1.22
54	28°01'30"	39.625
55	96°31'30"	3.18
56	97°59'30"	38.095

DIAGRAM 4
SCALE 1:400

Surveyor: MITCHELL KEITH AYRES Date of Survey: 27/02/2012 Surveyor's Ref: 060704 SUB	PLAN OF SUBDIVISION WITHIN LOT 200 IN DP 1127540	LGA: WOLLONGONG Locality: FAIRY MEADOW Subdivision No: NORTH WOLLONGONG SC-2012/72 Lengths are in metres. Reduction Ratio 1:1000	REGISTERED 22.2.2013	DP1172135

10mm 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Table of mm

X:\06JOBS\060704-IC_WOLLONGONG\SUBDIVISION\SUB 200\060704 SUB .dwg

DEPOSITED PLAN ADMINISTRATION SHEET

SIGNATURES, SEALS and STATEMENTS of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

PURSUANT TO SEC 88B OF THE CONVEYANCING ACT 1919 IT IS INTENDED TO CREATE:

1. **EASEMENT FOR OVERHANG 1.235 WIDE (AD)**
2. **EASEMENT FOR OVERHANG VARIABLE WIDTH (AE)**
3. **EASEMENT FOR SUPPORT 4.405 WIDE (AF)**

Signed for and on behalf of The University of Wollongong BY In the presence of:

Signature of:
GARY HUDSON
IC PROJECT MANAGER

Signature of Witness

Mark Nolan, Solicitor
63 Market St Wollongong NSW 2500

Name of Witness

Mark Nolan, Solicitor
63 Market St Wollongong NSW 2500

Use PLAN FORM 6A
for additional certificates, signatures, seals and statements

Crown Lands NSW/Western Lands Office Approval

I.....in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature:.....
Date:.....
File Number:.....
Office:.....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:

the proposed SUBDIVISION set out herein
(insert 'subdivision' or 'new road')

A Rocci
* Authorised Person/~~General Manager/Accredited Certifier~~

Consent Authority: WOLLONGONG CITY COUNCIL
Date of Endorsement: 16/10/2012
Accreditation no:
Subdivision Certificate no: SC-2012/72
File no:

* Delete whichever is inapplicable.

DP1172135 S

Registered: 22.2.2013
Title System: TORRENS
Purpose: SUBDIVISION

* OFFICE USE ONLY

PLAN OF SUBDIVISION WITHIN LOT 200 IN DP 1127540

LGA: WOLLONGONG
Locality: FAIRY MEADOW /NORTH WOLLONGONG
Parish: WOLLONGONG/WOONONA
County: CAMDEN

Surveying and Spatial Information Regulation, 2006

I, MITCHELL KEITH AYRES
of DENNY LINKER & Co., Level 5,17 Randle St., Surry Hills. 2010
a surveyor registered under the *Surveying and Spatial Information Act, 2002*, certify that the survey represented in this plan is accurate, has been made in accordance with the *Surveying and Spatial Information Regulation, 2006* and was completed on: 27.02.2012

The survey relates to LOTS 1–13
(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature M.A.y *Dated:* 17/9/2012
Surveyor registered under the Surveying and Spatial Information Act, 2002

Datum Line: 'X'–'Y'
Type: Urban/~~Rural~~

Plans used in the preparation of survey/~~compilation~~

DP 1127540	DP 1113961
DP 219589	DP 1114000
DP 231228	DP 534374
DP 381642	DP 628813
DP 633347	DP 606216
DP 710634	
DP 719865	

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYORS REFERENCE: 060704 SUB

10477187

M

NEW SOUTH WALES

[redacted]

CERTIFICATE OF TITLE

[redacted]PERTY ACT, 1900, as amended.

Vol. 10477 Fol. 187

EH

Edition issued 13-1-1967

Applications Nos. 28564 and 38989
Prior Title Vol. 7182 Fol. 1

CANCELLED

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.

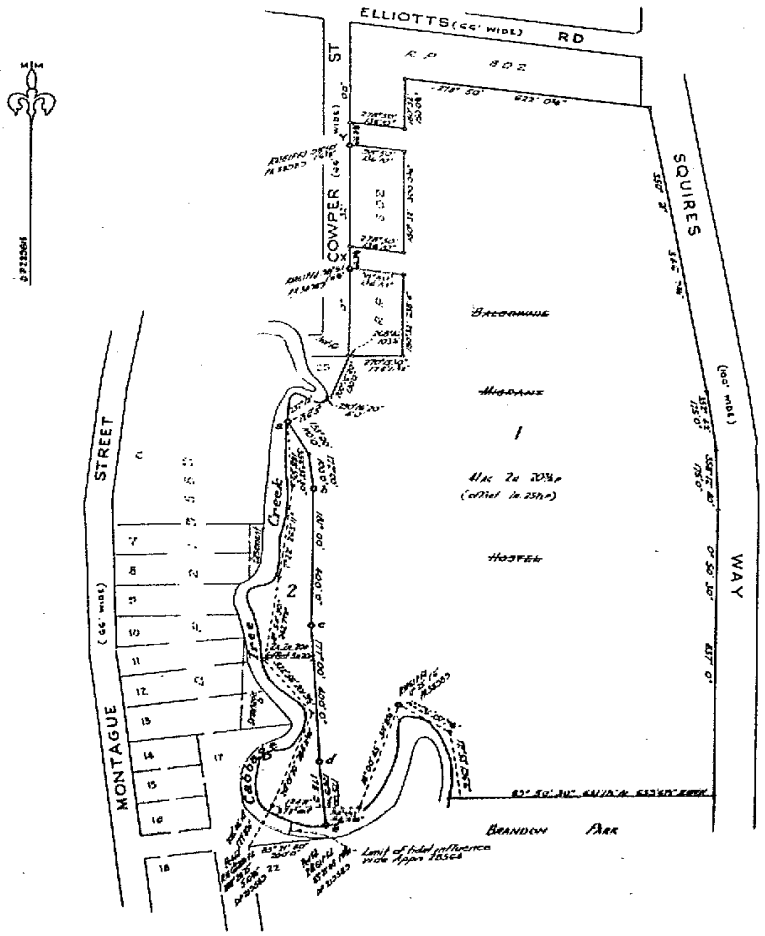
Witness J. Gifflick.

Jawatson
Registrar-General.

REGISTRAR GENERAL • NEW SOUTH WALES •

Vol. 10477 Fol. 187
(Page 1)

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 229815 at Fairy Meadow in the City of Greater Wollongong Parish of Wonona and County of Camden being part of Portion 103 granted to William Wilson on 6-6-1836 and part of Portion 113 granted to Robert Campbell and Charles Campbell on 30-4-1841.

FIRST SCHEDULE (continued overleaf)

THE COMMONWEALTH OF AUSTRALIA.

Jawatson
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

Jawatson
Registrar General.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	NUMBER	DATE	ENTERED	Signature of Registrar-General
This deed is cancelled as to the whole New Certificates of Title have issued on 21-3-1974 for lots in Deposited Plan No. 566688 as follows:- Lots 3 & 4 Vol. 12381 Fol 243/244 respectively. J. Watson REGISTRAR GENERAL					

CT 2/1/ K932083 DP566688 1/3/74 Progs. prepd on DP566688 Whole

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Transfer	K 932083	9.10.1967.	Easement for construction and maintenance of sewer pipes as more fully set out in the said instrument, affecting that part of the land within described shown as "Proposed easement 30 feet wide and variable" in DP 226066.	19.2.1968	J. Watson	

FORM No. 184A NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

Vol. 10477 Fol 187

CERTIFICATE OF TITLE

NEW SOUTH WALES — REAL PROPERTY ACT, 1900

12381243

Vol. 12381 Fol. 243

Appln.Nos.28564 and 38989

Prior Title Vol.10477 Fol.187

Edition issued 21-3-1974

(Page 1) Vol. 12381 Fol. 243

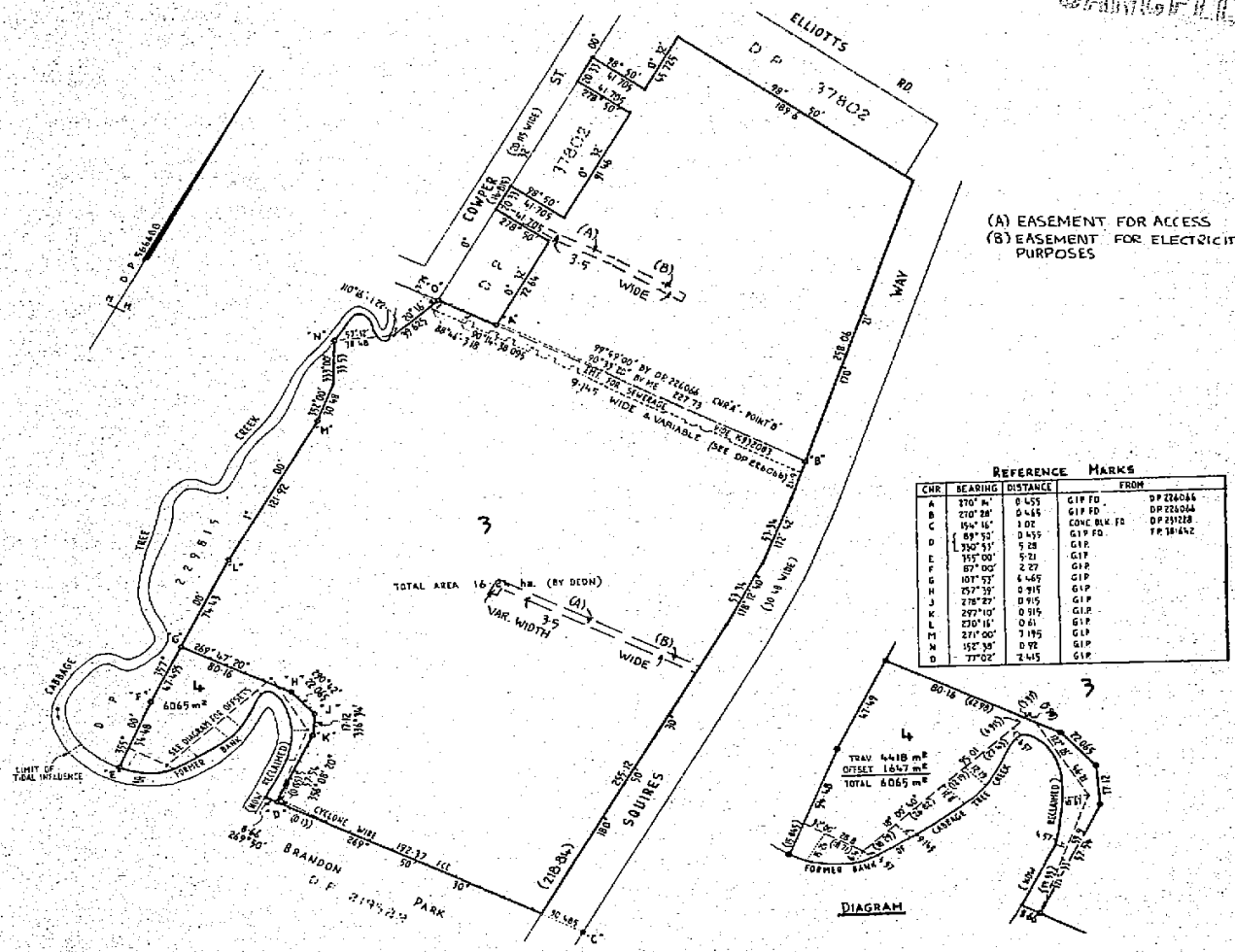
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

CANCELLED



REFERENCE MARKS			
CNR	BEARING	DISTANCE	FROM
A	270° 41'	0.455	G1P FD. DP 226044
B	270° 28'	0.465	G1P FD DP 226044
C	154° 15'	1.02	CONC BLK FD DP 291228
D	89° 53'	0.455	G1P FD PR 181442
E	350° 53'	5.28	G1P
F	355° 00'	5.21	G1P
G	87° 00'	2.27	G1P
H	101° 53'	6.465	G1P
J	257° 39'	0.915	G1P
K	278° 27'	0.915	G1P
L	297° 10'	0.915	G1P
M	230° 16'	0.61	G1P
N	271° 00'	7.195	G1P
O	152° 39'	0.92	G1P
P	77° 02'	2.445	G1P

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 3 in Deposited Plan 566688 at Fairy Meadow in the City of Wollongong Parish of Wonona and County of Camden, being part of Portion 103 granted to William Wilson on 6-6-1836 and part of Portion 113 granted to Robert Campbell and Charles Campbell on 30-4-1841.

FIRST SCHEDULE

THE COMMONWEALTH OF AUSTRALIA.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Easement for construction and maintenance of sewer pipes created by Transfer No.K932083 affecting the part of the land above described 9.145 wide and variable width shown in plan hereon.

Vol. 12381 Fol. 243

Reg Gen. 1979

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Easement for access and Easement for electricity purposes (as more fully set out in the said instrument) affecting that part of the land within described shown so burdened on the plan hereon~~	~~Transfer~~	~~Q891926~~		~~9-1-1979~~	

Q891926 TOL

DP59835

DP606216

DP633347

R11-7-83.

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Transfer	Q891926	—	Easement for access and Easement for electricity purposes (as more fully set out in the said instrument) affecting that part of the land within described shown so burdened in the plan hereon	9-1-1979	[signature]	
			Interest of the Council of the City of Wollongong in addition to existing road shown on D.P. 606216	5-12-1979.	[signature]	

... is cancelled as to Whole Ex Road
... Certificates of Title have issued on 21-7-1983
... Deposited Plan No. 633347 as follows
... 1+2 ... 15091 Fols 23+24 respectively

[signature]

REGISTRAR GENERAL

The residue of land in this folio comprises Road shown in DP606216

[signature]

REGISTRAR GENERAL

(Page 2 of 2 pages)

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

15091024

[redacted]TIFICATE OF TITLE

NEW SOUTH WALES — REAL PROPERTY ACT, 1900

First Title : Old System

Prior Title : Vol.12381 Fol.243

Vol. 15091 Fol. 24

EDITION 21 ISSUED 7 1983

15091 Fol. 24

(Page 1) Vol.

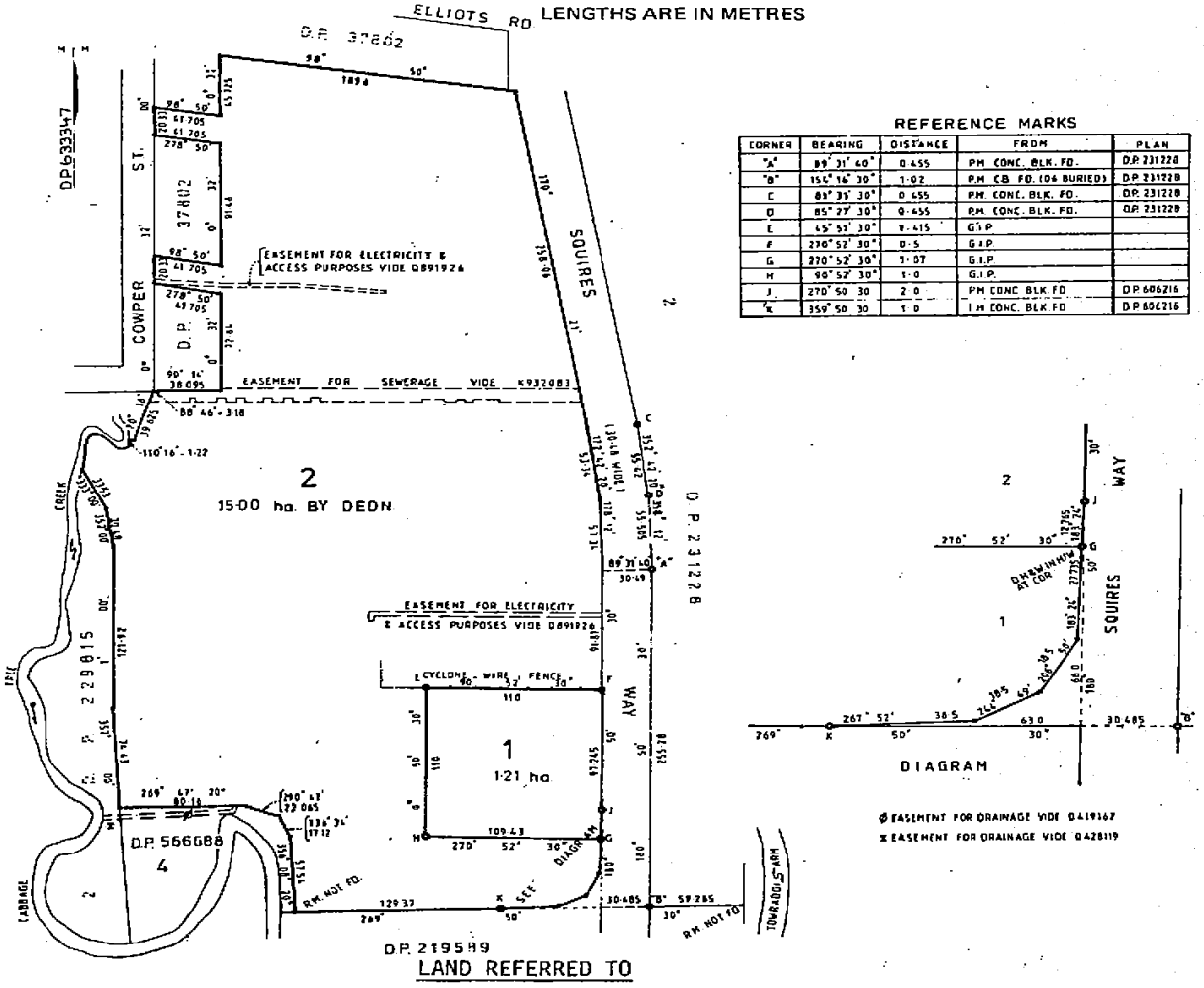
I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

Registrar General.

CANCELLED

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



CORNER	BEARING	DISTANCE	FROM	PLAN
"A"	89° 31' 40"	0·455	PM. CONC. BLK. FD.	D.P.231228
"B"	154° 16' 30"	1·02	P.M. C.B. FD. (04 BURIED)	D.P.231228
C	89° 31' 30"	0·455	PM. CONC. BLK. FD.	D.P. 231228
D	85° 27' 30"	0·455	PM. CONC. BLK. FD.	D.P. 231228
E	45° 51' 30"	1·415	G.I.P.	
F	270° 52' 30"	0·5	G.I.P.	
G	270° 52' 30"	1·07	G.I.P.	
H	90° 52' 30"	1·0	G.I.P.	
J	270° 50' 30"	2·0	PM. CONC. BLK. FD.	D.P.606216
K	359° 50' 30"	1·0	P.M. CONC. BLK. FD.	D.P.606216

LAND REFERRED TO

Lot 2 in Deposited Plan 633347 at Fairy Meadow in the City of Wollongong Parish of Woonona and County of Camden.

FIRST SCHEDULE

THE COMMONWEALTH OF AUSTRALIA.

SECOND SCHEDULE

1. Reservations and conditions contained in the Crown Grant.
2. K932083 Easement for sewerage affecting the part of the land above described shown so burdened in Deposited Plan 633347.
3. Q891926 Easement for access and electricity purposes affecting the part of the land above described shown so burdened in Deposited Plan 633347.

L.O. 1066 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION
Interests created pursuant to Section 88B Conveyancing Act 1919. by the registration of DP 719865. Registered 18-12-1985		
DP [redacted] 719865 Registered 18-12-1985 This folio is cancelled as to whole/[redacted] upon computer folios for lots 1/2 abovementioned plan.		

NOTATIONS AND UNREGISTERED DEALINGS

DP 719865 2

NOTE: ENTRIES RULED THROUGH

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
25/3/2022 3:06PM

FOLIO: 1/719865

First Title(s): OLD SYSTEM
Prior Title(s): VOL 15091 FOL 24

Recorded	Number	Type of Instrument	C.T. Issue
24/12/1985	DP719865	DEPOSITED PLAN	FOLIO CREATED EDITION 1
29/6/1987	W955243	TRANSFER	EDITION 2
21/8/2008	DP1127540	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

Received: 25/03/2022 15:06:02

RP 13

STAMP DUTY N/L

[redacted]

W955243

N.S.W. STAMP DUTIES OFFICE — NOTED ONLY AS PAYABLE ON THIS INSTRUMENT

TRANSFER

REAL PROPERTY ACT, 1900

T CB 19 X

$ 37

R1/1

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
IDENTIFIER 1/719865	WHOLE	at Fairy Meadow

DESCRIPTION OF LAND Note (a)

TRANSFEROR Note (b)

THE COMMONWEALTH OF AUSTRALIA

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 1,600,000.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

THE UNIVERSITY OF WOLLONGONG

OFFICE USE ONLY

S

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. Nil 2. -- 3. --

DATE 18TH JUNE, 1987

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

SIGNED for and on behalf of THE COMMONWEALTH OF AUSTRALIA by a person holding, occupying or performing the duties of the office of Principal Legal Officer (Pers No. 1056), New South Wales, in the presence of:-

An Officer of the Attorney-General's Department.

..... Signature of Transferor

Lodged Stamp Office by GALLOWAY & CO. LAW STATIONERS PH. 233 1011 DX 349 SYDNEY Note (g)

Signed in my presence by the transferee who is personally known to me

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

..... Signature of Transferee

Solicitor for Transferee (H. HANSON)

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY

Delivery Box Number

LOCATION OF DOCUMENTS

CT	OTHER	
✓		Herewith.
		In L.T.O. with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED -19	Secondary Directions		
✓ GTSB					
Signed	Extra Fee	29 JUN 1987	Delivery Directions	CT	LP

HSH

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
25/3/2022 1:57PM

FOLIO: 200/1127540

First Title(s): OLD SYSTEM
Prior Title(s): 1/633347 1/719865
304/746634

Recorded	Number	Type of Instrument	C.T. Issue
21/8/2008	DP1127540	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/3/2009	AE571080	DEPARTMENTAL DEALING	
24/3/2009	AE544614	LEASE	
24/3/2009	AE544624	LEASE	
24/3/2009	AE544629	LEASE	
24/3/2009	AE544635	LEASE	
24/3/2009	AE544657	LEASE	
24/3/2009	AE544665	LEASE	EDITION 2
10/8/2009	DP1127556	WITHDRAWN - PROPOSED PLAN	
13/8/2009	AE885596	VARIATION OF LEASE	
28/8/2009	DP1127534	DEPOSITED PLAN	
28/8/2009	DP1127535	DEPOSITED PLAN	EDITION 3
2/11/2009	AF86196	VARIATION OF LEASE	
30/3/2010	DP1127536	DEPOSITED PLAN	
13/4/2010	AF427533	DEPARTMENTAL DEALING	
3/5/2010	DP1150439	DEPOSITED PLAN	EDITION 4
21/6/2011	AG309096	LEASE	
21/6/2011	AG309100	LEASE	
21/6/2011	AG309102	LEASE	
21/6/2011	AG309104	LEASE	EDITION 5
29/8/2011	AG460599	VARIATION OF LEASE	
8/9/2011	AG483550	LEASE	EDITION 6
22/9/2011	AG515082	VARIATION OF LEASE	
12/3/2012	AG859827	VARIATION OF LEASE	

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE
25/3/2022 1:57PM

FOLIO: 200/1127540 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
10/5/2012	AG908868	LEASE	
10/5/2012	AG908869	SUB-LEASE	
15/6/2012	AH5905	LEASE	
15/6/2012	AH5906	LEASE	
15/6/2012	AH5907	LEASE	
15/6/2012	AH19843	LEASE	
15/6/2012	AH19844	LEASE	
15/6/2012	AH19845	LEASE	
15/6/2012	AH19846	LEASE	
31/8/2012	DP1174736	DEPOSITED PLAN	EDITION 7
29/10/2012	DP1179235	DEPOSITED PLAN	EDITION 8
22/2/2013	DP1172135	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
25/3/2022 1:57PM

FOLIO: 1/1172135

First Title(s): OLD SYSTEM
Prior Title(s): 200/1127540

Recorded	Number	Type of Instrument	C.T. Issue
22/2/2013	DP1172135	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/8/2018	AN568957	VARIATION OR MODIFICATION OF RESTRICTION/POSITIVE COVENANT	

*** END OF SEARCH ***

Received: 25/03/2022 13:57:02

LAND REGISTRY SERVICES

Title Search

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/1172135

SEARCH DATE	TIME	EDITION NO	DATE
25/3/2022	1:56 PM	1	22/2/2013

LAND

LOT 1 IN DEPOSITED PLAN 1172135
AT FAIRY MEADOW & OTHERS
LOCAL GOVERNMENT AREA WOLLONGONG
PARISH OF WOLLONGONG COUNTY OF CAMDEN
PARISH OF WOONONA COUNTY OF CAMDEN
TITLE DIAGRAM DP1172135

FIRST SCHEDULE

THE UNIVERSITY OF WOLLONGONG

No Affecting Easements for part of subject land

SECOND SCHEDULE (21 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S) WITHIN THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
2 K932083 EASEMENT FOR SEWERAGE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
3 DP1026068 EASEMENT FOR UNDERGROUND CABLES 1.5 WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
4 Q891926 EASEMENT FOR ACCESS AND ELECTRICITY PURPOSES AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
DP1174736 EASEMENT RELEASED IN SO FAR AS IT AFFECTS THE PART MARKED (FR) SHOWN IN DP1174736
5 DP719865 EASEMENT TO DRAIN WATER AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP1026068 EASEMENT FOR PADMOUNT SUBSTATION AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
7 DP719865 EASEMENT TO DRAIN WATER APPURTENANT TO THE LAND ABOVE DESCRIBED
8 9164662 POSITIVE COVENANT AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
* AN568957 VARIATION OF COVENANT 9164662
9 DP1127540 POSITIVE COVENANT
10 DP1127534 EASEMENT FOR UNDERGROUND CABLES 1.5 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
DP1150439 EASEMENT RELEASED IN SO FAR AS IT AFFECTS THE PART MAKED "P2" SHOWN IN DP1150439
11 DP1127535 POSITIVE COVENANT
12 DP1150439 EASEMENT FOR UNDERGROUND CABLES 1.5 METRE(S) WIDE

END OF PAGE 1 - CONTINUED OVER

SECOND SCHEDULE (21 NOTIFICATIONS) (CONTINUED)

AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

13 DP1174736 EASEMENT FOR UNDERGROUND CABLES 1.5 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

14 DP1174736 EASEMENT FOR PADMOUNT SUBSTATION 2.75 METRE(S) WIDE REFERRED TO AND NUMBERED (4) IN THE S.88B INSTRUMENT AFFECTING THE SITE DESIGNATED (AA1) IN THE TITLE DIAGRAM

15 DP1174736 RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (5) IN THE S.88B INSTRUMENT AFFECTING THE SITE DESIGNATED (AA2) IN TITLE DIAGRAM

16 DP1174736 EASEMENT FOR PADMOUNT SUBSTATION 2.75 METRE(S) WIDE REFERRED TO AND NUMBERED (6) IN THE S.88B INSTRUMENT AFFECTING THE SITE DESIGNATED (Z1) IN THE TITLE DIAGRAM

17 DP1174736 RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (7) IN THE S.88B INSTRUMENT AFFECTING THE SITE DESIGNATED (Z2) IN THE TITLE DIAGRAM

18 DP1174736 EASEMENT FOR UNDERGROUND CABLES 3.5 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

19 DP1179235 EASEMENT FOR WATER SUPPLY PURPOSES 2.5 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

20 DP1179235 EASEMENT FOR ACCESS AND DRAINAGE PURPOSES VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

21 DP1179235 POSITIVE COVENANT

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

APPENDIX B – Groundwater Records

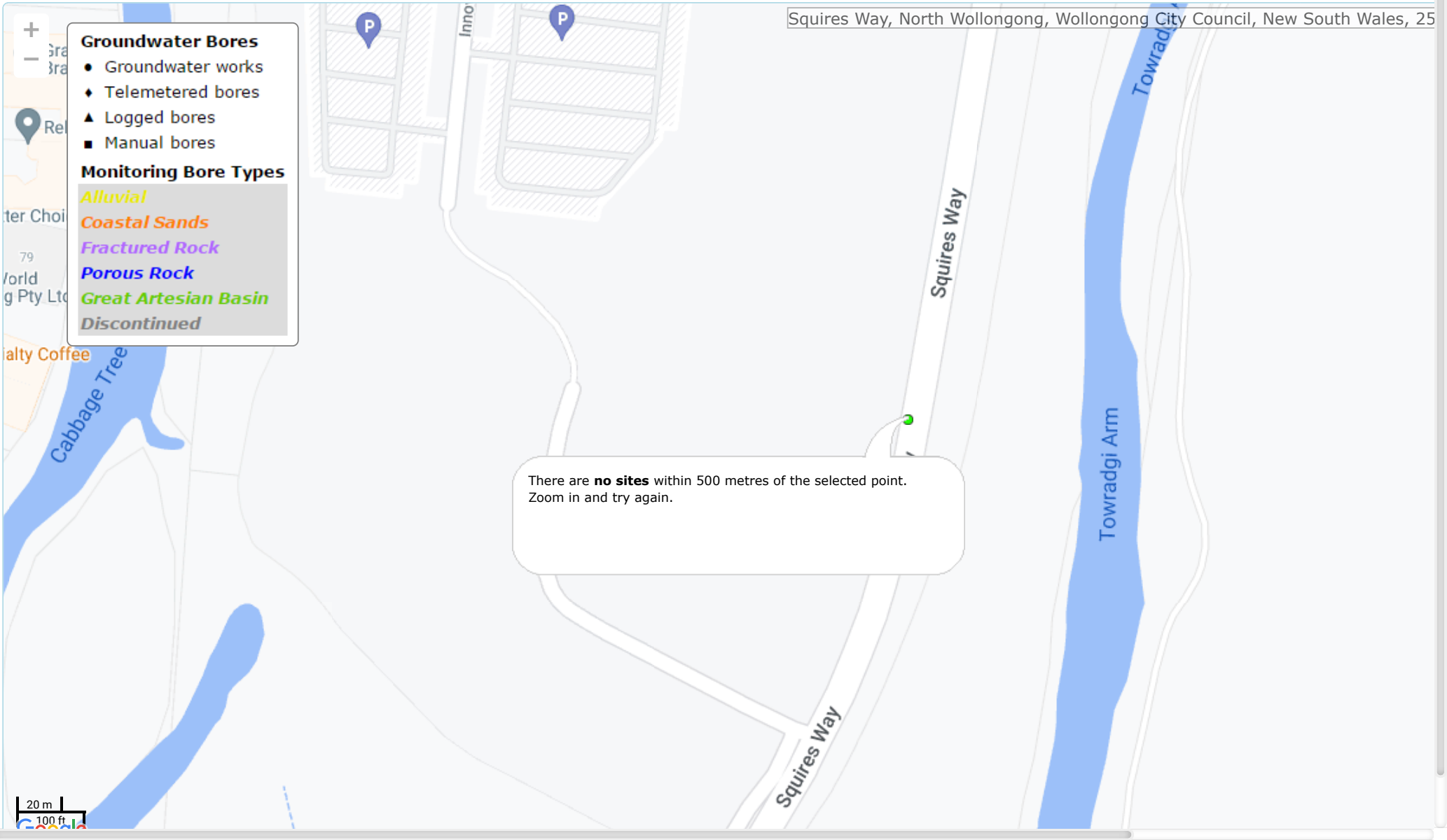
All Groundwater Site Details

ALL GROUNDWATER MAP

bookmark this page

All data times are Eastern Standard Time

Map Info



APPENDIX C – Bureau of Meteorology Information

Australian Government
Bureau of Meteorology

Climate statistics for Australian locations

Monthly climate statistics

All years of record

Site information

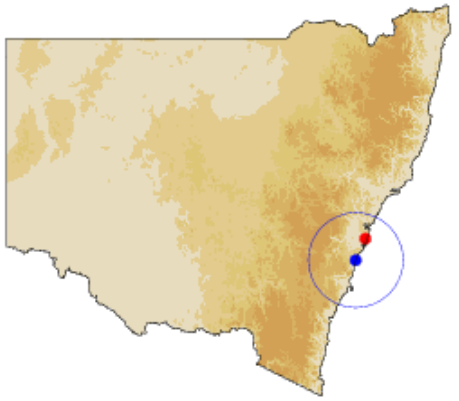
Site name: BELLAMBI AWS
Site number: 068228
Latitude: 34.37 °S **Longitude:** 150.93 °E
Elevation: 10 m
Commenced: 1988 **Status:** Open
Latest available data: 23 Jun 2022

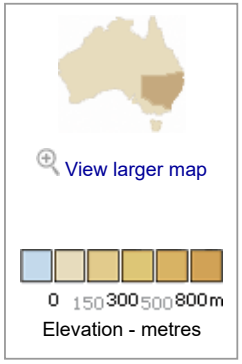
Additional information

Additional site information

Nearest alternative sites

1. 068188 WOLLONGONG UNIVERSITY (5.9km)
2. 068069 WOLLONGONG POST OFFICE (8.2km)
3. 068053 PORT KEMBLA SIGNAL STATION (12.0km)





View: Main statistics All available | Period: 30 year period not available | Text size: Normal Large

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	
Temperature															
Mean maximum temperature (°C)	25.0	24.8	23.9	22.3	19.9	17.7	17.2	18.1	20.2	21.6	22.3	23.9	21.4	25	1997 2022
Mean minimum temperature (°C)	19.1	19.1	18.1	15.6	13.1	11.2	10.2	10.6	12.4	14.1	15.8	17.5	14.7	25	1997 2022
Rainfall															
Mean rainfall (mm)	83.1	155.7	126.0	96.5	83.0	121.2	75.1	92.6	54.1	75.0	92.1	75.4	1127.9	19	1997 2022
Decile 5 (median) rainfall (mm)	64.0	114.4	107.4	76.2	65.0	102.6	56.0	45.8	52.6	65.2	75.2	76.8	1125.0	24	1997 2022
Mean number of days of rain ≥ 1 mm	8.6	9.8	9.9	8.3	6.3	7.8	5.7	5.3	5.9	7.9	9.2	8.4	93.1	24	1997 2022
Other daily elements															
Mean daily sunshine (hours)															

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	
Mean number of clear days														3	2005 2010
Mean number of cloudy days														3	2005 2010
9 am conditions															
Mean 9am temperature (°C)	21.8	21.9	20.7	19.4	16.6	14.3	13.4	14.4	16.8	18.2	18.9	20.8	18.1	14	1997 2010
Mean 9am relative humidity (%)	75	76	74	66	63	63	60	56	59	62	72	71	66	13	1997 2010
Mean 9am wind speed (km/h)	17.0	15.9	15.0	16.1	15.8	17.0	16.7	17.7	18.1	18.2	18.7	17.5	17.0	13	1997 2010
3 pm conditions															
Mean 3pm temperature (°C)	23.2	23.3	22.6	20.7	18.5	16.5	15.8	16.7	18.1	19.1	20.3	22.2	19.7	14	1997 2010
Mean 3pm relative humidity (%)	72	74	70	67	61	59	56	54	61	64	70	69	65	13	1997 2010
Mean 3pm wind speed (km/h)	24.5	23.9	23.7	22.0	20.9	21.0	20.7	23.6	24.8	24.7	24.6	25.4	23.3	13	1997 2010

red = highest value blue = lowest value

Product IDCJCM0028 Prepared at Thu 23 Jun 2022 02:09:46 AM EST

Monthly statistics are only included if there are more than 10 years of data. The number of years (provided in the 2nd last column of the table) may differ between elements if the observing program at the site changed. More detailed data for individual sites can be obtained by contacting the Bureau.

Related Links

- This page URL: http://www.bom.gov.au/climate/averages/tables/cw_068228.shtml
- About climate averages: http://www.bom.gov.au/climate/cdo/about/about-stats.shtml
- Bureau of Meteorology website: http://www.bom.gov.au

Page created: Thu 23 Jun 2022 02:09:46 AM EST

This page was created at **on**

APPENDIX D – NSW EPA Records

Search results

Your search for: **General Search** with the following criteria

Suburb - fairy meadow

returned 7 results

Export to excel 1 of 1 Pages Search Again

Number	Name	Location	Type	Status	Issued date
7215	ALLIED INDUSTRIAL SERVICES PTY LIMITED	16 PRINCES HIGHWAY, FAIRY MEADOW, NSW 2519	POEO licence	No longer in force	26 Jun 2000
1033921	ALLIED INDUSTRIAL SERVICES PTY LIMITED	16 PRINCES HIGHWAY, FAIRY MEADOW, NSW 2519	s.58 Licence Variation	Issued	03 May 2004
1045533	ALLIED INDUSTRIAL SERVICES PTY LIMITED	16 PRINCES HIGHWAY, FAIRY MEADOW, NSW 2519	s.58 Licence Variation	Issued	31 May 2005
1137	HANSON CONSTRUCTION MATERIALS PTY LTD	59 MONTAGUE STREET, FAIRY MEADOW, NSW 2519	POEO licence	Surrendered	26 Apr 2000
1025338	HANSON CONSTRUCTION MATERIALS PTY LTD	59 MONTAGUE STREET, FAIRY MEADOW, NSW 2519	s.80 Surrender of a Licence	Issued	28 Feb 2003
1562267	WOLLONGONG RECYCLING (NSW) PTY LTD	40 Kingsford Street, FAIRY MEADOW, NSW 2519	s.91 Clean Up Notice	Issued	27 Apr 2018
1564774	WOLLONGONG RECYCLING (NSW) PTY LTD	40 Kingsford Street, FAIRY MEADOW, NSW 2519	s.110 Variation of Clean Up Notice	Issued	11 May 2018

29 June 2022

Search results

Your search for:Suburb: FAIRY MEADOW

Matched 2 notices relating to 1 site.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
FAIRY MEADOW	46 Montague STREET	Caltex Fuel Depot and adjoining land	2 former

Page 1 of 1

29 June 2022

For business and industry

For local government

Contact us

131 555 (tel:131555)

Online (https://yoursay.epa.nsw.gov.au/epa-website-feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

Background

A strategy to systematically prioritise, assess and respond to notifications under Section 60 of the ***Contaminated Land Management Act 1997*** (CLM Act) has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under ***Government Information (Public Access) Act 2009***.

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

After receiving a report, the first step is to confirm that the report does not relate to a pollution incident. The Protection of the Environment Operations Act 1997 (POEO Act) deals with pollution incidents, waste stockpiling or dumping. The EPA also has an incident management process to manage significant incidents (https://www.epa.nsw.gov.au/reporting-and-incidents/incident-management).

In many cases, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any significant risks for the community or environment. Such sites may still need to be cleaned up, but this can be done in conjunction with any subsequent building or redevelopment of the land. These sites do not require intervention under the CLM Act, and are dealt with through the planning and development consent process. In these cases, the EPA informs the local council or other planning authority, so that the information can be recorded and considered at the appropriate time (https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/role-of-planning-authorities).

Where indications are that the contamination could cause actual harm to the environment or an unacceptable offsite impact (i.e. the land is 'significantly contaminated'), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site. If the reported contamination could present an immediate or long-term threat to human health NSW Health will be consulted. SafeWork NSW and Water NSW can also be consulted if there appear to be occupational health and safety risks or an impact on groundwater quality.

As such, the sites notified to the EPA and presented in the list of contaminated sites notified to the EPA are at various stages of the assessment and remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The list provides an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the person who notified the site.

The following questions and answers may assist those interested in this issue.

Frequently asked questions

Why does my land appear on the list of notified sites?

Your land may appear on the list because:

- the site owner and/or the polluter has notified the EPA under section 60 of the CLM Act
- the EPA has been notified via other means and is satisfied that the site is or was contaminated.

If a site is on the list, it does not necessarily mean the contamination is significant enough to regulate under the CLM Act.

Does the list contain all contaminated sites in NSW?

No. The list only contains contaminated sites that EPA is aware of. If a site is not on the list, it does not necessarily mean the site is not contaminated.

The EPA relies on responsible parties and the public to notify contaminated sites.

How are notified contaminated sites managed by the EPA?

There are different ways the EPA can manage notified contaminated sites. Options include:

- regulation under the CLM Act, POEO Act, or both
- notifying the relevant planning authority for management under the planning and development process
- managing the site under the Protection of the Environment Operation (Underground Petroleum Storage Systems) Regulation 2014.

There are specific cases where contamination is managed under a tailored program operated by another agency (for example, the Resources & Geoscience's Legacy Mines Program).

What should I do if I am a potential buyer of a site that appears on the list?

You should seek advice from the seller to understand the contamination issue. You may need to seek independent contamination or legal advice.

The information provided in the list is indicative only and a starting point for your own assessment. Land contamination from past site uses is common, mainly in urban environments. If the site is properly remediated or managed, it may not affect the intended future use of the site.

Who can I contact if I need more information about a site?

You can contact the Environment Line at any time by calling 131 555 or by emailing info@environment.nsw.gov.au.

List of NSW Contaminated Sites Notified to the EPA

List current as at 7 June 2022

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

Site Status	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or *Protection of the Environment Operations Act 1997*.
Under Preliminary Investigation Order	The EPA has issued a Preliminary Investigation Order under s10 of the *Contaminated Land Management Act 1997*, to obtain additional information needed to complete the assessment.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.

Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997*. A regulatory approach is being finalised.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under POEO Act	Contamination is currently regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA as the appropriate regulatory authority reasonably suspects that a pollution incident is occurring/ has occurred and that it requires regulation under the POEO Act. The EPA may use environment protection notices, such as clean up notices, to require clean up action to be taken. Such regulatory notices are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the *Environmental Planning and Assessment Act 1979* (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the *Protection of the Environment Operations Act 1997* (POEO Act).

Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

Suburb	SiteName	Address	Contamination Activity Type	ManagementClass	Latitude	Longitude
FAIRFIELD	Endeavour Energy Fairfield Zone Substation	22 Hedges STREET	Other Industry	Regulation under CLM Act not required	-33.86133019	150.9555899
FAIRFIELD EAST	Speedway-Branded Service Station Fairfield	251 The Horsley DRIVE	Service Station	Regulation under CLM Act not required	-33.8711661	150.9630077
FAIRFIELD HEIGHTS	7-Eleven Fairfield Heights	234 Hamilton (Cnr The Boulevarde) ROAD	Service Station	Regulation under CLM Act not required	-33.87208474	150.9373134
FAIRY MEADOW	Woolworths Petrol Service Station	47 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-34.39399705	150.8925369
FAIRY MEADOW	Caltex Fuel Depot and adjoining land	46 Montague STREET	Service Station	Contamination formerly regulated under the CLM Act	-34.40050499	150.8953125
FAIRY MEADOW	Deynal (Seeman)	51-59 Princes HIGHWAY	Service Station	Regulation under CLM Act not required	-34.39437085	150.8924666
FARLEY	Farley Wastewater Treatment Works	Owlpen LANE	Other Industry	Regulation under CLM Act not required	-32.74431314	151.5194217
FASSIFERN	Newstan Colliery	Fassifern ROAD	Other Industry	Regulation under CLM Act not required	-32.97942521	151.5660046
FASSIFERN	Former Arsenic Smelter	Fassifern ROAD	Other Industry	Regulation under CLM Act not required	-32.99649819	151.5618283
FEDERAL	Federal General Store	3-6 Federal DRIVE	Service Station	Contamination formerly regulated under the CLM Act	-28.65190728	153.4552976
FENNELL BAY	Fennell Bay Public School	2 Bay ROAD	Unclassified	Under assessment	-32.99152231	151.6014923
FERN BAY	Former service station	37 Fullerton (1006 Nelson Bay Road) STREET	Service Station	Regulation under CLM Act not required	-32.87245004	151.7939904
FIVE DOCK	7-Eleven Five Dock Service Station	231-235 Great North ROAD	Service Station	Regulation under CLM Act not required	-33.86488376	151.130002
FIVE DOCK	Caltex Five Dock Service Station	47 Ramsay Road, corner Fairlight STREET	Service Station	Regulation under CLM Act not required	-33.87002804	151.1301835
FORBES	BP (Former Mobil) Depot Forbes	3-15 Union STREET	Other Petroleum	Regulation under CLM Act not required	-33.37751977	148.0101422

APPENDIX E – Council Records

wollongong
city of innovation

WOLLONGONG CITY COUNCIL

Address 41 Burelli Street Wollongong • **Post** Locked Bag 8821 Wollongong DC NSW 2500
Phone (02) 4227 7111 • **Fax** (02) 4227 7277 • **Email** council@wollongong.nsw.gov.au
Web www.wollongong.nsw.gov.au • ABN 63 139 525 939 - GST Registered

CERTIFICATE	202201399
Issued	17 March 2022
Certificate Type	Sections 10.7(2) & (5)
Fee	$133.00
Your Reference	E34610PT (2):222307
Council Property Reference	393898

J K Environments Pty Ltd

PLANNING CERTIFICATE

Issued Under Section 10.7 of the Environmental Planning and Assessment Act 1979

PROPERTY DETAILS		
	Legal Description	Lot 1 DP 1172135
	Location	Innovation Campus 7 Squires Way NORTH WOLLONGONG NSW 2500

This certificate provides information on how a property (such as land and buildings) may be used and the limits on its development. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government.

SECTION 10.7 (2) DETAILS

As at the date of this certificate, the following prescribed matters under section 10.7(2) of the Act relate to the abovementioned land:

1. NAMES OF RELEVANT PLANNING INSTRUMENTS & DEVELOPMENT CONTROL PLANS

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land

Wollongong Local Environmental Plan 2009

State Environmental Planning Policies

State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Transport and Infrastructure) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Precincts - Regional) 2021
State Environmental Planning Policy (Exempt and Complying) 2008
State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021
State Environmental Planning Policy (Industry and Employment) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Precincts - Regional) 2021
State Environmental Planning Policy (Exempt and Complying) 2008

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not yet been approved)

Draft State Environmental Planning Policy (Design and Place) 2021

(3) The name of each development control plan that applies to the carrying out of development on the land

Wollongong Development Control Plan 2009

Note: The Wollongong Development Control Plan 2009 should be consulted to ascertain its full effect on the land.

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a draft environmental planning instrument.

2. ZONING AND LAND USE UNDER RELEVANT LEPs

Wollongong Local Environmental Plan 2009.

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 Policy) that includes the land in any zone (however described):

(a) the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2(a)")

SP1 – Special Activities (Innovation Campus)

(b) the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent

Building identification signs; Business identification signs.

(c) the purposes for which the instrument provides that development may not be carried out within the zone except with development consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Advertising structures; Aquaculture, Centre-based child care facilities; Community facilities; Information and education facilities; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Respite day care centres.

Maps are available on the NSW Department of Planning website www.planning.nsw.gov.au

(d) the purposes for which the instrument provides that development is prohibited within the zone.

Any development not specified in subclause (2) or (3).

Note: For subdivision consent requirements see Clause 2.6, of Wollongong Local Environmental Plan 2009.

Demolition of a building or work requires consent see Clause 2.7, of Wollongong Local Environmental Plan 2009.

Development below the mean high water mark requires consent see Clause 5.7, of Wollongong Local Environmental Plan 2009.

Note: Wollongong Local Environmental Plan 2009 should be consulted to ascertain its full effect on the land.

(e) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling- house on the land, and if so, the minimum land dimensions so fixed

See Clauses 4.1, 4.1AA, 4.1A, 4.1B, 4.2 and 4.2A of the Local Environmental Plan

(f) Whether the land includes or comprises critical habitat

Nil

(g) Whether the land is in a conservation area (however described)

Nil.

(h) Whether an item of environmental heritage (however described) is situated on the land

Nil.

2A. ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGIONAL GROWTH CENTRES) 2006

To the extent that the land is within any zone (however described) under:

(a) Part 3 of the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the 2006 SEPP), or

(b) a Precinct Plan (within the meaning of the 2006 SEPP),

(c) a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act,

the particulars referred to in clause 2 (a) – (h) in relation to that land (with a reference to "the instrument" in any of those paragraphs being read as a reference to Part 3 of the 2006 SEPP, or the Precinct Plan or proposed Precinct Plan, as the case requires).

Not Applicable.

3. COMPLYING DEVELOPMENT

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1), (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) 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 restriction applies to the land, but it may not apply to all of the land, 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.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

(1) Subject to the terms of each code, and the zoning of the land, complying development **may be** carried out for the following codes to the extent that the land is not affected by the provisions identified at (2) below.

- Part 2 - Exempt Development Code
- Part 3 - Housing Code (R1, R2, R3, R4, RU5)
- Part 3A - Rural Housing Code (RU1, RU2, RU3, RU4, RU6, R5)
- Part 3B - Low Rise Housing Diversity Code (R1, R2, R3, RU5)
- Part 4 - Housing Alterations Code
- Part 4A - General Development Code
- Part 5 – Industrial and Business Alterations Code
- Part 5A - Industrial and Business Building Code
- Part 5B - Container Recycling Facilities Code
- Part 6 - Subdivisions Code

- Part 7 - Demolition Code
- Part 8 - Fire Safety Code

(2) Complying development **may not** be carried out on the land to the extent that it is **partially affected by Coastal Wetlands** because of the provisions of clauses 1.17A, 1.18 or 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

- Housing Code (R1, R2, R3, R4, RU5)
- Low Rise Housing Diversity Code (R1, R2, R3, RU5)
- Rural Housing Code (RU1, RU2, RU3, RU4, RU6, R5)
- Industrial and Business Building Code

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

(1) Subject to the terms of each code, and the zoning of the land, complying development **may be** carried out for the following codes to the extent that the land is not affected by the provisions identified at (2) below.

- Part 2 - Exempt Development Code
- Part 3 - Housing Code (R1, R2, R3, R4, RU5)
- Part 3A - Rural Housing Code (RU1, RU2, RU3, RU4, RU6, R5)
- Part 3B - Low Rise Housing Diversity Code (R1, R2, R3, RU5)
- Part 4 - Housing Alterations Code
- Part 4A - General Development Code
- Part 5 – Industrial and Business Alterations Code
- Part 5A - Industrial and Business Building Code
- Part 5B - Container Recycling Facilities Code
- Part 6 - Subdivisions Code
- Part 7 - Demolition Code
- Part 8 - Fire Safety Code

(2) Complying development **may not** be carried out on the land to the extent that it is **partially affected by Coastal Wetlands and a 100m Buffer Area** because of the provisions of clauses 1.17A, 1.18 or 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*

- Housing Code (R1, R2, R3, R4, RU5)
- Low Rise Housing Diversity Code (R1, R2, R3, RU5)
- Rural Housing Code (RU1, RU2, RU3, RU4, RU6, R5)
- Industrial and Business Building Code

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

(2) Complying development **may not** be carried out on the land to the extent that it is **wholly**

affected by Public Purpose because of the provisions of clauses 1.17A, 1.18 or 1.19 of *State Environmental Planning Policy (Exempt and Complying Codes) 2008*

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

(3) The land is identified on an Acid Sulphate Soils Map as being **Acid Class 1 or Acid Class 2 (or both)**. A restriction applies to the land, but **may not apply to all of the land**. Council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

4B. ANNUAL CHARGES UNDER LOCAL GOVERNMENT ACT 1993 FOR COASTAL PROTECTION SERVICES THAT RELATE TO EXISTING COASTAL PROTECTION WORKS

In relation to a coastal council- whether the owner (or any previous owner) of the land has 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: "Existing coastal protection works" are works to reduce the impact of coastal hazards on the land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993

Not applicable

5. MINE SUBSIDENCE

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

The land is not proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

6. ROAD WIDENING AND ROAD REALIGNMENT

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993 or

(b) Any environmental planning instrument or

(c) Any resolution of the council

Council has no record that the land is affected by any Road Widening or Road Realignment under:

a) Division 2 of Part 3 of the *Roads Act 1993*, or
b) any environmental planning instrument, or
c) any resolution of the Council.

7. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

Whether or not the land is affected by a policy:

a) adopted by the council, or

b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulfate soils or any other risk (other than flooding).

Council has adopted "Wollongong Development Control Plan 2009 – Chapter E12 Geotechnical Assessment".

Council has adopted Acid Sulfate Maps, Wollongong Local Environmental Plan 2009 – Clause 7.5 Acid Sulfate Soils.

Council has adopted "Wollongong Development Control Plan 2009 – Chapter E16 Bushfire Management". The Rural Fire Service has endorsed the Bush Fire Prone Land map.

Unhealthy Building Land Policy, adopted by the Environmental Protection Authority.

Council has adopted Wollongong City Council Coastal Zone Study (Cardno, Lawson, Treloar 2010).

7A. FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) If the land or part of the land is within the flood planning area and is subject to flood related development controls

It is unknown if the land or part of the land is within the flood planning area and thus subject to flood related controls. Please refer to Council's Wollongong LEP 2009 and Wollongong DCP 2009 – Chapters E13, NSW State Government's Floodplain Development Manual (2005) and any relevant Flood Studies or Floodplain Risk Management Studies and Plans. Further flood information relating to this land may be available by application under section 10.7(5) of the Environmental Planning & Assessment Act 1979.

(2) If the land or part of the land is between the flood planning area and probable maximum flood and is subject to flood related development controls.

It is unknown if the land or part of the land is between the flood planning area and probable maximum area and thus is subject to flood related controls. Please refer to Council's Wollongong LEP 2009 and Wollongong DCP 2009 – Chapters E13, NSW State Government's Floodplain Development Manual (2005) and any relevant Flood Studies or Floodplain Risk Management Studies and Plans. Further flood information relating to this land may be available by application under section 10.7(5) of the Environmental Planning & Assessment Act 1979

(3) In this clause -

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 0) published by the NSW Government in April 2005.
Probable maximum flood has the same meaning as in the Floodplain Development Manual.

Further flood information relating to this parcel of land is available by application under section 10.7(5) of the Environmental Planning & Assessment Act 1979.

Please note that flood information may change due to Council's flood study and Floodplain Risk Management Study currently being reviewed. As part of the review, design parameters for these studies are changing, and therefore the flood levels, velocities and flood risks may vary from the current flood study.

8. LAND RESERVED FOR ACQUISITION

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Nil.

9. CONTRIBUTION PLANS

The name of each contributions plan applying to the land.

Wollongong City Wide-Development Contributions Plan

This plan levies contributions under Section 7.12 of the *Environmental Planning and Assessment Act 1979 (NSW)*. The Contribution is calculated based on the proposed cost of carrying out development and, where applicable, the requirement to pay contributions will be included in any development consent or complying development certificate issued. Further information is available from Councils website.

9A. BIODIVERSITY CERTIFIED LAND

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

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

Nil.

10. BIODIVERSITY STEWARDSHIP SITES

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

Note: Biodiversity stewardship agreements include bio-banking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

Nil.

10A. NATIVE VEGETATION CLEARING SET ASIDES

If the land contains a set aside are under section 60ZC of the Local Land Services Act 2013, a statement to that effect (but only if the council has been notified of the existence of the set aside by Local Land Services or it is registered in the public register under that section).

Nil.

11. BUSH FIRE PRONE LAND

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.
If none of the land is bush fire prone land, a statement to that effect.

The land is recorded in Council's records as bushfire prone land.

12. PROPERTY VEGETATION PLANS

If the land is land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force), 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 the Act).

Council has not been notified that the land is affected by a Property Vegetation Plan issued under the Native Vegetation Act 2003.

13. 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 of the order)

Council has not been notified of an order.

14. STATE SIGNIFICANT DEVELOPMENT

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

STATE SIGNIFICANT INFRASTRUCTURE

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

Nil

15. SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

If the land is land to which State Environmental Planning Policy (Housing) 2021 applies:

(1) A statement of whether there is a current, site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is current, and

(b) that a copy may be obtained from the head office of the Department of Planning, and

(2) A statement setting out any terms of a kind referred to in clause 38 of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land

State Environmental Planning Policy (Housing) 2021

Nil.

16. SITE COMPATIBILITY CERTICATE FOR INFRASTRUCTURE, SCHOOLS OR TAFE ESTABLISHMENTS

A statement of whether there is a valid site compatibility certificate (infrastructure), or site compatibility certificate (schools or TAFE establishments) of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and

(b) that a copy may be obtained from the head office of the Department.

State Environmental Planning Policy (Transport and Infrastructure) 2021

Nil.

17. SITE COMPATIBILITY CERTIFICATE AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is current, and

(b) that a copy may be obtained from the head office of the Department.

(2) A statement setting out any terms of a kind referred to in clause 38 of State Environmental Planning Policy (Housing) 2021 that have been imposed as a condition of consent to a development application in respect of the land.

State Environmental Planning Policy (Housing) 2021

Nil.

18. PAPER SUBDIVISION INFORMATION

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to the consent ballot.

Nil

(2) The date of any subdivision order that applies to the land.

Not applicable

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. SITE VERIFICATION CERTIFICATES

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Note: A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land-see Division 3 of Part 4AA of State Environmental Planning Policy (Resources and Energy 2021).

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department.

Nil

20. LOOSE-FILL ASBESTOS INSULATION REGISTER

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register, that is required to be maintained under that Division, a statement to that effect.

For register information contact www.fairtrading.nsw.gov.au

Nil.

21. AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICATION ORDERS

(1) A statement of whether there is any affected building notice of which the council is aware that is in force in respect of the land.

(2) A statement of:

(a) whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and

(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

(3) In this clause: affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017. building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Affected building notice has the same meaning as Part 4 of the Building Products (Safety) Act 2017 No 69

Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017 No 69

Nil.

CONTAMINATED LAND MANAGEMENT ACT 1997

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:

(a) that the land to which the certificate relates is significantly contaminated within the meaning of that Act- if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

(b) that the land to which the certificate relates is subject to a management order within the meaning of the Act- if it is subject to such an order at the date when the certificate is issued,

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act – if it is the subject of such an approved proposal at the date when the certificate is issued,

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act – if it is subject to such an order at the date when the certificate is issued,

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of the Act – if a copy of such a statement has been provided at any time to the local authority issuing the certificate

Council has **not** been advised that:

a) The land is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997

b) The land is subject to a management order within the meaning of the Contaminated Land Management Act 1997

c) The land is subject to an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997

d) The land is subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997

e) The land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997.

SECTION 10.7 (5) DETAILS

As at the date of this certificate, the following additional information, provided in good faith pursuant to section 10.7 (5) of the Act, relate to the abovementioned land. Council has selected these matters as those most likely to be of concern but they do not comprise an exhaustive list of matters likely to affect the land.
When information pursuant to section 10.7 (5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws you attention to section 10.7 (6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to subsection (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter referred to in this certificate.

RESOLUTION TO PREPARE PLANNING PROPOSAL

Council on 17 July 2017 resolved to commence the preparation of a draft Planning Proposal to introduce Housing Affordability provisions or SEPP 70 Housing Affordability provisions into the Wollongong Local Environmental Plan 2009. The form of the provisions will be subject to a future report and subsequent community consultation.

PROPOSED DRAFT DEVELOPMENT CONTROL PLANS

The following plans have been placed on exhibition pursuant to the provisions of section 3.43 of the Environmental Planning and Assessment Act 1979:

Draft Development Control Plan 2009 Review
The Wollongong Development Control Plan 2009 came into force on 3 March 2010. The following draft chapters are available for public exhibition.

D16 Draft Neighbourhood Plans for various lots – West Dapto Urban Release Area
E1 Access for people with a disability
C1 Advertising Signage and Structure
E23 – Riparian Land Management

LAND STABILITY

Council's land constraint/stability assessment maps do not show that the land is located in an area where landslip and/or subsidence have occurred, or where land instability is suspected. If you have any doubt as to whether the land is affected by landslip and/or subsidence the services of a suitably qualified engineer should be obtained.

Note: the advice provided by Council in respect of the stability of the land is based on information contained in Council's land constraint maps. The maps have been compiled from data received by Council and considered by Council to be reasonably reliable. Council does not warrant that its land constraint maps contain all information ever received by Council relating to the stability of the land.

FLOOD AND DRAINAGE

1 Flood Affected - Classification of flood risk precinct under review

From Council records, Council has determined that this property is located within a **Flood Affected - Flood Risk Precinct Classification under Review** precinct.

Council has recently undertaken a Review of its Flood Study for this area. The Study indicates that the property is affected by flooding or at risk of isolation in the event of a flood. The specific Flood Risk Precinct classification available from the Floodplain Risk Management Study and Plan is under review, however the outcomes from this review are not yet available. You may wish to engage a suitably qualified Civil Engineer, experienced in hydraulics and floodplain management, to determine the applicable Flood Risk Precinct classification for the property and to ascertain the likely effect, if any, on the land. Further information is available from Council.

Note: Advice given by Council relating to the likelihood of land being flooded or the nature or extent of such flooding is based on information contained in Council's flood maps. The maps are compiled from data received by Council and/or studies prepared by Council and considered by Council to be reasonably reliable. Council does not warrant that its flood maps contain all information ever received by Council relating to the likelihood of land being flooded or the nature or extent of any such flooding.

Council has prepared a development control plan known as Wollongong Development Control Plan 2009 that provides details of flood related development controls that may be applicable.

2 Estimated Flood Levels

Council is aware that it may hold estimated and/or historical flood levels in the vicinity of this property. In order to pursue this matter further, please complete a Flood Level Information Advice form or apply online which are both available on Council website or at Customer Service front counter of the Administration Building. A cost is involved for this service. Payment must be made prior to information being provided.

Please note that flood information may change due to Council's flood study and Floodplain Risk Management Study currently being reviewed. As part of the review, design parameters for these studies are changing, and therefore the flood levels, velocities and flood risks may vary from the current flood study.

ACID SULFATE SOILS

Acid Sulfate Soils Class 5 has been mapped on this land, refer to Clause 7.5 of Wollongong Local

Environmental Plan 2009.

Acid Sulfate Soils Class 1 has been mapped on this land, refer to Clause 7.5 of Wollongong Local Environmental Plan 2009.

Acid Sulfate Soils Class 4 has been mapped on this land, refer to Clause 7.5 of Wollongong Local Environmental Plan 2009.

Acid Sulfate Soils Class 3 has been mapped on this land, refer to Clause 7.5 of Wollongong Local Environmental Plan 2009.
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CONTAMINATED LAND

No advice provided.

STATE SIGNIFICANT DEVELOPMENT

Nil.

BUILDING LINES

Wollongong Development Control Plan 2009 details the setbacks applicable to the land.

OTHER HERITAGE MATTERS KNOWN TO COUNCIL

Aboriginal Heritage

All development within the Wollongong Local Government Area is subject to the Aboriginal Heritage requirements of the National Parks and Wildlife Act 1974. To determine if your property is affected by an Aboriginal Site, it is recommended that an Aboriginal Heritage Information Management System (AHIMS) search be undertaken by contacting the AHIM'S Administrator on (02) 9995 5000. Further detail on Council's Aboriginal Heritage requirements for Development is contained within Chapter E10 of the Wollongong Development Control Plan 2009.

DEVELOPMENT HISTORY

Application may be made for a Building Certificate under section 10.7B of Environmental Planning and Assessment Act 1979 if written certification of existing buildings on the land is required.

The history of development consent approval applicable to the land may be obtained by consulting the Development Consent Register. Enquiries concerning the register may be made at Council's Customer Service Centre, 41 Burelli Street Wollongong during office hours.

LOOSE-FILL ASBESTOS

Council recommends you make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the Council also strongly recommends that any potential purchaser obtain advice form a licensed asbestos assessor to

determine whether loose-fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Contact NSW Fair Trading for further information.

OTHER INFORMATION

Illawarra Shoalhaven Regional Plan

The Department of Planning, Industry and Environment released the Illawarra Shoalhaven Regional Plan 2041 and Special Infrastructure Contribution.

The land is within State Environment Planning Policy (Coastal Management) 2018 – Coastal Wetlands.
The land is within State Environment Planning Policy (Coastal Management) 2018 – Coastal Wetlands buffer area.

Flood Evacuation

A flood evacuation report exists for this land (File DA-2004/1904).

NSW Cladding Register

The NSW Cladding Registration Portal has included Buildings 230, 231, 232, 233, 234 and 236 of the property on the register.
Inclusion on the Cladding Registration Portal is initiated by an owner or authorised representative of the owner of the property.
The inclusion of the property on the Cladding Registration Portal does not guarantee that the property is affected by cladding or the subject of any legal restriction.
Council only periodically checks the Cladding Registration Portal, and so this information may not be current. Further enquiries can be directed to the landowner or, where applicable, the relevant strata manager for the property.

Bushfire

In accordance with State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 Clause 1.19A any complying development (except under the Housing Alternation Code) may only be carried out on the lot if the development will not be carried out on any part of the lot that in the bush fore attack level-40 (BAL- 40) or the flame zone (BAL-FZ). In addition, for development specified for the Rural Housing Code any associated access way to the development must be on land that is not in the BAL- 40 or BAL-FZ or grassland.

UCI Road World Championships

The world's best cyclists will be heading to Wollongong this year for the UCI Road World Championships. The Championships will take place between 18-25 September 2022 and will be the largest event ever held in Wollongong. We're preparing to welcome the world to Wollongong with over 1000 athletes and 300 000 spectators expected across eight days of racing and supporting events.

The Championships are one of the top five sporting events in the world, and like the Olympics, require extensive planning and operational support to be delivered safely for participants, spectators and the local community. The highly coordinated event will take place on local streets.

To meet safety standards, roads along the route will be temporarily closed while the races are in progress and there will be no parking on the course during road closures. The Local Organising Committee, Wollongong 2022, and Wollongong City Council are working closely NSW Government

agencies, traffic management experts and emergency services to minimise the impact and ensure that locals can enjoy the event with minimal disruption.

At different times throughout the event, access may be limited to residences, businesses and construction sites along and nearby the route. If you're likely to be undertaking a renovation or construction this September, please be mindful of the impact that parking restrictions, limited access and road closures may have on your project timeframes.

The organising committee, Wollongong2022, will provide opportunities to find out more about the event and ask questions in the lead up to September as part of their Community Readiness program.

If you would like more information, you can find answers to some frequently asked questions and details on the route and race timetable at www.wollongong2022.com.au.

GENERAL INFORMATION

The following general information is brought to the attention of land owners.

1. Tree Management Policy

The Wollongong Tree Management Policy allows proper assessment to be made of the environmental importance and viability of trees before they are pruned, removed or damaged in any way. This Policy prohibits the ringbarking, cutting down, topping, lopping, removing, injuring or destruction of any tree except with the prior written consent of Council.

The Tree Management Policy applies to any tree that:

- Is 3 metres or more in height,
- Has a trunk diameter of 200mm or more at a height of 1 metre from the ground, or
- Has a branch spread of 3 metres or more

Please note that:

- A dead/dying tree is subject to the Tree Management Policy
- Pruning of major structural or anchor roots is also subject to the Tree Management Policy

Some trees may be exempt and do not require a permit to prune or remove them. Following is a list of the exempt tree species:

Common Name	Botanical Name
African fern pine, Yellowwood	*Afrocarpus falcatus (Syn. Nageia falcatus)*
African Olive	*Olea europaea* subsp. *cuspidata*
Alder	*Alnus* species
Black Locust	*Robinia pseudoacacia*
Box Elder	*Acer negundo*
Camphor Laurel	*Cinnamomum camphora*
Canary Island Date Palm	*Phoenix canariensis*
China Doll	*Radermachera sinica*
Chinese Tallow	*Triadica sebifera [Sapium sebiferum]*
Cocos or Queen Palm	*Syagrus romanzoffiana*
Common Hackberry	*Celtis occidentalis*
Coral Tree	*Erythrina x sykesii*

Common Name	Botanical Name
Cotoneaster	*Cotoneaster* species
Domestic Fruit Trees	
Golden Cypress Pine	*Cuppressus macrocarpa* 'Brunniana'
Goldenrain Tree	*Koelreutaria paniculata*
Honey Locust	*Gleditsia triacanthos*
Kaffir Plum	*Harpephyllum caffrum*
Liquidambar	*Liquidambar* species
Norfolk Island Hibiscus/Itchy Pod Tree	*Lagunaria patersonii*
Oleander	*Nerium oleander*
Peppercorn, Pepper Tree	*Schinus areira*
Poplar	*Populus* species
Privet	*Ligustrum* species
Radiata Pine	*Pinus radiata*
Rubber Tree	*Ficus elastica*
Silky Oak	*Grevillea robusta*
Umbrella Tree	*Schefflera actinophylla*
Willow	*Salix* species

For the full list of other exemptions please refer to the Tree Management Policy document available via Council's website.

Any person acting on a permit issued under this Policy must comply with all conditions of that permit.

Any person who contravenes, or causes or permits the contravention of this Policy is guilty of an offence under the Environmental Planning and Assessment Act 1979.

Development Consents may contain restrictions relating to trees.

Further information regarding Council's Tree Management Policy including how to lodge an application can be made by contacting Council's Customer Service on telephone 4227 7111. Alternatively information can be obtained from Council's website via the following link http://www.wollongong.nsw.gov.au/services/household/trees/Pages/Lodgeatmp.aspx.

2. Termite Management for Buildings

Australian Standards 3660.1-2000 (New Buildings) AS 3660.2-2000 (Existing Buildings) Termite Management, recommends that buildings be inspected and be maintained in order to achieve termite management of buildings. Licensed Pest Control Contractors should be contacted to achieve necessary termite control.

3. Lead Paint and Building Renovations

Your attention is drawn to the hazards associated with lead-based paints during building renovation. Suitable precautions should be taken when removing flaking paint or sanding painted surfaces suspected to have been treated with lead-based paint to prevent contamination of the immediate environment and associated health risk from lead dust.

AS 4361 – Part 2 – Guide to Lead Paint Management – Residential and Commercial.

4. Sewage Management Systems

Where a property has on-site sewage management system (this includes septic tanks, disposal trenches, aerated waste water treatment systems, composting toilets and pump out systems) the new owner must obtain an "Approval to Operate" from Council within 3 months of land ownership being transferred or otherwise conveyed.

5. Asbestos

Exposure to asbestos is a serious health hazard. In Australia, asbestos was gradually phased out of building materials in the 1980s and the supply and installation of asbestos containing goods has been prohibited since 31 December 2003. However, asbestos legacy materials still exist in many homes, buildings and other assets and infrastructure.

Council on the 27 October 2014 adopted an Asbestos policy which states Council's commitment to and responsibilities for safely managing asbestos, and provides information for Council and the local community on safely managing asbestos. The policy can be viewed on Council's website: www.wollongong.nsw.gov.au.

6. Loose-Fill Asbestos Insulation

Some residential homes located in NSW have been identified as containing loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licenced asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the buildings occupants.

Contact NSW Fair Trading for further information.

7. Building Product Use Ban

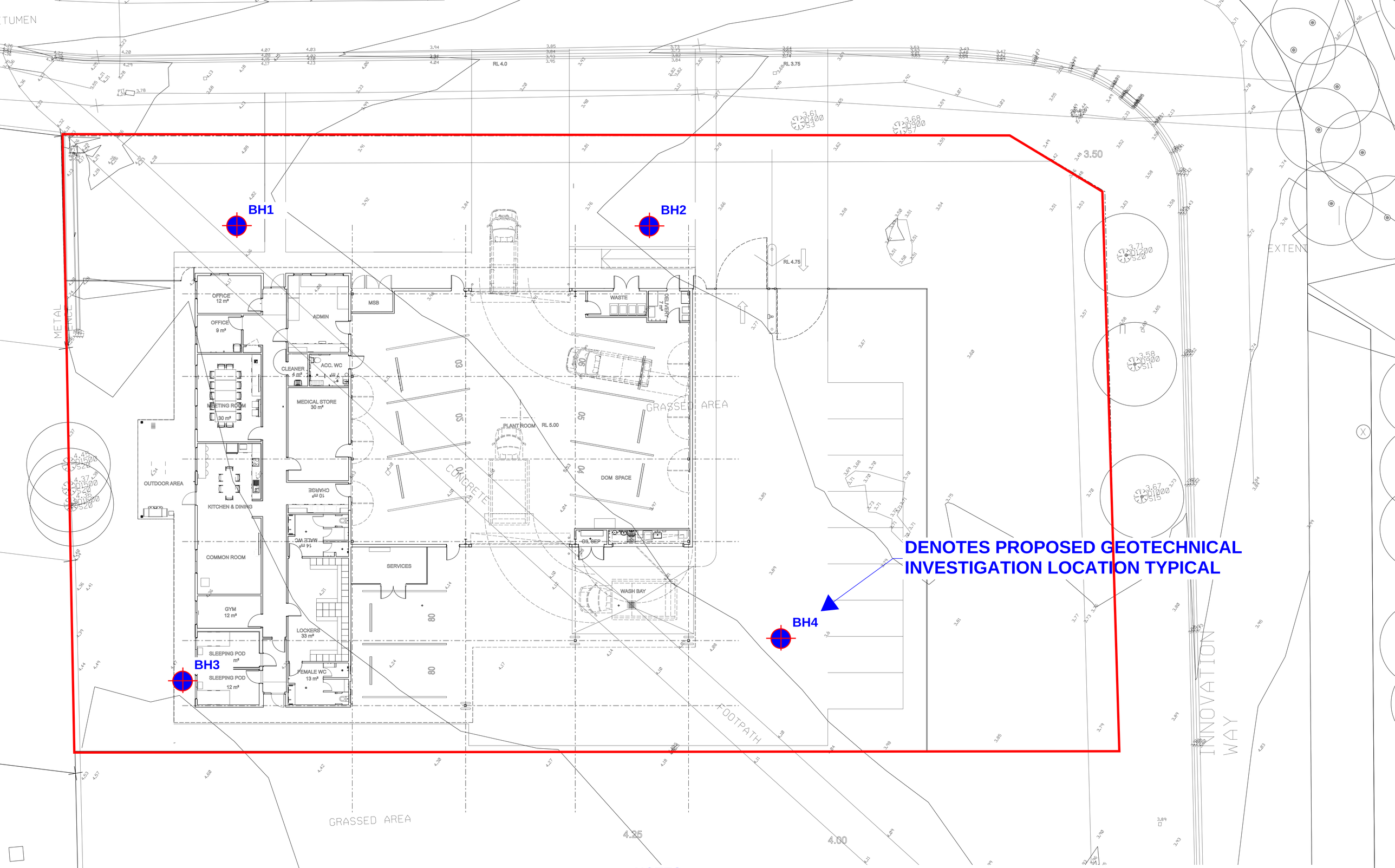
On 10 August 2018, the Commissioner of Fair Trading, Department of Finance, Services and Innovation issued, by way of a notice, a Building Product Use Ban under Section 9(1) of the Building Products (Safety) Act 2017. This notice prohibited the use of Aluminium Composite Panels (ACPs) with a core of greater 30 percent Polyethylene (PE) by mass ("the building product") in any external cladding, external wall, external insulation, faced or rendered finish in certain classes of buildings under the National Construction Code and subject to certain exceptions. The ban commenced operation on Wednesday 15 August 2018.

You should undertake your own inquiries as to whether any of the Panels referenced in the Building Product Use Ban have been utilised in the building.

This letter is authorised by

Margaret Kampen
LIS Information Officer Section 10.7 Planning Certificates
Wollongong City Council
Telephone (02) 4227 7111

APPENDIX F – Detail and Level Survey and Proposed Development Plans



NOTES:
- A 'DIAL BEFORE YOU DIG' INVESTIGATION SHOULD BE UNDERTAKEN PRIOR TO WORKS COMMENCING ON SITE.
- SCANNING OF THE EXISTING GROUND FOR EXISTING SERVICES SHOULD BE UNDERTAKEN PRIOR TO ANY DRILLING OR EXCAVATION WORKS COMMENCING.
- GEOTECHNICAL REPORT IS TO PROVIDE CBR AND DESIGN ADVICE ON NEW ROAD CONSTRUCTION

MEINHARDT BONACCI

BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 4, 66 Clarence Street, Sydney, NSW 2000 Australia

Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

Project Name	RAIR 2 - FAIRY MEADOW	Drawn	Date	North
		NMF	23/02/2022	
Drawing Title	BOREHOLE LOCATIONS	Project Ref	Drawing No	Rev
		12537	SK 220223-01	

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300mm at A1

INNOVATION WAY

PEDESTRIAN CROSSING

EXISTING SIGNAGE

EXISTING WATER METER

EXISTING SIGNAGE

DR

PP

E

LP

PROPOSED SITE BOUNDARY

1:40

1:10

1:20

PP

DR

EXISTING BOLLARD

EXISTING DISH DRAIN

10705

11170

OFFICE

OFFICE

MEETING ROOM

KITCHEN & DINING

OUTDOOR AREA

ADMIN

CLEANER

ACC. WC

MEDICAL STORE

CHARGE

MALE WC

COMMON ROOM

GYM

SLEEPING POD

SLEEPING POD

FEMALE WC

LOCKERS

SERVICES

COMMS

MSB

WASTE

DELIVERY

PLANT ROOM

R.L. 5.000

OIL SEP

WASH BAY

9765

6780

UNDERGROUND RWT

EXISTING SITE BOUNDARY

3695

PROPOSED SITE BOUNDARY

PROPOSED BIORETENTION

PROPPOSED SITE BOUNDARY

INNOVATION WAY

BATTER

RETAINING WALL

27330

LP

E

EXISTING FLAG POLE

EXISTING GARDEN BED WITH ROCK EDGE

EXISTING BOLLARDS

29700

EXISTING PATH

DR

EXISTING SIGNAGE

DR

SITE BOUNDARY

DEVELOPMENT SCHEDULE	
PROPOSED SITE AREA	3271.4m2
GROSS FLOOR AREA	766.5m2

SITE PLAN LEGEND

- EXISTING TREE TO BE RETAINED - REFER TO ARBORIST REPORT
- NEW TREE - REFER LANDSCAPE PLAN
- PROPOSED LANDSCAPE - REFER LANDSCAPE PLAN
- EXISTING PATH
- PROPOSED NEW PATH
- EXISTING BUILDING TO BE DEMOLISHED
- SITE BOUNDARY

DATE PRINTED:2/07/2022 12:02:09 AM

ISSUE	DATE	SUBJECT	AUTHORISED
A	17.06.22	BASE ARCHITECTURE SET	MR
B	01.07.22	REF ISSUE	MR

RAIR
Rural Ambulance Infrastructure Reconfiguration
Building the future response for our state

PROJECT MANAGER
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SYDNEY NSW 2000
T +61 2 9299 3555
mace

SERVICES
23/101 MILLER ST
NORTH SYDNEY NSW 2060
T +61 2 9437 1000
JHA

STRUCTURE & CIVIL
LEVEL 4
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SYDNEY NSW 2000
T +61 2 8247 8400
BONACCI

This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.

TRUE NORTH

PROJECT NORTH

1:200
0 2 4 6 8 10 20m

PROJECT
RURAL AMBULANCE INFRASTRUCTURE PROGRAM (RAIR) FAIRY MEADOW

CLIENT
NSW GOVERNMENT Health Infrastructure
NSW Ambulance

PROJECT ADDRESS
INNOVATION WAY, FAIRY MEADOW, NSW, 2519

ARCHITECT
djrd
djrd architects

T +612 9319 2955
ABN: 48 942 921 969
Nominated Architects:
Andrew Hipwell 6562
Daniel Beekwilder 6192

63 Myrtle Street
Chippendale NSW 2008
Sydney Australia
djrd.com.au

DRAWN BY: AF
SCALE AT A1: 1 : 200

DESCRIPTION
PROPOSED SITE PLAN

PROJECT No	DRAWING No	REVISION
21 410	R23- AR-0101	B

APPENDIX G - Logs

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TP No: TP01
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, low plasticity, dark brown, with rootlets and fragment of broken glass.	TP01 0.0-02 PID=1.0ppm			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP01 0.3-0.5 PID=0.7ppm			NATURAL
						Target depth Test Pit TP01 terminated at 0.7m				
			1.0							
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP02
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, low plasticity, brown, with rootlets and grass, pieces of brick, fragment of broken glass.	TP02 0.0-0.3 PID=0.6ppm			FILL No PACM, staining or odour
			0.5		-	Silty Sandy CLAY, medium plasticity, orange/brown.	TP02 0.4-0.6 PID=1.1ppm			NATURAL
			1.0			Refusal on concrete slab Test Pit TP02 terminated at 0.9m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP03
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.0		-	FILL: Silty Sandy CLAY, low plasticity, dark brown, trace fine gravel, rootlets, piece of brick and fragment of broken glass.	TP03 0.0-0.2 PID=0.7ppm			FILL No PACM, staining or odour
			0.5		CI	Sandy CLAY, medium plasticity, orange.	TP03 0.3-0.5 PID=0.8ppm			NATURAL
			1.0			Target depth Test Pit TP03 terminated at 0.7m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP04
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, low plasticity, dark grey/dark brown, with fine to medium gravel, fragments of broken glass, mild organic odour.	TP04 0.0-0.2 PID=0.4ppm QAQC1A QAQC1B			FILL No PACM and staining. Mild organic odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.				NATURAL
						Target depth Test Pit TP04 terminated at 0.5m				

2.2. NON CORED BOREHOLE (NO COORD) 15348.GPJ GINT STD AUSTRALIA.GDT 8/3/22

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TP No: TP05
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, low plasticity, dark brown, with rootlets and fragments of broken glass.	TP05 0.0-0.2 PID=0.2ppm			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown, with trace fine gravel.	TP05 0.3-0.5 PID=0.5ppm			NATURAL
			1.0			Target depth Test Pit TP05 terminated at 0.7m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP06
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.0		-	FILL: Sandy GRAVEL, fine to medium grained, dark grey/dark brown, with rootlets.	TP06 0.0-0.2 PID=0.6ppm			FILL No PACM, staining or odour
			0.5		CL-CI	Sandy CLAY, low to medium plasticity, with trace fine gravel.	TP06 0.3-0.5 PID=0.5ppm			NATURAL
			1.0			Target depth Test Pit TP06 terminated at 0.8m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP07
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.0		-	FILL: Sandy GRAVEL, fine to medium grained, dark grey/dark brown.	TP07 0.0-0.2 PID=0.4ppm			FILL No PACM, staining or odour
					-	FILL: Sandy CLAY, low plasticity, orange/brown, with trace fine to medium gravel.	TP07 0.2-0.4 PID=0.6ppm			
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP07 0.5-0.7 PID=0.5ppm			NATURAL
			1.0			Target depth Test Pit TP07 terminated at 1m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP08
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.0		-	FILL: Sandy GRAVEL, fine to medium grained, dark grey/dark brown.	TP08 0.0-0.2 PID=0.6ppm QAQC2A QAQC2B			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP08 0.3-0.5			NATURAL
			1.0			Target depth Test Pit TP08 terminated at 0.7m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP09
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, low plasticity, dark brown, with rootlets and fragment of broken glass.	TP09 0.0-0.2 PID=0.4ppm			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP09 0.3-0.5 PID=0.6 ppm			NATURAL
						Target depth Test Pit TP09 terminated at 0.7m				
			1.0							
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP10
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.5		-	FILL: Silty Sandy CLAY, low plasticity, dark brown, with trace concrete, trace asphalt gravel, fine to medium gravel.	TP10 0.0-0.3 PID=0.8ppm			FILL No PACM, staining or odour
					CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP10 0.5-0.7 PID=0.5ppm			NATURAL
			1.0			Target depth Test Pit TP10 terminated at 0.8m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP11
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.5		-	FILL: Silty Sandy CLAY, low plasticity, dark brown, with trace concrete, trace asphalt gravel, fine to medium gravel.	Ass 0.0-0.1 TP11 0.0-0.3 PID=0.8ppm			FILL No PACM, staining or odour
					CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP11 0.5-0.7 PID=0.6ppm Ass 0.5			NATURAL
			1.0			Target depth Test Pit TP11 terminated at 0.9m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP12
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE		0.0		-	FILL: Silty Sandy CLAY, low plasticity, with rootlets, fragments of broken glass, ceramic.	TP12 0.0-0.2 PID=0.4ppm			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown.	TP12 0.3-0.5 PID=0.8ppm			NATURAL
			1.0			Target depth Test Pit TP12 terminated at 0.8m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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TP No: TP13
Sheet: 1 of 1
Job No: 15348

Test Pit Log

Client: Health Infrastructure
Project: Preliminary & Detailed Site Investigation
Location: 7 Squires Way, Fairy Meadow, NSW

Started: 7/13/2022
Finished: 7/13/2022
Test Pit Size 400 m

Rig Type: 3.5t Excavator
Hole Location: Refer to Figure 4
Driller: -
Logged: AA
RL Surface: m
Contractor: Ken Coles Excavation
Bearing: ---
Checked: TPR

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
Excavation	NE				-	FILL: Silty Sandy CLAY, dark brown, with fine gravel, with rootlets, pieces of brick and fragments of broken glass.	TP13 0.0-0.2 PID=0.4ppm			FILL No PACM, staining or odour
			0.5		CI-CH	Sandy CLAY, medium to high plasticity, orange/brown, with trace fine gravel.	TP13 0.3-0.5 PID=0.6ppm			NATURAL
			1.0			Target depth Test Pit TP13 terminated at 0.8m				
			1.5							
			2.0							
			2.5							
			3.0							
			3.5							
			4.0							
			4.5							
			5.0							

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W: www.allgeo.com.au

BH No: BH1
Sheet: 1 of 1
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306832E, 6191741N
Driller: Andrew
Logged: EY

RL Surface: 4.12m
Contractor: BG Drilling
Bearing: ---
Checked: AS

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm (2 4 9 18)	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT	Not Encountered		4.0	0.0		-	FILL: Silty CLAY, low to medium plasticity, dark brown and dark grey, well compacted	7 4	Ass 0.0	M <PL	-	FILL
			3.5	0.5		CI-CH	Silty CLAY, medium to high plasticity, brown and light grey, with orange mottling.	7 5	Ass 0.5	M ~PL	F	ALLUVIAL
			3.0	1.0				8 12 16	Ass 1.0		St	
			2.5	1.5			1.7m: with ironstone gravel, fine to medium grained, subrounded.	25 24 30	Ass 1.5 SPT 4, 4, 5 N=9 PSD 1.5-2.0			
			2.0	2.0					Ass 2			
			1.5	2.5					Ass 2.5			
			1.0	3.0			3.2m: becoming grey-light grey.		Ass 3.0 SPT 4, 6, 8 N=14			
			0.5	3.5					Ass 3.5			
			0.0	4.0					Ass 4.0			
			-0.5	4.5			Borehole BH1 terminated at 4m					
				5.0								

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Alliance Geotechnical Pty Ltd
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E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: BH2
Sheet: 1 of 2
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306878E, 6191733N
Driller: Andrew
Logged: EY
RL Surface: 3.71m
Contractor: BG Drilling
Bearing: ---
Checked: AS

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT			3.5	0.5		-	FILL: Silty CLAY, low to medium plasticity, dark brown, with rootlets, trace fine to medium grained, subangular gravel, appears well compacted.	2 4 9 18 1 0 0 4	Ass 0.0 Ass 0.5	MC ~PL		FILL
			3.0	1.0		CI-CH	Silty CLAY, medium to high plasticity, yellow brown mottled grey	7 11 19 23	Ass 1.0	MC ~PL	F St	ALLUVIAL
			2.5	1.5		CI-CH	Silty CLAY, medium to high plasticity, red brown and dark red, trace fine grained rounded ironstone gravel	28 33	Ass 1.5 SPT 3, 4, 5 N=9			
			2.0	2.0			1.8m: becoming grey and light grey mottled brown		Ass 2.0			
			1.5	2.5					Ass 2.5 Ass 2.5-2.6			
			1.0	3.0					Ass 3.0 SPT 2, 3, 4 N=7			
			0.5	3.5					Ass 3.5			
			0.0	4.0					Ass 4.0			
			-0.5	4.5					SPT 5, 4, 6 N=10			
			-1.0	5.0								

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BH No: BH2
Sheet: 2 of 2
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306878E, 6191733N
Driller: Andrew
Logged: EY
RL Surface: 3.71m
Contractor: BG Drilling
Bearing: ---
Checked: AS

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm (2 4 9 18)	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT			-1.5			CI-CH	Silty CLAY, medium to high plasticity, red brown and dark red, trace fine grained rounded ironstone gravel *(continued)*			MC ~PL	St	
	Seepage @ 5.3m			5.5		SC	Clayey SAND, fine to medium grained, dark grey and grey.			W	MD	
			-2.0									
				6.0					SPT 5, 5, 7 N=12 Ass 6.3-6.4			
			-2.5									
				6.5								
			-3.0									
				7.0								
			-3.5									
				7.5							L	
			-4.0						SPT 4, 4, 4 N=8			
				8.0			Borehole BH2 terminated at 8m					
			-4.5									
				8.5								
			-5.0									
				9.0								
			-5.5									
				9.5								
			-6.0									
				10.0								

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BH No: BH3
Sheet: 1 of 2
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306823E, 6191710N
Driller: Andrew
Logged: EY

RL Surface: 4.47m
Contractor: BG Drilling
Bearing: ---
Checked: AS

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm (2 4 9 18)	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT						-	FILL: Silty CLAY, low to medium plasticity, dark brown, trace fine to medoum grained gravel, trace fine grained sand and rootlets.	1, 6	Ass 0.0	MC ~PL	-	FILL
			4.0	0.5		CI-CH	Silty CLAY, medium to high plasticity, brown mottled yellow, trace fine to medium grained, subrounded gravel.	4, 6, 12, 17	Ass 0.5	MC ~PL	F	ALLUVIAL
			3.5	1.0				24, 29, 32	U75 1.0-1.2 Ass 1.0		St	
							1.2m: becoming grey and light grey mottled brown		Agg 1.3-1.4			
			3.0	1.5					Ass 1.5 SPT 3, 5, 6 N=11			
			2.5	2.0					Ass 2.0			
			2.0	2.5					Ass 2.5			
			1.5	3.0					Ass 3.0 SPT 4, 4, 5 N=9			
			1.0	3.5					Ass 3.5			
			0.5	4.0					Ass 4.0			
			0.0	4.5					Agg 4.5-4.6 SPT 5, 5, 8 N=13			
			-0.5	5.0								

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W: www.allgeo.com.au

BH No: BH3
Sheet: 2 of 2
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306823E, 6191710N
Driller: Andrew
Logged: EY
RL Surface: 4.47m
Contractor: BG Drilling
Bearing: ---
Checked: AS

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm (2 4 9 18)	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT	Seepage @ 5.0m		-1.0	5.5		SC	Clayey SAND, fine to medium grained, red brown and orange, with fine to medium grained, subrounded gravel.			W	MD - D	
			-1.5	6.0					SPT 11, 15, 15 N=30			
			-2.0	6.5								
			-2.5	7.0								
			-3.0	7.5					SPT 6, 7, 8 N=15			
			-3.5	8.0			Borehole BH3 terminated at 8m					
			-4.0	8.5								
			-4.5	9.0								
			-5.0	9.5								
			-5.5	10.0								

A. AUGERED BOREHOLE 15348.GPJ GINT STD AUSTRALIA.GDT 4/8/22

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BH No: BH4
Sheet: 1 of 1
Job No: 15348

Borehole Log

Client: Mace Australia Pty Ltd
Project: Geotechnical Investigation
Location: Innovation Way, Fairy Meadow, NSW

Started: 14/07/2022
Finished: 14/07/2022
Borehole Size: 100 mm

Rig Type: Hanjin
Hole Location 306865E, 6191706N
Driller: Andrew
Logged: EY
RL Surface: 4.09m
Contractor: BG Drilling
Bearing: ---
Checked: S

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP per 150mm (2 4 9 18)	Samples Tests Remarks	Moisture Condition	Consistency/ Density Index	Additional Observations
ADT	Not Encountered		4.0	0.0		-	FILL: Silty CLAY, low to medium plasticity, dark brown and dark grey, with rootlets, trace fine to medium grained, subangular gravel.	2, 8, 6	Ass 0.0	MC ~PL	-	FILL
			3.5	0.5					Ass 0.5			
						CI-CH	Sandy CLAY, medium to high plasticity, grey-brown mottled orange.	9, 17, 17, 18, 20, 24, 21, 22, 23, 30	Agg 0.7-0.8	MC ~PL	F St	ALLUVIAL
			3.0	1.0					Ass 1.0			
									CBR4 1.0-1.5			
			2.5	1.5					Ass 1.5 SPT 3, 4, 5 N=9			
									Agg 1.8-1.9			
			2.0	2.0					PSD 1.5-2.0			
									Ass 2.0			
			1.5	2.5					Ass 2.5			
			1.0	3.0			3.3m: dark grey-brown.		Ass 3.1 SPT 4, 7, 6 N=13			
			0.5	3.5					Agg 3.4-3.5			
									Ass 3.5			
				4.0					Ass 4.0			
			0.0				Borehole BH4 terminated at 4m					
			-0.5	4.5								
				5.0								

A. AUGERED BOREHOLE 15348.GPJ GINT STD AUSTRALIA.GDT 4/8/22

APPENDIX H – Laboratory Documentation

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

Unit F3 Bld.F, 16 Mars Rd, Lane Cove West, NSW 2066 · 02 9900 8400 · EnviroSampleNSW@eurofins.com
Unit 1, 21 Smallwood Pl., Murarrie, QLD 4172 · 07 3902 4600 · EnviroSampleQLD@eurofins.com
Unit 2, 91 Leach Highway, Kewdale WA 6105 · 08 9251 9600 · EnviroSampleWA@eurofins.com
2 Kingston Town Close, Oakleigh, VIC 3166 · 03 8564 5000 · EnviroSampleVic@eurofins.com

Company	ALLIANCE GEOTECHNICAL	Project №	15348		THALIA
Address	10 WELDER ROAD, SEVEN HILLS NSW	Project Name	FAIRY MEADOW	EDD Format (ESdat, EQuIS, Custom)	
Contact Name	AYODEJI AWOPETU			Sampler(s)	DEJI
Phone №	0415519920			Handed over by	
Special Directions				Email for Invoice	admin@allgeo.com.au
Purchase Order				Email for Results	thalia@allgeo.com.au; ayodeji@allgeo.com.au
Quote ID №					

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

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

- ☐ Overnight (9am)*
- ☐ 1 Day*
- ☐ 2 Day*
- ☑ 3 Day*
- ☐ 5 Day
- ☐ Other ( )

* Surcharges apply

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix (Solid (S) Water (W))	TRH, BTEX, PAH	OCP, PCB	Metals (8)	Asbestos (0.001%)	pH, cation exchange capacity	pHF/pHFOX	TRH/BTEX	1L 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	TP1-0-0.2	13/07/22	s	x	x	x	x										x	x	3 day standard TAT
2	TP1-0.3-0.5	13/07/22	s					x									x	x	
3	TP2-0-0.3	13/07/22	s				x										x	x	
4	TP2-0.4-0.6	13/07/22	s	x	x	x	x										x	x	
5	TP3-0-0.2	13/07/22	s				x										x	x	
6	TP3-0.3-0.5	13/07/22	s														x	x	
7	TP4-0-0.2	13/07/22	s	x	x	x	x										x	x	
8	TP4-0-0.3-0.5	13/07/22	s														x	x	
9	TP5-0-0.2	13/07/22	s	x	x	x	x										x	x	
10	TP5-0.3-0.5	13/07/22	s														x	x	
11	TP6-0-0.2	13/07/22	s	x	x	x	x										x	x	
12	TP6-0.3-0.5	13/07/22	s														x	x	
13	TP7-0-0.2	13/07/22	s														x	x	
14	TP7-0.2-0.4	13/07/22	s	x	x	x	x										x	x	
15	TP7-0.5-0.7	13/07/22	s				x										x	x	
16	TP8-0-0.2	13/07/22	s	x	x	x	x										x	x	
17	TP8-0.3-0.5	13/07/22	s														x	x	
18	TP9-0-0.2	13/07/22	s	x	x	x	x										x	x	
19	TP9-0.3-0.5	13/07/22	s														x	x	
20	TP10-0-0.3	13/07/22	s	x	x	x	x										x	x	
21	TP10-0.5-0.7	13/07/22	s														x	x	
22	TP11-0-0.3	13/07/22	s	x	x	x	x										x	x	
10	TP11-0.5-0.7	13/07/22	s														x	x	
11	TP12-0-0.2	13/07/22	s	x	x	x	x										x	x	
12	TP12-0.3-0.5	13/07/22	s														x	x	
13	TP13-0-0.2	13/07/22	s	x	x	x	x										x	x	
14	TP13-0.3-0.5	13/07/22	s														x	x	
15	QAQC1A	13/07/22	s	x		x											x		
16	QAQC1B	13/07/22	s	x		x											x		SEND TO ALS
17	QAQC2A	13/07/22	s														x		
18	QAQC2B	13/07/22	s														x		
19	Trip spike	13/07/22	s							x							x		
19	Trip blank	13/07/22	s							x							x		
19	TP6-0-0.1	13/07/22	s															x	
20	TP6-0.5	13/07/22	s															x	
21	TP10-0-0.1	13/07/22	s						x									x	
22	TP10-0.5	13/07/22	s						x									x	
21	TP11-0-0.1	13/07/22	s						x									x	
22	TP11-0.5	13/07/22	s						x									x	
				14	12	14	15	1	4	2								33	

Method of Shipment	☑ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Signature	Date	Time
Eurofins Lmgt	Received By		SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date __/__/__	Time __:__	Temperature

906066

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www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

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6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	4/52 Industrial Drive
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NATA# 1261 Site# 1254	NATA# 1261 Site# 1254	NATA# 1261 Site# 18217		NATA# 1261 Site# 20794	NATA# 1261 Site# 25079

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IANZ# 1327	IANZ# 1290

Sample Receipt Advice

Company name:	Alliance Geotechnical
Contact name:	Ayodeji Awopetu
Project name:	FAIRY MEADOW
Project ID:	15348
Turnaround time:	3 Day
Date/Time received	Jul 13, 2022 6:02 PM
Eurofins reference	906066

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

QAQC1B sent to ALS. TP6_0.2_0.4 is an extra bag, logged on HOLD.
Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

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 Ayodeji Awopetu - Ayodeji@allgeo.com.au.

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

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

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IANZ# 1290

Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 906066
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 13, 2022 6:02 PM
Due: Jul 19, 2022
Priority: 3 Day
Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	TP1_0_0.2	Jul 13, 2022		Soil	S22-Jl0030415	X				X		X	X		X	
2	TP1_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030416			X					X	X		
3	TP2_0_0.3	Jul 13, 2022		Soil	S22-Jl0030417	X										
4	TP2_0.4_0.6	Jul 13, 2022		Soil	S22-Jl0030418	X				X		X	X		X	
5	TP3_0_0.2	Jul 13, 2022		Soil	S22-Jl0030419	X										
6	TP4_0_0.2	Jul 13, 2022		Soil	S22-Jl0030420	X				X		X	X		X	
7	TP5_0_0.2	Jul 13, 2022		Soil	S22-Jl0030421	X				X		X	X		X	
8	TP6_0_0.2	Jul 13, 2022		Soil	S22-Jl0030422	X				X		X	X		X	
9	TP7_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030423	X				X		X	X		X	
10	TP7_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030424	X										
11	TP8_0_0.2	Jul 13, 2022		Soil	S22-Jl0030425	X				X		X	X		X	
12	TP9_0_0.2	Jul 13, 2022		Soil	S22-Jl0030426	X				X		X	X		X	

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email: EnviroSales@eurofins.com

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NATA# 1261 Site# 25079

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NATA# 2377 Site# 2370

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Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
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Phone: 1800 288 188
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Received: Jul 13, 2022 6:02 PM
Due: Jul 19, 2022
Priority: 3 Day
Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
13	TP10_0_0.3	Jul 13, 2022		Soil	S22-Jl0030427	X				X		X	X		X	
14	TP11_0_0.3	Jul 13, 2022		Soil	S22-Jl0030428	X				X		X	X		X	
15	TP12_0_0.2	Jul 13, 2022		Soil	S22-Jl0030429	X				X		X	X		X	
16	TP13_0_0.2	Jul 13, 2022		Soil	S22-Jl0030430	X				X		X	X		X	
17	QAQC1A	Jul 13, 2022		Soil	S22-Jl0030431					X			X		X	
18	TRIP SPIKE	Jul 13, 2022		Soil	S22-Jl0030432											X
19	TRIP BLANK	Jul 13, 2022		Soil	S22-Jl0030433						X					
20	TP10_0_0.1	Jul 13, 2022		Soil	S22-Jl0030435				X							
21	TP10_0.5	Jul 13, 2022		Soil	S22-Jl0030436				X							
22	TP11_0_0.1	Jul 13, 2022		Soil	S22-Jl0030437				X							
23	TP11_0.5	Jul 13, 2022		Soil	S22-Jl0030438				X							
24	TP3_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030439		X									
25	TP4_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030440		X									
26	TP5_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030441		X									
27	TP6_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030442		X									

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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 906066
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 13, 2022 6:02 PM
Due: Jul 19, 2022
Priority: 3 Day
Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
28	TP7_0_0.2	Jul 13, 2022		Soil	S22-Jl0030443		X									
29	TP8_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030444		X									
30	TP9_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030445		X									
31	TP10_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030446		X									
32	TP11_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030447		X									
33	TP12_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030448		X									
34	TP13_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030449		X									
35	QAQC2A	Jul 13, 2022		Soil	S22-Jl0030450		X									
36	QAQC2B	Jul 13, 2022		Soil	S22-Jl0030451		X									
37	TP6_0_0.1	Jul 13, 2022		Soil	S22-Jl0030452		X									
38	TP6_0.5_0.5	Jul 13, 2022		Soil	S22-Jl0030453		X									
39	TP6_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030494		X									
Test Counts						15	16	1	4	13	1	12	14	1	13	1

Certificate of Analysis

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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.

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147

Attention:	Ayodeji Awopetu
Report	906066-AID-V2
Project Name	FAIRY MEADOW
Project ID	15348
Received Date	Jul 13, 2022
Date Reported	Jul 29, 2022

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 FAIRY MEADOW
Project ID 15348
Date Sampled Jul 13, 2022
Report 906066-AID-V2

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP1_0_0.2	22-Jl0030415	Jul 13, 2022	Approximate Sample 728g 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.
TP2_0_0.3	22-Jl0030417	Jul 13, 2022	Approximate Sample 740g Sample consisted of: Brown fine-grained clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP3_0_0.2	22-Jl0030419	Jul 13, 2022	Approximate Sample 789g 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.
TP4_0_0.2	22-Jl0030420	Jul 13, 2022	Approximate Sample 728g Sample consisted of: Brown fine-grained clayey soil, corroded metal and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP5_0_0.2	22-Jl0030421	Jul 13, 2022	Approximate Sample 537g 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.
TP6_0_0.2	22-Jl0030422	Jul 13, 2022	Approximate Sample 708g Sample consisted of: Brown fine-grained clayey soil, coal, bitumen, rocks and debris	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP7_0.2_0.4	22-Jl0030423	Jul 13, 2022	Approximate Sample 616g Sample consisted of: Brown fine-grained clayey soil, coal, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP8_0_0.2	22-Jl0030425	Jul 13, 2022	Approximate Sample 564g 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
TP9_0_0.2	22-Jl0030426	Jul 13, 2022	Approximate Sample 521g 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.
TP10_0_0.3	22-Jl0030427	Jul 13, 2022	Approximate Sample 538g 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.
TP11_0_0.3	22-Jl0030428	Jul 13, 2022	Approximate Sample 526g 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.
TP12_0_0.2	22-Jl0030429	Jul 13, 2022	Approximate Sample 581g 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.
TP13_0_0.2	22-Jl0030430	Jul 13, 2022	Approximate Sample 593g Sample consisted of: Brown fine-grained clayey soil, bitumen 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	Jul 28, 2022	Indefinite

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Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	Asbestos - WA guidelines	CANCELLED	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254																X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																		
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**													
1	TP1_0_0.2	Jul 13, 2022		Soil	S22-Jl0030415		X					X		X	X		X	
2	TP1_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030416					X					X	X		
3	TP2_0_0.3	Jul 13, 2022		Soil	S22-Jl0030417		X											
4	TP2_0.4_0.6	Jul 13, 2022		Soil	S22-Jl0030418	X						X		X	X		X	
5	TP3_0_0.2	Jul 13, 2022		Soil	S22-Jl0030419		X											
6	TP4_0_0.2	Jul 13, 2022		Soil	S22-Jl0030420		X					X		X	X		X	
7	TP5_0_0.2	Jul 13, 2022		Soil	S22-Jl0030421		X					X		X	X		X	
8	TP6_0_0.2	Jul 13, 2022		Soil	S22-Jl0030422		X					X		X	X		X	
9	TP7_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030423		X					X		X	X		X	
10	TP7_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030424	X												
11	TP8_0_0.2	Jul 13, 2022		Soil	S22-Jl0030425		X					X		X	X		X	
12	TP9_0_0.2	Jul 13, 2022		Soil	S22-Jl0030426		X					X		X	X		X	

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Project ID: 15348

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Eurofins Analytical Services Manager : Andrew Black

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Melbourne Laboratory - NATA # 1261 Site # 1254																X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
13	TP10_0_0.3	Jul 13, 2022		Soil	S22-Jl0030427		X					X		X	X		X	
14	TP11_0_0.3	Jul 13, 2022		Soil	S22-Jl0030428		X					X		X	X		X	
15	TP12_0_0.2	Jul 13, 2022		Soil	S22-Jl0030429		X					X		X	X		X	
16	TP13_0_0.2	Jul 13, 2022		Soil	S22-Jl0030430		X					X		X	X		X	
17	QAQC1A	Jul 13, 2022		Soil	S22-Jl0030431							X			X		X	
18	TRIP SPIKE	Jul 13, 2022		Soil	S22-Jl0030432													X
19	TRIP BLANK	Jul 13, 2022		Soil	S22-Jl0030433								X					
20	TP10_0_0.1	Jul 13, 2022		Soil	S22-Jl0030435						X							
21	TP10_0.5	Jul 13, 2022		Soil	S22-Jl0030436						X							
22	TP11_0_0.1	Jul 13, 2022		Soil	S22-Jl0030437						X							
23	TP11_0.5	Jul 13, 2022		Soil	S22-Jl0030438						X							
24	TP3_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030439				X									
25	TP4_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030440				X									
26	TP5_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030441				X									
27	TP6_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030442				X									

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Melbourne Laboratory - NATA # 1261 Site # 1254																X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
28	TP7_0_0.2	Jul 13, 2022		Soil	S22-Jl0030443				X									
29	TP8_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030444				X									
30	TP9_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030445				X									
31	TP10_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030446				X									
32	TP11_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030447				X									
33	TP12_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030448				X									
34	TP13_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030449				X									
35	QAQC2A	Jul 13, 2022		Soil	S22-Jl0030450				X									
36	QAQC2B	Jul 13, 2022		Soil	S22-Jl0030451				X									
37	TP6_0_0.1	Jul 13, 2022		Soil	S22-Jl0030452				X									
38	TP6_0.5_0.5	Jul 13, 2022		Soil	S22-Jl0030453				X									
39	TP6_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030494				X									
40	TP1_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056829			X										
41	TP2_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056830			X										
42	TP3_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056831			X										

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Eurofins ARL Pty Ltd
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Rolleston,
Christchurch 7675
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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 906066
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 13, 2022 6:02 PM
Due: Jul 19, 2022
Priority: 3 Day
Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	Asbestos - WA guidelines	CANCELLED	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254																X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X
43	TP4_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056832			X										
44	TP5_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056833			X										
45	TP6_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056834			X										
46	TP7_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056835			X										
47	TP8_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056836			X										
48	TP9_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056837			X										
49	TP10_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056838			X										
50	TP11_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056839			X										
51	TP12_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056840			X										
52	TP13_0.0-0.1	Jul 13, 2022		Soil	S22-Jl0056841			X										
Test Counts						2	13	13	16	1	4	13	1	12	14	1	13	1

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. 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.
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

V2- new version to change the asbestos to WA guidelines as per request that was missed.

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
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147

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: **Ayodeji Awopetu**

Report **906066-S**
Project name FAIRY MEADOW
Project ID 15348
Received Date Jul 13, 2022

Client Sample ID			**TP1_0_0.2**	**TP1_0.3_0.5**	**TP2_0.4_0.6**	**TP4_0_0.2**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S22-JI0030415**	**S22-JI0030416**	**S22-JI0030418**	**S22-JI0030420**
Date Sampled			**Jul 13, 2022**	**Jul 13, 2022**	**Jul 13, 2022**	**Jul 13, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	23
TRH C15-C28	50	mg/kg	< 50	-	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	109	-	97	70
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			TP1_0_0.2	TP1_0.3_0.5	TP2_0.4_0.6	TP4_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030415	S22-JI0030416	S22-JI0030418	S22-JI0030420
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	87	-	82	89
p-Terphenyl-d14 (surr.)	1	%	92	-	91	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	0.05	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	95	-	95	96
Tetrachloro-m-xylene (surr.)	1	%	98	-	94	100
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	95	-	95	96
Tetrachloro-m-xylene (surr.)	1	%	98	-	94	100

Client Sample ID			TP1_0_0.2	TP1_0.3_0.5	TP2_0.4_0.6	TP4_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030415	S22-JI0030416	S22-JI0030418	S22-JI0030420
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	3.2	-	3.7	5.7
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	0.4
Chromium	5	mg/kg	19	-	17	18
Copper	5	mg/kg	23	-	34	50
Lead	5	mg/kg	30	-	36	290
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	7.0	-	7.0	11
Zinc	5	mg/kg	53	-	64	410
% Moisture	1	%	26	19	23	29
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	-	22	-	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	-	5.0	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	5.3	-	-

Client Sample ID			TP5_0_0.2	G01 TP6_0_0.2	TP7_0.2_0.4	G01 TP8_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030421	S22-JI0030422	S22-JI0030423	S22-JI0030425
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	61	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	61	< 50	< 50
Naphthalene N02	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) N04	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) N01	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	81	84	124	73
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP5_0_0.2	[G01]TP6_0_0.2	TP7_0.2_0.4	[G01]TP8_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030421	S22-JI0030422	S22-JI0030423	S22-JI0030425
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	92	134	78	128
p-Terphenyl-d14 (surr.)	1	%	102	132	94	125
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
a-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Aldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
b-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
d-HCH	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Dieldrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endosulfan I	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endosulfan II	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endrin	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Endrin ketone	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Heptachlor	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Methoxychlor	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Toxaphene	0.5	mg/kg	< 0.5	< 10	< 0.5	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.5	< 0.05	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Dibutylchlorendate (surr.)	1	%	104	107	96	139
Tetrachloro-m-xylene (surr.)	1	%	102	121	97	129

Client Sample ID			TP5_0_0.2	[G01]TP6_0_0.2	TP7_0.2_0.4	[G01]TP8_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030421	S22-JI0030422	S22-JI0030423	S22-JI0030425
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1221	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1232	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1242	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1248	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1254	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Aroclor-1260	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Total PCB*	0.1	mg/kg	< 0.1	< 1	< 0.1	< 1
Dibutylchlorendate (surr.)	1	%	104	107	96	139
Tetrachloro-m-xylene (surr.)	1	%	102	121	97	129
Heavy Metals						
Arsenic	2	mg/kg	4.4	6.2	5.4	2.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	19	18	30	18
Copper	5	mg/kg	19	39	16	42
Lead	5	mg/kg	690	18	16	19
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	8.5	20	11	14
Zinc	5	mg/kg	1000	44	32	32
% Moisture	1	%	27	15	19	6.5

Client Sample ID			[G01]TP9_0_0.2	TP10_0_0.3	TP11_0_0.3	[G01]TP12_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030426	S22-JI0030427	S22-JI0030428	S22-JI0030429
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	73	66	98	79

Client Sample ID			[G01]TP9_0_0.2	TP10_0_0.3	TP11_0_0.3	[G01]TP12_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030426	S22-JI0030427	S22-JI0030428	S22-JI0030429
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	143	81	64	83
p-Terphenyl-d14 (surr.)	1	%	135	97	80	106
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
4.4'-DDD	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
4.4'-DDE	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
4.4'-DDT	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
a-HCH	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Aldrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
b-HCH	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
d-HCH	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Dieldrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Endosulfan I	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Endosulfan II	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Endosulfan sulphate	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Endrin	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Endrin aldehyde	0.05	mg/kg	< 0.5	< 0.05	< 0.05	0.84
Endrin ketone	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
g-HCH (Lindane)	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Heptachlor	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Heptachlor epoxide	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Hexachlorobenzene	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Methoxychlor	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Toxaphene	0.5	mg/kg	< 10	< 0.5	< 0.5	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	< 0.05	< 0.05	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Dibutylchlorendate (surr.)	1	%	124	131	86	94
Tetrachloro-m-xylene (surr.)	1	%	140	133	72	70

Client Sample ID			[G01]TP9_0_0.2	TP10_0_0.3	TP11_0_0.3	[G01]TP12_0_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030426	S22-JI0030427	S22-JI0030428	S22-JI0030429
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1221	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1232	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1242	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1248	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1254	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Aroclor-1260	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Total PCB*	0.1	mg/kg	< 1	< 0.1	< 0.1	< 1
Dibutylchlorendate (surr.)	1	%	124	131	86	94
Tetrachloro-m-xylene (surr.)	1	%	140	133	72	70
Heavy Metals						
Arsenic	2	mg/kg	5.2	5.1	4.9	5.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	27	23	18
Copper	5	mg/kg	23	47	43	28
Lead	5	mg/kg	32	31	28	74
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.3	17	18	18
Zinc	5	mg/kg	67	130	100	230
% Moisture	1	%	27	33	31	25

Client Sample ID			[G01]TP13_0_0.2	QAQC1A	TRIP SPIKE	TRIP BLANK
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030430	S22-JI0030431	S22-JI0030432	S22-JI0030433
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
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	-	-
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	90	-	62

Client Sample ID			[G01]TP13_0_0.2	QAQC1A	TRIP SPIKE	TRIP BLANK
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030430	S22-JI0030431	S22-JI0030432	S22-JI0030433
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
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	%	82	83	-	-
p-Terphenyl-d14 (surr.)	1	%	117	118	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.5	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.5	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.5	-	-	-
a-HCH	0.05	mg/kg	< 0.5	-	-	-
Aldrin	0.05	mg/kg	< 0.5	-	-	-
b-HCH	0.05	mg/kg	< 0.5	-	-	-
d-HCH	0.05	mg/kg	< 0.5	-	-	-
Dieldrin	0.05	mg/kg	< 0.5	-	-	-
Endosulfan I	0.05	mg/kg	< 0.5	-	-	-
Endosulfan II	0.05	mg/kg	< 0.5	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.5	-	-	-
Endrin	0.05	mg/kg	< 0.5	-	-	-
Endrin aldehyde	0.05	mg/kg	1.1	-	-	-
Endrin ketone	0.05	mg/kg	< 0.5	-	-	-
g-HCH (Lindane)	0.05	mg/kg	< 0.5	-	-	-
Heptachlor	0.05	mg/kg	< 0.5	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.5	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.5	-	-	-
Methoxychlor	0.05	mg/kg	< 0.5	-	-	-
Toxaphene	0.5	mg/kg	< 10	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	1.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	1.1	-	-	-
Dibutylchlorendate (surr.)	1	%	78	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	76	-	-	-

Client Sample ID			[G01]TP13_0_0.2	QAQC1A	TRIP SPIKE	TRIP BLANK
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030430	S22-JI0030431	S22-JI0030432	S22-JI0030433
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 1	-	-	-
Aroclor-1221	0.1	mg/kg	< 1	-	-	-
Aroclor-1232	0.1	mg/kg	< 1	-	-	-
Aroclor-1242	0.1	mg/kg	< 1	-	-	-
Aroclor-1248	0.1	mg/kg	< 1	-	-	-
Aroclor-1254	0.1	mg/kg	< 1	-	-	-
Aroclor-1260	0.1	mg/kg	< 1	-	-	-
Total PCB*	0.1	mg/kg	< 1	-	-	-
Dibutylchlorendate (surr.)	1	%	78	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	76	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	4.2	8.4	-	-
Cadmium	0.4	mg/kg	< 0.4	0.5	-	-
Chromium	5	mg/kg	18	24	-	-
Copper	5	mg/kg	30	150	-	-
Lead	5	mg/kg	98	360	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-
Nickel	5	mg/kg	11	15	-	-
Zinc	5	mg/kg	240	590	-	-
% Moisture	1	%	34	33	-	-
BTEX						
Benzene	1	%	-	-	84	-
Ethylbenzene	1	%	-	-	81	-
m&p-Xylenes	1	%	-	-	78	-
o-Xylene	1	%	-	-	79	-
Toluene	1	%	-	-	82	-
Xylenes - Total	1	%	-	-	79	-
4-Bromofluorobenzene (surr.)	1	%	-	-	71	-

Client Sample ID			TP10_0_0.1	TP10_0.5	TP11_0_0.1	TP11_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-JI0030435	S22-JI0030436	S22-JI0030437	S22-JI0030438
Date Sampled			Jul 13, 2022	Jul 13, 2022	Jul 13, 2022	Jul 13, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.6	5.4	6.4	5.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.7	3.9	3.3	4.0
Reaction Ratings*[S05]	0	-	4.0	2.0	4.0	2.0

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
Eurofins Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	Jul 15, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Jul 15, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	Jul 15, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Jul 15, 2022	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Acid Sulfate Soils Field pH Test	Sydney	Jul 15, 2022	7 Days
- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests			
% Moisture	Sydney	Jul 15, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Jul 15, 2022	7 Days
- Method: LTM-INO-4030 Conductivity			
Cation Exchange Capacity	Melbourne	Jul 19, 2022	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			

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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 906066
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 13, 2022 6:02 PM
Due: Jul 19, 2022
Priority: 3 Day
Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	TP1_0_0.2	Jul 13, 2022		Soil	S22-Jl0030415	X				X		X	X		X	
2	TP1_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030416			X					X	X		
3	TP2_0_0.3	Jul 13, 2022		Soil	S22-Jl0030417	X										
4	TP2_0.4_0.6	Jul 13, 2022		Soil	S22-Jl0030418	X				X		X	X		X	
5	TP3_0_0.2	Jul 13, 2022		Soil	S22-Jl0030419	X										
6	TP4_0_0.2	Jul 13, 2022		Soil	S22-Jl0030420	X				X		X	X		X	
7	TP5_0_0.2	Jul 13, 2022		Soil	S22-Jl0030421	X				X		X	X		X	
8	TP6_0_0.2	Jul 13, 2022		Soil	S22-Jl0030422	X				X		X	X		X	
9	TP7_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030423	X				X		X	X		X	
10	TP7_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030424	X										
11	TP8_0_0.2	Jul 13, 2022		Soil	S22-Jl0030425	X				X		X	X		X	
12	TP9_0_0.2	Jul 13, 2022		Soil	S22-Jl0030426	X				X		X	X		X	

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Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
13	TP10_0_0.3	Jul 13, 2022		Soil	S22-Jl0030427	X				X		X	X		X	
14	TP11_0_0.3	Jul 13, 2022		Soil	S22-Jl0030428	X				X		X	X		X	
15	TP12_0_0.2	Jul 13, 2022		Soil	S22-Jl0030429	X				X		X	X		X	
16	TP13_0_0.2	Jul 13, 2022		Soil	S22-Jl0030430	X				X		X	X		X	
17	QAQC1A	Jul 13, 2022		Soil	S22-Jl0030431					X			X		X	
18	TRIP SPIKE	Jul 13, 2022		Soil	S22-Jl0030432											X
19	TRIP BLANK	Jul 13, 2022		Soil	S22-Jl0030433						X					
20	TP10_0_0.1	Jul 13, 2022		Soil	S22-Jl0030435				X							
21	TP10_0.5	Jul 13, 2022		Soil	S22-Jl0030436				X							
22	TP11_0_0.1	Jul 13, 2022		Soil	S22-Jl0030437				X							
23	TP11_0.5	Jul 13, 2022		Soil	S22-Jl0030438				X							
24	TP3_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030439		X									
25	TP4_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030440		X									
26	TP5_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030441		X									
27	TP6_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030442		X									

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Contact Name: Ayodeji Awopetu

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Acid Sulfate Soils Field pH Test	Metals M8	BTEX	Suite B13: OCP/PCB	Moisture Set	Cation Exchange Capacity	Eurofins Suite B4	BTEX
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X
28	TP7_0_0.2	Jul 13, 2022		Soil	S22-Jl0030443		X									
29	TP8_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030444		X									
30	TP9_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030445		X									
31	TP10_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030446		X									
32	TP11_0.5_0.7	Jul 13, 2022		Soil	S22-Jl0030447		X									
33	TP12_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030448		X									
34	TP13_0.3_0.5	Jul 13, 2022		Soil	S22-Jl0030449		X									
35	QAQC2A	Jul 13, 2022		Soil	S22-Jl0030450		X									
36	QAQC2B	Jul 13, 2022		Soil	S22-Jl0030451		X									
37	TP6_0_0.1	Jul 13, 2022		Soil	S22-Jl0030452		X									
38	TP6_0.5_0.5	Jul 13, 2022		Soil	S22-Jl0030453		X									
39	TP6_0.2_0.4	Jul 13, 2022		Soil	S22-Jl0030494		X									
Test Counts						15	16	1	4	13	1	12	14	1	13	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

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

Terms

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

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

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

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

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
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	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
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							
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	
Total PAH*	mg/kg	-			0.5	N/A	
Method Blank							
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
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							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	82			70-130	Pass	
TRH C10-C14	%	122			70-130	Pass	
Naphthalene	%	101			70-130	Pass	
TRH C6-C10	%	84			70-130	Pass	
TRH >C10-C16	%	117			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	86			70-130	Pass	
Ethylbenzene	%	89			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes - Total*	%	95			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	106			70-130	Pass	
Anthracene	%	100			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	%	88			70-130	Pass	
Benzo(a)pyrene	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	%	108			70-130	Pass	
Benzo(g.h.i)perylene	%	95			70-130	Pass	
Benzo(k)fluoranthene	%	115			70-130	Pass	
Chrysene	%	110			70-130	Pass	
Dibenz(a.h)anthracene	%	105			70-130	Pass	
Fluoranthene	%	99			70-130	Pass	
Fluorene	%	98			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	104			70-130	Pass	
Naphthalene	%	101			70-130	Pass	
Phenanthrene	%	80			70-130	Pass	
Pyrene	%	104			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	92			70-130	Pass	
4.4'-DDD	%	78			70-130	Pass	
4.4'-DDE	%	94			70-130	Pass	
4.4'-DDT	%	116			70-130	Pass	
a-HCH	%	89			70-130	Pass	
Aldrin	%	93			70-130	Pass	
b-HCH	%	78			70-130	Pass	
d-HCH	%	87			70-130	Pass	
Dieldrin	%	93			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	97			70-130	Pass	
Endosulfan sulphate	%	108			70-130	Pass	
Endrin	%	130			70-130	Pass	
Endrin aldehyde	%	92			70-130	Pass	
Endrin ketone	%	102			70-130	Pass	
g-HCH (Lindane)	%	90			70-130	Pass	
Heptachlor	%	104			70-130	Pass	
Heptachlor epoxide	%	90			70-130	Pass	
Hexachlorobenzene	%	96			70-130	Pass	
Methoxychlor	%	111			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1221	%	117			70-130	Pass	
Aroclor-1254	%	101			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	99			80-120	Pass	
Mercury	%	100			80-120	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	100			80-120	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	83			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S22-Jl0025079	NCP	%	117			70-130	Pass	
Naphthalene	S22-Jl0029112	NCP	%	77			70-130	Pass	
TRH >C10-C16	S22-Jl0025079	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	W22-Jl0030374	NCP	%	97			70-130	Pass	
Acenaphthylene	W22-Jl0030374	NCP	%	111			70-130	Pass	
Anthracene	W22-Jl0030374	NCP	%	114			70-130	Pass	
Benz(a)anthracene	W22-Jl0030374	NCP	%	86			70-130	Pass	
Benzo(a)pyrene	W22-Jl0030374	NCP	%	111			70-130	Pass	
Benzo(b&j)fluoranthene	W22-Jl0030374	NCP	%	92			70-130	Pass	
Benzo(g.h.i)perylene	W22-Jl0030374	NCP	%	70			70-130	Pass	
Benzo(k)fluoranthene	W22-Jl0030374	NCP	%	102			70-130	Pass	
Chrysene	W22-Jl0030374	NCP	%	105			70-130	Pass	
Dibenz(a.h)anthracene	W22-Jl0030374	NCP	%	84			70-130	Pass	
Fluoranthene	W22-Jl0030374	NCP	%	118			70-130	Pass	
Fluorene	W22-Jl0030374	NCP	%	104			70-130	Pass	
Indeno(1.2.3-cd)pyrene	W22-Jl0030374	NCP	%	83			70-130	Pass	
Naphthalene	W22-Jl0030374	NCP	%	105			70-130	Pass	
Phenanthrene	W22-Jl0030374	NCP	%	88			70-130	Pass	
Pyrene	W22-Jl0030374	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	W22-Jl0030374	NCP	%	104			70-130	Pass	
4.4'-DDD	W22-Jl0030374	NCP	%	84			70-130	Pass	
4.4'-DDE	W22-Jl0030374	NCP	%	103			70-130	Pass	
4.4'-DDT	S22-Jl0026182	NCP	%	112			70-130	Pass	
a-HCH	W22-Jl0030374	NCP	%	96			70-130	Pass	
Aldrin	W22-Jl0030374	NCP	%	105			70-130	Pass	
b-HCH	W22-Jl0030374	NCP	%	88			70-130	Pass	
d-HCH	W22-Jl0030374	NCP	%	96			70-130	Pass	
Dieldrin	W22-Jl0030374	NCP	%	107			70-130	Pass	
Endosulfan I	W22-Jl0030374	NCP	%	92			70-130	Pass	
Endosulfan II	W22-Jl0030374	NCP	%	101			70-130	Pass	
Endosulfan sulphate	W22-Jl0030374	NCP	%	114			70-130	Pass	
Endrin	S22-Jl0026182	NCP	%	111			70-130	Pass	
Endrin ketone	W22-Jl0030374	NCP	%	127			70-130	Pass	
g-HCH (Lindane)	W22-Jl0030374	NCP	%	98			70-130	Pass	
Heptachlor	W22-Jl0030374	NCP	%	114			70-130	Pass	
Heptachlor epoxide	W22-Jl0030374	NCP	%	106			70-130	Pass	
Hexachlorobenzene	W22-Jl0030374	NCP	%	110			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1221	W22-Jl0030374	NCP	%	65			70-130	Fail	Q08
Aroclor-1254	W22-Jl0030374	NCP	%	103			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S22-Jl0030426	CP	%	79			70-130	Pass	
Toluene	S22-Jl0030426	CP	%	88			70-130	Pass	
Ethylbenzene	S22-Jl0030426	CP	%	82			70-130	Pass	
m&p-Xylenes	S22-Jl0030426	CP	%	81			70-130	Pass	
o-Xylene	S22-Jl0030426	CP	%	81			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total*	S22-Jl0030426	CP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Jl0030426	CP	%	98			75-125	Pass	
Cadmium	S22-Jl0030426	CP	%	100			75-125	Pass	
Chromium	S22-Jl0030426	CP	%	99			75-125	Pass	
Copper	S22-Jl0030426	CP	%	99			75-125	Pass	
Lead	S22-Jl0030426	CP	%	97			75-125	Pass	
Mercury	S22-Jl0030426	CP	%	98			75-125	Pass	
Nickel	S22-Jl0030426	CP	%	101			75-125	Pass	
Zinc	S22-Jl0030426	CP	%	89			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Methoxychlor	S22-Jl0032844	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S22-Jl0036690	NCP	%	102			70-130	Pass	
TRH C6-C10	S22-Jl0036690	NCP	%	103			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	W22-Jl0024658	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Jl0029870	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Jl0029870	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Jl0029870	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	W22-Jl0024658	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	W22-Jl0024658	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Jl0029870	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Jl0029870	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Jl0029870	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	W22-Jl0024658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	W22-Jl0024658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	W22-Jl0024658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	W22-Jl0024658	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	W22-Jl0024658	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	W22-Jl0024658	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	W22-Jl0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Phenanthrene	W22-JI0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	W22-JI0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	W22-JI0030373	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	W22-JI0030373	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	W22-JI0030373	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-JI0029870	NCP	%	21	20	1.9	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	S22-JI0033428	NCP	uS/cm	11	13	17	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	S22-JI0033428	NCP	pH Units	8.2	8.0	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-JI0030425	CP	mg/kg	2.9	2.2	27	30%	Pass	
Cadmium	S22-JI0030425	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-JI0030425	CP	mg/kg	18	8.1	75	30%	Fail	Q15
Copper	S22-JI0030425	CP	mg/kg	42	19	76	30%	Fail	Q15
Lead	S22-JI0030425	CP	mg/kg	19	20	1.6	30%	Pass	
Mercury	S22-JI0030425	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-JI0030425	CP	mg/kg	14	7.4	60	30%	Fail	Q15
Zinc	S22-JI0030425	CP	mg/kg	32	25	24	30%	Pass	

Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	S22-Jl0030435	CP	pH Units	6.6	6.6	pass	20%	Pass	
pH-FOX (Field pH Peroxide test)*	S22-Jl0030435	CP	pH Units	3.7	3.7	pass	0%	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
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.
S05	Field Screen uses the following fizz rating to classify the rate the samples reacted to the peroxide: 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Authorised by:

Quinn Raw	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Gabriele Cordero	Senior Analyst-Metal
Laxman Dias	Senior Analyst-Asbestos
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Sayeed Abu	Senior Analyst-Asbestos
Scott Beddoes	Senior Analyst-Metal

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

SAME DAY TAT ADDITIONAL ANALYSIS: FW: Eurofins Test Results - Report 906066 : Site FAIRY MEADOW (15348)

Andrew Black <AndrewBlack@eurofins.com>

Mon 2022-08-01 11:45 AM

To: #AU04_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>

An urgent one for metals on same day please team

Andrew Black
Analytical Services Manager

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AUSTRALIA
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Website: eurofins.com.au/environmental-testing

For sample receipt enquiries (eg. SRAs, changes to analysis) please contact EnvirosampleNSW@eurofins.com or 02 9900 8421 (7am – 9pm).
For despatch enquiries (eg. courier bookings, bottle orders) please contact AU04_Despatch_SYD@eurofins.com or 0488 400 929 (8am – 4pm).

From: Ayodeji Awopetu <Ayodeji@allgeo.com.au>
Sent: Monday, 1 August 2022 11:42 AM
To: Andrew Black <AndrewBlack@eurofins.com>
Cc: Thalia Park-Ross <Thalia@allgeo.com.au>
Subject: RE: Eurofins Test Results - Report 906066 : Site FAIRY MEADOW (15348)

Hi Andrew

Can we get sample TP1-0.3-0.5 tested for metals on same day turnaround.

Regards,

Ayodeji Awopetu
Environmental Scientist
Email: Ayodeji@allgeo.com.au

alliance
geotechnical & environmental solutions

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Admin Email:	admin@allgeo.com.au
Website:	allgeo.com.au
Office & Lab:	8-10 Welder Road, Seven Hills NSW 2147
Postal Address:	PO Box 275, Seven Hills NSW 1730

From: Thalia Park-Ross <Thalia@allgeo.com.au>
Sent: Friday, 29 July 2022 11:51 AM
To: Ayodeji Awopetu <Ayodeji@allgeo.com.au>
Subject: FW: Eurofins Test Results - Report 906066 : Site FAIRY MEADOW (15348)

Hi Deji,

Updated results for Fairy meadow with WA/NEPM results are attached.

Regards,

Thalia Park-Ross
Senior Environmental Consultant
Mobile: 0459 261 668 | **Email:** Thalia@allgeo.com.au

alliance
geotechnical & environmental solutions

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Postal Address:	PO Box 275, Seven Hills NSW 1730

From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Friday, 29 July 2022 11:37 AM
To: Thalia Park-Ross <thalia@allgeo.com.au>
Subject: Eurofins Test Results - Report 906066 : Site FAIRY MEADOW (15348)

Here you go Thalia, amended for you.

Kindest Regards,

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing

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View our latest EnviroNotes
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NATA# 1261 Site# 1254	NATA# 1261 Site# 1254	NATA# 1261 Site# 18217		NATA# 1261 Site# 20794	NATA# 1261 Site# 25079

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Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

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Penrose,	Rolleston,
Auckland 1061	Christchurch 7675
Tel: +64 9 526 45 51	Tel: 0800 856 450
IANZ# 1327	IANZ# 1290

Sample Receipt Advice

Company name:	Alliance Geotechnical
Contact name:	Thalia Park-Ross
Project name:	ADDITIONAL - FAIRY MEADOW
Project ID:	ADDITIONAL - 15348
Turnaround time:	Same day
Date/Time received	Aug 1, 2022 11:45 AM
Eurofins reference	910239

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 Thalia Park-Ross - thalia@allgeo.com.au.

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

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

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IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: ADDITIONAL - FAIRY MEADOW
Project ID: ADDITIONAL - 15348

Order No.:
Report #: 910239
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Aug 1, 2022 11:45 AM
Due: Aug 1, 2022
Priority: Same day
Contact Name: Thalia Park-Ross

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Metals M8	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP1-0.3-0.5	Jul 13, 2022		Soil	S22-Au0000488	X	X
Test Counts						1	1

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147

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: **Thalia Park-Ross**

Report **910239-S**
Project name ADDITIONAL - FAIRY MEADOW
Project ID ADDITIONAL - 15348
Received Date Aug 01, 2022

Client Sample ID			**TP1-0.3-0.5**
Sample Matrix			**Soil**
Eurofins Sample No.			**S22-Au0000488**
Date Sampled			**Jul 13, 2022**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	4.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	30
Copper	5	mg/kg	16
Lead	5	mg/kg	12
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	11
Zinc	5	mg/kg	36
% Moisture	1	%	19

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
Metals M8	Sydney	Aug 01, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Aug 01, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

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

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Address: 10 Welder Road
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Project Name: ADDITIONAL - FAIRY MEADOW
Project ID: ADDITIONAL - 15348

Order No.:
Report #: 910239
Phone: 1800 288 188
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Received: Aug 1, 2022 11:45 AM
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Contact Name: Thalia Park-Ross

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Sample Detail						Metals M8	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TP1-0.3-0.5	Jul 13, 2022		Soil	S22-Au0000488	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

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

Terms

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

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

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

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

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
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	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	103			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	103			80-120	Pass	
Copper	%	103			80-120	Pass	
Lead	%	97			80-120	Pass	
Mercury	%	105			80-120	Pass	
Nickel	%	104			80-120	Pass	
Zinc	%	103			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	S22-Jl0036297	NCP	%	114			75-125	Pass	
Cadmium	S22-Jl0036297	NCP	%	113			75-125	Pass	
Chromium	S22-Jl0036297	NCP	%	92			75-125	Pass	
Copper	S22-Au0000238	NCP	%	92			75-125	Pass	
Lead	S22-Au0000238	NCP	%	93			75-125	Pass	
Mercury	S22-Jl0036297	NCP	%	118			75-125	Pass	
Nickel	S22-Jl0036297	NCP	%	92			75-125	Pass	
Zinc	S22-Jl0036297	NCP	%	97			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	S22-Jl0028037	NCP	mg/kg	9.6	13	28	30%	Pass	
Cadmium	S22-Jl0028037	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-Jl0028037	NCP	mg/kg	41	47	13	30%	Pass	
Copper	S22-Jl0028037	NCP	mg/kg	14	15	12	30%	Pass	
Lead	S22-Jl0028037	NCP	mg/kg	20	21	2.2	30%	Pass	
Mercury	S22-Jl0028037	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-Jl0028037	NCP	mg/kg	13	15	7.6	30%	Pass	
Zinc	S22-Jl0028037	NCP	mg/kg	30	35	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-Au0000488	CP	%	19	19	<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:

Quinn Raw	Analytical Services Manager
Charl Du Preez	Senior Analyst-Metal

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

#AU03_EnviroSampleBris

From: Andrew Black
Sent: Friday, 22 July 2022 5:10 PM
To: #AU03_EnviroSampleBris
Cc: #AU04_Enviro_Sample_NSW
Subject: 3 DAY TAT ADDITIONAL CR SUITE: FW: Eurofins Test Results, Invoice - Report 906400 : Site FAIRY MEADOW (15348)

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Rebatch waiting

Urgent 3 day TAT additional analysis thanks team

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing Australia Pty Ltd
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AUSTRALIA
Phone: +61 2 9900 8490
Mobile: +61 410 220 750
Email: AndrewBlack@eurofins.com
Website: eurofins.com.au/environmental-testing

For sample receipt enquiries (eg. SRAs, changes to analysis) please contact EnvirosampleNSW@eurofins.com or 02 9900 8421 (7am – 9pm).
For despatch enquiries (eg. courier bookings, bottle orders) please contact AU04_Despatch_SYD@eurofins.com or 0488 400 929 (8am – 4pm).

From: Thalia Park-Ross <Thalia@allgeo.com.au>
Sent: Friday, 22 July 2022 4:57 PM
To: Andrew Black <AndrewBlack@eurofins.com>
Cc: enviro <enviro@allgeo.com.au>; Ayodeji Awopetu <Ayodeji@allgeo.com.au>
Subject: RE: Eurofins Test Results, Invoice - Report 906400 : Site FAIRY MEADOW (15348)

#908300

Hi Andrew,

Could I please get the following samples analysed for chromium suite:

- BH2_0
- BH2_2
- BH2_2.5
- BH4_1
- BH4_1.5
- BH1 _1.5
- BH3_0
- BH4_3

Dry jar & bags.

Standard 3 day TAT please.

Regards,

Thalia Park-Ross
Senior Environmental Consultant
Mobile: 0459 261 668 | **Email:** Thalia@allgeo.com.au

alliance
geotechnical & environmental solutions

Office Phone: 1800 288 188
Admin Email: admin@allgeo.com.au
Website: allgeo.com.au
Office & Lab: 8-10 Welder Road, Seven Hills NSW 2147
Postal Address: PO Box 275, Seven Hills NSW 1730

From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Tuesday, 19 July 2022 4:32 PM
To: Thalia Park-Ross <thalia@allgeo.com.au>
Cc: enviro <enviro@allgeo.com.au>; Ayodeji Awopetu <Ayodeji@allgeo.com.au>
Subject: Eurofins Test Results, Invoice - Report 906400 : Site FAIRY MEADOW (15348)

Kindest Regards,

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing
Unit 7
7 Friesian Close
SANDGATE NSW 2304
AUSTRALIA
Phone: +61 299 008 490
Mobile: +61 410 220 750
Email: AndrewBlack@eurofins.com
Website:environment.eurofins.com.au
View our latest EnviroNotes

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IANZ# 1327	IANZ# 1290

Sample Receipt Advice

Company name:	Alliance Geotechnical
Contact name:	Thalia Park-Ross
Project name:	FAIRY MEADOW
Project ID:	15348
Turnaround time:	3 Day
Date/Time received	Jul 22, 2022 5:10 PM
Eurofins reference	908300

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.
N/A	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

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

Results will be delivered electronically via email to Thalia Park-Ross - thalia@allgeo.com.au.

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

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IANZ# 1290

Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 908300
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 22, 2022 5:10 PM
Due: Jul 27, 2022
Priority: 3 Day
Contact Name: Thalia Park-Ross

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH2_0	Jul 14, 2022		Soil	B22-JI0048529	X	X
2	BH2_2	Jul 14, 2022		Soil	B22-JI0048530	X	X
3	BH2_2.5	Jul 14, 2022		Soil	B22-JI0048531	X	X
4	BH4_1	Jul 14, 2022		Soil	B22-JI0048532	X	X
5	BH4_1.5	Jul 14, 2022		Soil	B22-JI0048533	X	X
6	BH1_1.5	Jul 14, 2022		Soil	B22-JI0048534	X	X
7	BH3_0	Jul 14, 2022		Soil	B22-JI0048535	X	X
8	BH4_3	Jul 14, 2022		Soil	B22-JI0048536	X	X
Test Counts						8	8

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147

NATA Accredited
Accreditation Number 1261
Site Number 20794

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: **Thalia Park-Ross**

Report **908300-S**
Project name FAIRY MEADOW
Project ID 15348
Received Date Jul 22, 2022

Client Sample ID			**BH2_0**	**BH2_2**	**BH2_2.5**	**BH4_1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B22-JI0048529**	**B22-JI0048530**	**B22-JI0048531**	**B22-JI0048532**
Date Sampled			**Jul 14, 2022**	**Jul 14, 2022**	**Jul 14, 2022**	**Jul 14, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.9	4.4	4.4	4.3
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.049	0.13	0.12	0.13
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	31	79	74	83
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	0.030	0.027	0.014
HCl Extractable Sulfur	0.005	% S	N/A	0.041	0.036	0.024
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	0.02	< 0.02	0.02
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	< 0.02	< 0.02	< 0.02
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	mol H+/t	N/A	10	< 10	< 10
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	0.05	0.14	0.13	0.15
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	31	89	82	92
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	2.3	6.7	6.2	6.9
Extraneous Material						
<2mm Fraction	0.005	g	26	22	24	28
>2mm Fraction	0.005	g	< 0.005	1.3	0.55	< 0.005
Analysed Material	0.1	%	100	95	98	100
Extraneous Material	0.1	%	< 0.1	5.5	2.3	< 0.1
% Moisture	1	%	22	19	18	19

Client Sample ID			BH4_1.5	BH1_1.5	BH3_0	BH4_3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B22-JI0048533	B22-JI0048534	B22-JI0048535	B22-JI0048536
Date Sampled			Jul 14, 2022	Jul 14, 2022	Jul 14, 2022	Jul 14, 2022
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.4	4.4	5.6	4.5
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.14	0.092	0.019	0.12
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	86	57	12	73
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	0.020	0.007	N/A	0.037
HCl Extractable Sulfur	0.005	% S	0.026	0.012	N/A	0.050
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	< 0.02	< 0.02	N/A	0.03
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	< 0.02	< 0.02	N/A	< 0.02
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	mol H+/t	< 10	< 10	N/A	12
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	0.15	0.10	< 0.02	0.14
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	91	61	12	84
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	6.8	4.6	< 1	6.3
Extraneous Material						
<2mm Fraction	0.005	g	25	20	26	25
>2mm Fraction	0.005	g	1.0	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	96	100	100	100
Extraneous Material	0.1	%	4.0	< 0.1	< 0.1	< 0.1
% Moisture	1	%	17	18	17	19

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 Reducible Sulfur Suite			
Chromium Suite	Brisbane	Jul 25, 2022	6 Week
- Method: LTM-GEN-7070 Chromium Reducible Sulfur Suite			
Extraneous Material	Brisbane	Jul 25, 2022	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Sydney	Jul 25, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

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Company Name: Alliance Geotechnical
Address: 10 Welder Road
Seven Hills
NSW 2147

Project Name: FAIRY MEADOW
Project ID: 15348

Order No.:
Report #: 908300
Phone: 1800 288 188
Fax: 02 9675 1888

Received: Jul 22, 2022 5:10 PM
Due: Jul 27, 2022
Priority: 3 Day
Contact Name: Thalia Park-Ross

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Sydney Laboratory - NATA # 1261 Site # 18217							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	BH2_0	Jul 14, 2022		Soil	B22-JI0048529	X	X
2	BH2_2	Jul 14, 2022		Soil	B22-JI0048530	X	X
3	BH2_2.5	Jul 14, 2022		Soil	B22-JI0048531	X	X
4	BH4_1	Jul 14, 2022		Soil	B22-JI0048532	X	X
5	BH4_1.5	Jul 14, 2022		Soil	B22-JI0048533	X	X
6	BH1_1.5	Jul 14, 2022		Soil	B22-JI0048534	X	X
7	BH3_0	Jul 14, 2022		Soil	B22-JI0048535	X	X
8	BH4_3	Jul 14, 2022		Soil	B22-JI0048536	X	X
Test Counts						8	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

Units

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

Terms

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

QC - Acceptance Criteria

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

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

Results <10 times the LOR: No Limit

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

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

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

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

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

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Actual Acidity (NLM-3.2)							
pH-KCL (NLM-3.1)	%	97			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)	%	94			80-120	Pass	
LCS - % Recovery							
Potential Acidity - Chromium Reducible Sulfur							
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	%	105			80-120	Pass	
LCS - % Recovery							
Extractable Sulfur							
HCl Extractable Sulfur	%	99			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	B22-JI0048534	CP	%	18	18	<1	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	B22-JI0048536	CP	pH Units	4.5	4.5	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	B22-JI0048536	CP	% pyrite S	0.12	0.12	1.5	30%	Pass	
Titratable Actual Acidity (NLM-3.2)	B22-JI0048536	CP	mol H+/t	73	74	1.5	20%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	B22-JI0048536	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	B22-JI0048536	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	B22-JI0048536	CP	% S	0.037	0.038	<1	30%	Pass	
HCl Extractable Sulfur	B22-JI0048536	CP	% S	0.050	0.050	<1	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	B22-JI0048536	CP	% S	0.03	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	B22-JI0048536	CP	% S	< 0.02	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	B22-JI0048536	CP	mol H+/t	12	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	B22-JI0048536	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	B22-JI0048536	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	B22-JI0048536	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	B22-JI0048536	CP	% S	0.14	ErrValue	N/A	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	B22-JI0048536	CP	mol H+/t	84	ErrValue	N/A	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	B22-JI0048536	CP	kg CaCO3/t	6.3	ErrValue	N/A	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m3'
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl if greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised by:

Andrew Black	Analytical Services Manager
Myles Clark	Senior Analyst-SPOCAS

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2225446**	Page	: 1 of 6
Client	: **ALLIANCE GEOTECHNICAL**	Laboratory	: Environmental Division Sydney
Contact	: AYODEJI AWOPETU	Contact	: Customer Services ES
Address	: 8/10 Welder Road, Seven Hills 2147	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 15348 FAIRY MEADOW	Date Samples Received	: 19-Jul-2022 16:30
Order number	: ----	Date Analysis Commenced	: 20-Jul-2022
C-O-C number	: ----	Issue Date	: 22-Jul-2022 18:46
Sampler	: DEJI		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	QAQC1B	----	----	----	----
			Sampling date / time	13-Jul-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2225446-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**35.2**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**16**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**50**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**316**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**11**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**419**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QAQC1B	----	----	----	----
				Sampling date / time	13-Jul-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2225446-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**76.4**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**84.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**74.8**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**91.4**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**94.5**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**92.1**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**76.9**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**79.7**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QAQC1B	----	----	----	----
				Sampling date / time	13-Jul-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2225446-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**84.6**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

QUALITY CONTROL REPORT

Work Order	: **ES2225446**	Page	: 1 of 6
Client	: **ALLIANCE GEOTECHNICAL**	Laboratory	: Environmental Division Sydney
Contact	: AYODEJI AWOPETU	Contact	: Customer Services ES
Address	: 8/10 Welder Road, Seven Hills 2147	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 15348 FAIRY MEADOW	Date Samples Received	: 19-Jul-2022
Order number	: ----	Date Analysis Commenced	: 20-Jul-2022
C-O-C number	: ----	Issue Date	: 22-Jul-2022
Sampler	: DEJI		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4469608)									
ES2225446-001	QAQC1B	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	16	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	11	11	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	7	16.6	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	50	42	16.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	316	350	10.1	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	419	460	9.3	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4469612)									
ES2225333-003	Anonymous	EA055: Moisture Content	----	0.1	%	4.9	4.9	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4469609)									
ES2225446-001	QAQC1B	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4469210)									
ES2225447-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	0.5	18.7	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.1	2.6	17.8	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.1	2.6	18.2	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.4	1.2	16.8	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.2	1.1	10.8	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4469210) - continued									
ES2225447-001	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.8	1.5	12.9	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.7	0.6	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.5	1.3	13.6	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.7	0.7	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	14.9	12.8	15.2	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.0	1.7	14.2	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4469211)									
ES2225447-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4469401)									
ES2225432-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4469211)									
ES2225447-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4469401)									
ES2225432-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4469401)									
ES2225432-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4469608)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	99.2	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	106	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	109	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	111	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	102	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	99.5	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	94.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4469609)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	97.1	70.0	125
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4469210)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	99.1	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	101	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	97.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	102	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	92.0	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	105	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.9	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	92.0	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.4	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	87.5	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469211)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	92.1	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	98.7	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469401)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	85.2	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469211)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	LCS: Spike Recovery (%)	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469211) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.8	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	103	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	96.9	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469401)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.2	68.4	128
EP080: BTEXN (QCLot: 4469401)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.1	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.7	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.4	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.7	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.5	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	63.0	119

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4469608)							
ES2225446-001	QAQC1B	EG005T: Arsenic	7440-38-2	50 mg/kg	94.9	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.8	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	95.0	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	97.7	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.6	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.0	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	90.0	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4469609)							
ES2225446-001	QAQC1B	EG035T: Mercury	7439-97-6	5 mg/kg	103	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4469210)							
ES2225447-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	99.8	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	90.6	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469211)							
ES2225447-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	94.4	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	99.8	53.0	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469211) - continued							
ES2225447-001	Anonymous	EP071: C29 - C36 Fraction	----	2060 mg/kg	83.5	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4469401)							
ES2225432-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	83.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469211)							
ES2225447-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	84.9	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	93.5	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	84.9	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4469401)							
ES2225432-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	83.6	70.0	130
EP080: BTEXN (QCLot: 4469401)							
ES2225432-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	92.8	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.3	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	88.8	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.5	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.0	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2225446**	Page	: 1 of 4
Client	: **ALLIANCE GEOTECHNICAL**	Laboratory	: Environmental Division Sydney
Contact	: AYODEJI AWOPETU	Telephone	: +61-2-8784 8555
Project	: 15348 FAIRY MEADOW	Date Samples Received	: 19-Jul-2022
Site	: ----	Issue Date	: 22-Jul-2022
Sampler	: DEJI	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
QAQC1B	**13-Jul-2022**	**----**	----	----	**20-Jul-2022**	27-Jul-2022	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	09-Jan-2023	✓	**20-Jul-2022**	09-Jan-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	10-Aug-2022	✓	**20-Jul-2022**	10-Aug-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**21-Jul-2022**	29-Aug-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**20-Jul-2022**	27-Jul-2022	✓
Soil Glass Jar - Unpreserved (EP071)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**21-Jul-2022**	29-Aug-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**20-Jul-2022**	27-Jul-2022	✓
Soil Glass Jar - Unpreserved (EP071)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**21-Jul-2022**	29-Aug-2022	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
QAQC1B	**13-Jul-2022**	**20-Jul-2022**	27-Jul-2022	✓	**20-Jul-2022**	27-Jul-2022	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY RECORD

ABN 50 005 085 521

Unit F3 Bld.F, 16 Mars Rd, Lane Cove West, NSW 2066 02 9900 8400 EnviroSampleNSW@eurofins.com | Unit 1, 21 Smallwood Pl., Murarrie, QLD 4172 07 3902 4600 EnviroSampleQLD@eurofins.com | Unit 2, 91 Leach Highway, Kewdale WA 6105 08 9251 9600 EnviroSampleWA@eurofins.com | 2 Kingston Town Close, Oakleigh, VIC 3166 03 8564 5000 EnviroSampleVic@eurofins.com

Company	ALLIANCE GEOTECHNICAL	Project №	15348		THALIA
Address	10 WELDER ROAD, SEVEN HILLS NSW	Project Name	FAIRY MEADOW	EDD Format (ESdat, EQuIS, Custom)	
Contact Name	AYODEJI AWOPETU				
Phone №	0415519920				
Special Directions					
Purchase Order					
Quote ID №					

Sampler(s)	DEJI
Handed over by	
Email for Invoice	admin@allgeo.com.au
Email for Results	thalia@allgeo.com.au; ayodeji@allgeo.com.au

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

☐ Overnight (9am)* ☐ 1 Day* ☐ 2 Day* ☑ 3 Day* ☐ 5 Day ☐ Other ( ) *Surcharges apply

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

№	Client Sample ID	Sampled Date/Time (dd/mm/yy hh:mm)	Matrix (Solid (S) Water (W))	TRH, BTEX, PAH	OCP, PCB	Metals (8)	Asbestos (0.001%)	pH, cation exchange capacity	pHF/pHFOX	TRH/BTEX	1L 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	TP1-0-0.2	13/07/22	s	x	x	x	x										x	x	3 day standard TAT
2	TP1-0.3-0.5	13/07/22	s					x									x	x	
3	TP2-0-0.3	13/07/22	s				x										x	x	
4	TP2-0.4-0.6	13/07/22	s	x	x	x	x										x	x	
5	TP3-0-0.2	13/07/22	s				x										x	x	
6	TP3-0.3-0.5	13/07/22	s														x	x	
7	TP4-0-0.2	13/07/22	s	x	x	x	x										x	x	
8	TP4-0-0.3-0.5	13/07/22	s														x	x	
9	TP5-0-0.2	13/07/22	s	x	x	x	x										x	x	
10	TP5-0.3-0.5	13/07/22	s														x	x	
11	TP6-0-0.2	13/07/22	s	x	x	x	x										x	x	
12	TP6-0.3-0.5	13/07/22	s														x	x	
13	TP7-0-0.2	13/07/22	s														x	x	
14	TP7-0.2-0.4	13/07/22	s	x	x	x	x										x	x	
15	TP7-0.5-0.7	13/07/22	s				x										x	x	
16	TP8-0-0.2	13/07/22	s	x	x	x	x										x	x	
17	TP8-0.3-0.5	13/07/22	s														x	x	
18	TP9-0-0.2	13/07/22	s	x	x	x	x										x	x	
19	TP9-0.3-0.5	13/07/22	s														x	x	
20	TP10-0-0.3	13/07/22	s	x	x	x	x										x	x	
21	TP10-0.5-0.7	13/07/22	s														x	x	
22	TP11-0-0.3	13/07/22	s	x	x	x	x										x	x	
10	TP11-0.5-0.7	13/07/22	s														x	x	
11	TP12-0-0.2	13/07/22	s	x	x	x	x										x	x	
12	TP12-0.3-0.5	13/07/22	s														x	x	
13	TP13-0-0.2	13/07/22	s	x	x	x	x										x	x	
14	TP13-0.3-0.5	13/07/22	s														x	x	
15	QAQC1A	13/07/22	s	x		x											x	x	
16	(i) QAQC1B	13/07/22	s	x		x											x		
17	QAQC2A	13/07/22	s														x		SEND TO ALS
18	QAQC2B	13/07/22	s														x		
19	Trip spike	13/07/22	s							x							x		
19	Trip blank	13/07/22	s							x							x		
19	TP6-0-0.1	13/07/22	s														x		
20	TP6-0.5	13/07/22	s															x	
21	TP10-0-0.1	13/07/22	s						x									x	
22	TP10-0.5	13/07/22	s						x									x	
21	TP11-0-0.1	13/07/22	s						x									x	
22	TP11-0.5	13/07/22	s						x									x	
																		x	
				14	12	14	15	1	4	2								33	

Method of Shipment	☑ Courier (#)	☐ Hand Delivered	☐ Postal	Name	Signature	Date	Time
Eurofins | mgt	Received By	SYD | BNE | MEL | PER | ADL | NTL | DRW	Signature	Date		Time	Temperature

Environmental Division
Sydney
Work Order Reference
ES2225446

Telephone : + 61-2-8784 8555

Rec: L Clifton
19/07/22
4:30pm

TAT

906066

APPENDIX I – Data Quality Indicator (DQI) Assessment

Completeness DQI			
Field Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Experienced sampling team used	Yes	Yes	Pass
Sampling devices and equipment set out in sampling plan were used (refer Section 10.7).	Yes	Yes	Pass
Critical locations in sampling plan, sampled (refer Section 10.7).	Yes	Yes	Pass
Critical samples in sampling plan, collected (refer Section 10.7).	Yes	Yes	Pass
Completed field and calibration logs attached	Yes	Yes	Pass
Completed chain of custody attached	Yes	Yes	Pass
Laboratory	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Complete sample receipt advice and chain of custody attached	Yes	Yes	Pass
Critical samples identified in sampling plan, analysed	Yes	Yes	Pass
Analysis undertaken addresses COPC in sampling plan (refer Section 10.7)	Yes	Yes	Pass
Analytical methods reported in laboratory documentation and appropriate limit of reporting used	Yes	Yes	Pass
Sample holding times met (refer Section 10.7)	Yes	Yes	Pass

Comparability			
Laboratory Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Same sampling team used for all work.	Yes	Yes	Pass
Weather conditions suitable for sampling.	Yes	Yes	Pass
Same sample types collected and preserved in same way (refer Section 10.7).	Yes	Yes	Pass
Relevant samples stored in insulated containers and chilled (refer Section 10.7).	Yes	Yes	Pass
Laboratory Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Same laboratory used for all analysis (refer Section 10.7).	Yes	Yes	Pass
Comparable methods if different laboratories used Refer Section 10.7).	N/A	N/A	N/A
Comparable limits of reporting if different laboratories used.	N/A	N/A	N/A
Comparable units of measure if different laboratories have been used (refer Section 10.7).	N/A	N/A	N/A

Representativeness			
Field Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Media identified in sampling plan, sampled (refer Section 10.7).	Yes	Yes	Pass
Samples required by sampling plan, collected (refer Section 10.7).	Yes	Yes	Pass
Laboratory Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Samples identified in sampling plan, analysed.	Yes	Yes	Pass

Precision			
Field Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Minimum 5% duplicates and triplicates collected and analysed (refer Section 10.5).	Yes	Yes	Comment – Duplicate samples were not collected for ASS analysis. ASS, sampling was undertaken using industry accepted procedures, laboratory analysis was undertaken by reputable NATA accredited environmental laboratories. The ASS analytical results were within expected ranges based on site history, field observations and experience on comparable projects. Performance against this DQI is considered adequate.
Minimum 10% duplicates and triplicates collected and analysed where PFAS is a contaminant of concern (refer Section 10.5.	N/A	N/A	N/A
RPD unlimited where detected concentrations are <10 times the limit of reporting.	Yes	Yes	Pass
RPD within 50% where detected concentrations are 10-20 times the limit of reporting.	Yes	Yes	Pass
RPD within 30% where detected concentrations are >20 times the limit of reporting.	Yes	No	Comment – The RPD for copper for QAQC1A exceeded 30%. However, Primary samples were not homogenised prior to splitting, as volatiles were identified as a COPC. The RPD target exceedance is considered likely to be attributable to heterogeneity in each of the discrete soil samples. As a conservative measure, the samples reporting the higher detected concentration of relevant analytes should be used when assessing potential land contamination risks at the site. Performance against this DQI is considered adequate.
Laboratory Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
All laboratory duplicate RPDs within laboratory acceptance criteria (refer Section 10.5).	Yes	No	Comment – Three RPDs exceeded the laboratory acceptance criteria. However, the RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria.

Bias (Accuracy)			
Field Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Trip blank analyte results less than limit of reporting (refer Section 10.5).	Yes	Yes	Pass
Trip spike analyte results less between 60% and 140% (refer Section 10.5).	Yes	Yes	Pass
Rinsate blank analyte results less than limit of reporting (refer Section 10.5).	Yes	No	Comment - A rinsate blank was not used for this project. Re-usable sampling equipment was not used for collection of soil contamination samples on this project. The samples were collected either directly from the base/wall of the test pits, or from the centre of the soils in the excavator bucket, using a fresh pair of nitrile gloves for each sample. The risk of cross contamination during sampling is considered to be negligible. Performance against this DQI is considered adequate.
Field (PFAS) blank analyte results less than limit of reporting (refer Section 10.5).	N/A	N/A	N/A
Laboratory Considerations	*Target Criterion*	*Result*	*Pass / Fail / Comment*
Laboratory method blank results within laboratory acceptance limits (refer Section 10.5).	Yes	Yes	Pass
Laboratory control sample results within laboratory acceptance limits (refer Section 10.5).	Yes	Yes	Pass
Laboratory spike sample results within laboratory acceptance limits.	Yes	No	Comment – One laboratory spike sample exceeded the acceptable limits. However, an acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

APPENDIX J – Calibration Records

Expert Testing Services
ABN: 74 619 717 350
Contact: 02 9730 2019
Email: sales@experttesting.com.au
9/171 Power Street, Glendenning NSW 2761

Calibration and Service Report

Company:	ETS Rentals Department	**Manufacturer:**	Honeywell	**Serial #:**	592-902552
Contact:	Aachal Chand	**Instrument:**	MiniRAE 3000	**Asset #:**	-
Address:	9/171 Power Street, GLENDENNING NSW 2761	**Model:**	PGM7320	**Part #:**	-
		Configuration:	VOC	**Sold:**	-
Phone:	02 9730 2019	**Wireless:**	-	**Last Cal:**	22.06.2022
Fax:		**Network ID:**	-	**Job #:**	
Email:	rentals@experttesting.com.au	**Unit ID:**	-	**Cal Spec:**	Std
				Order #:	EFT

Item	Test	Pass/Fail	Comments	Part Code	S/W
Battery	NiCd, NiMH, Dry cell, Li Ion	✓			
Charger	Charger, Power supply	✓			
	Cradle	✓			
Pump	Flow	✓	>500ml/min		
Filter	Filter, fitting, etc	✓			
Alarms	Audible, visual, vibration	✓			
Display	Operation	✓			
Switches	Operation	✓			
PCB	Operation	✓			
Connectors	Condition	✓			
Firmware	Version	✓	Version: 2.22		
Datalogger	Operation	✓			
Monitor Housing	Condition	✓			
Case	Condition/Type	✓			
Sensors					
PID	Lamp	✓			
PID	Sensor	✓			
THP	Sensor	✓			

Engineer's Report

Checked unit settings and configuration – okay
Unit allowed to stabilize and zero calibration performed as per manufacturers specifications
Calibration procedure written and performed to manufacturers specification using traceable gases.

Calibration Certificate

Sensor	Type	Serial No:	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6eV	-	Isobutylene	100ppm	WO205484-13	1	0	100ppm

Calibrated/Repaired by: **Milenko Sisic** Date: **22.06.2022** Next Due: **22.12.2022**

APPENDIX K – ProUCL Outputs

1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.13/08/2022 2:31:58 PM										
5	From File	WorkSheet_a.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	**C0**											
12												
13	**General Statistics**											
14	Total Number of Observations	10			Number of Distinct Observations	8						
15					Number of Missing Observations	0						
16	Minimum	19			Mean	46.3						
17	Maximum	150			Median	36.5						
18	SD	38.33			Std. Error of Mean	12.12						
19	Coefficient of Variation	0.828			Skewness	2.612						
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic	0.65			**Shapiro Wilk GOF Test**							
23	5% Shapiro Wilk Critical Value	0.842			Data Not Normal at 5% Significance Level							
24	Lilliefors Test Statistic	0.362			**Lilliefors GOF Test**							
25	5% Lilliefors Critical Value	0.262			Data Not Normal at 5% Significance Level							
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**							
30	95% Student's-t UCL	68.52			95% Adjusted-CLT UCL (Chen-1995)	76.94						
31					95% Modified-t UCL (Johnson-1978)	70.19						
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic	0.751			**Anderson-Darling Gamma GOF Test**							
35	5% A-D Critical Value	0.733			Data Not Gamma Distributed at 5% Significance Level							
36	K-S Test Statistic	0.27			**Kolmogorov-Smirnov Gamma GOF Test**							
37	5% K-S Critical Value	0.269			Data Not Gamma Distributed at 5% Significance Level							
38	**Data Not Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)	2.711			k star (bias corrected MLE)	1.964						
42	Theta hat (MLE)	17.08			Theta star (bias corrected MLE)	23.57						
43	nu hat (MLE)	54.21			nu star (bias corrected)	39.28						
44	MLE Mean (bias corrected)	46.3			MLE Sd (bias corrected)	33.04						
45					Approximate Chi Square Value (0.05)	25.92						
46	Adjusted Level of Significance	0.0267			Adjusted Chi Square Value	24.05						
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50))	70.16			95% Adjusted Gamma UCL (use when n<50)	75.61						
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic	0.879			**Shapiro Wilk Lognormal GOF Test**							

53				5% Shapiro Wilk Critical Value		0.842		Data appear Lognormal at 5% Significance Level				
54				Lilliefors Test Statistic		0.225		**Lilliefors Lognormal GOF Test**				
55				5% Lilliefors Critical Value		0.262		Data appear Lognormal at 5% Significance Level				
56						**Data appear Lognormal at 5% Significance Level**							
57												
58						**Lognormal Statistics**							
59				Minimum of Logged Data		2.944		Mean of logged Data				3.639
60				Maximum of Logged Data		5.011		SD of logged Data				0.599
61												
62						**Assuming Lognormal Distribution**							
63				95% H-UCL		73.08		90% Chebyshev (MVUE) UCL				70.63
64				95% Chebyshev (MVUE) UCL		82.4		97.5% Chebyshev (MVUE) UCL				98.74
65				99% Chebyshev (MVUE) UCL		130.8						
66												
67						**Nonparametric Distribution Free UCL Statistics**							
68						**Data appear to follow a Discernible Distribution at 5% Significance Level**							
69												
70						**Nonparametric Distribution Free UCLs**							
71				95% CLT UCL		66.24		95% Jackknife UCL				68.52
72				95% Standard Bootstrap UCL		65.18		95% Bootstrap-t UCL				98.93
73				95% Hall's Bootstrap UCL		141.7		95% Percentile Bootstrap UCL				66.5
74				95% BCA Bootstrap UCL		79.7						
75				90% Chebyshev(Mean, Sd) UCL		82.66		95% Chebyshev(Mean, Sd) UCL				99.14
76				97.5% Chebyshev(Mean, Sd) UCL		122		99% Chebyshev(Mean, Sd) UCL				166.9
77												
78						**Suggested UCL to Use**							
79				95% H-UCL		73.08						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												
86	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
87	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
88	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
89	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
90												

1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.13/08/2022 2:27:12 PM										
5	From File	WorkSheet.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	**C0**											
12												
13	**General Statistics**											
14	Total Number of Observations	10				Number of Distinct Observations	10					
15						Number of Missing Observations	0					
16	Minimum	53				Mean	323.9					
17	Maximum	1000				Median	235					
18	SD	295.8				Std. Error of Mean	93.53					
19	Coefficient of Variation	0.913				Skewness	1.463					
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic	0.851				**Shapiro Wilk GOF Test**						
23	5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level						
24	Lilliefors Test Statistic	0.212				**Lilliefors GOF Test**						
25	5% Lilliefors Critical Value	0.262				Data appear Normal at 5% Significance Level						
26	**Data appear Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**						
30	95% Student's-t UCL	495.4				95% Adjusted-CLT UCL (Chen-1995)	524					
31						95% Modified-t UCL (Johnson-1978)	502.6					
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic	0.228				**Anderson-Darling Gamma GOF Test**						
35	5% A-D Critical Value	0.741				Detected data appear Gamma Distributed at 5% Significance Level						
36	K-S Test Statistic	0.142				**Kolmogorov-Smirnov Gamma GOF Test**						
37	5% K-S Critical Value	0.272				Detected data appear Gamma Distributed at 5% Significance Level						
38	**Detected data appear Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)	1.427				k star (bias corrected MLE)	1.066					
42	Theta hat (MLE)	227				Theta star (bias corrected MLE)	304					
43	nu hat (MLE)	28.54				nu star (bias corrected)	21.31					
44	MLE Mean (bias corrected)	323.9				MLE Sd (bias corrected)	313.8					
45						Approximate Chi Square Value (0.05)	11.82					
46	Adjusted Level of Significance	0.0267				Adjusted Chi Square Value	10.62					
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50))	583.8				95% Adjusted Gamma UCL (use when n<50)	650.3					
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic	0.966				**Shapiro Wilk Lognormal GOF Test**						

53	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.141	**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value					0.262	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data					3.97	Mean of logged Data					5.391
60	Maximum of Logged Data					6.908	SD of logged Data					0.967
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					931.6	90% Chebyshev (MVUE) UCL					645.4
64	95% Chebyshev (MVUE) UCL					788.7	97.5% Chebyshev (MVUE) UCL					987.5
65	99% Chebyshev (MVUE) UCL					1378						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					477.7	95% Jackknife UCL					495.4
72	95% Standard Bootstrap UCL					469.5	95% Bootstrap-t UCL					607.2
73	95% Hall's Bootstrap UCL					745.2	95% Percentile Bootstrap UCL					475.8
74	95% BCA Bootstrap UCL					507.5						
75	90% Chebyshev(Mean, Sd) UCL					604.5	95% Chebyshev(Mean, Sd) UCL					731.6
76	97.5% Chebyshev(Mean, Sd) UCL					908	99% Chebyshev(Mean, Sd) UCL					1255
77												
78	**Suggested UCL to Use**											
79	95% Student's-t UCL					495.4						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												