PRELIMINARY SITE (CONTAMINATION) ASSESSMENT
BATHURST HOSPITAL REDEVELOPMENT

361 HOWICK ST, WEST BATHURST NSW

Prepared for HEALTH INFRASTRUCTURE

Prepared by RCA AUSTRALIA

RCA ref 16547-201/4

JANUARY 2025

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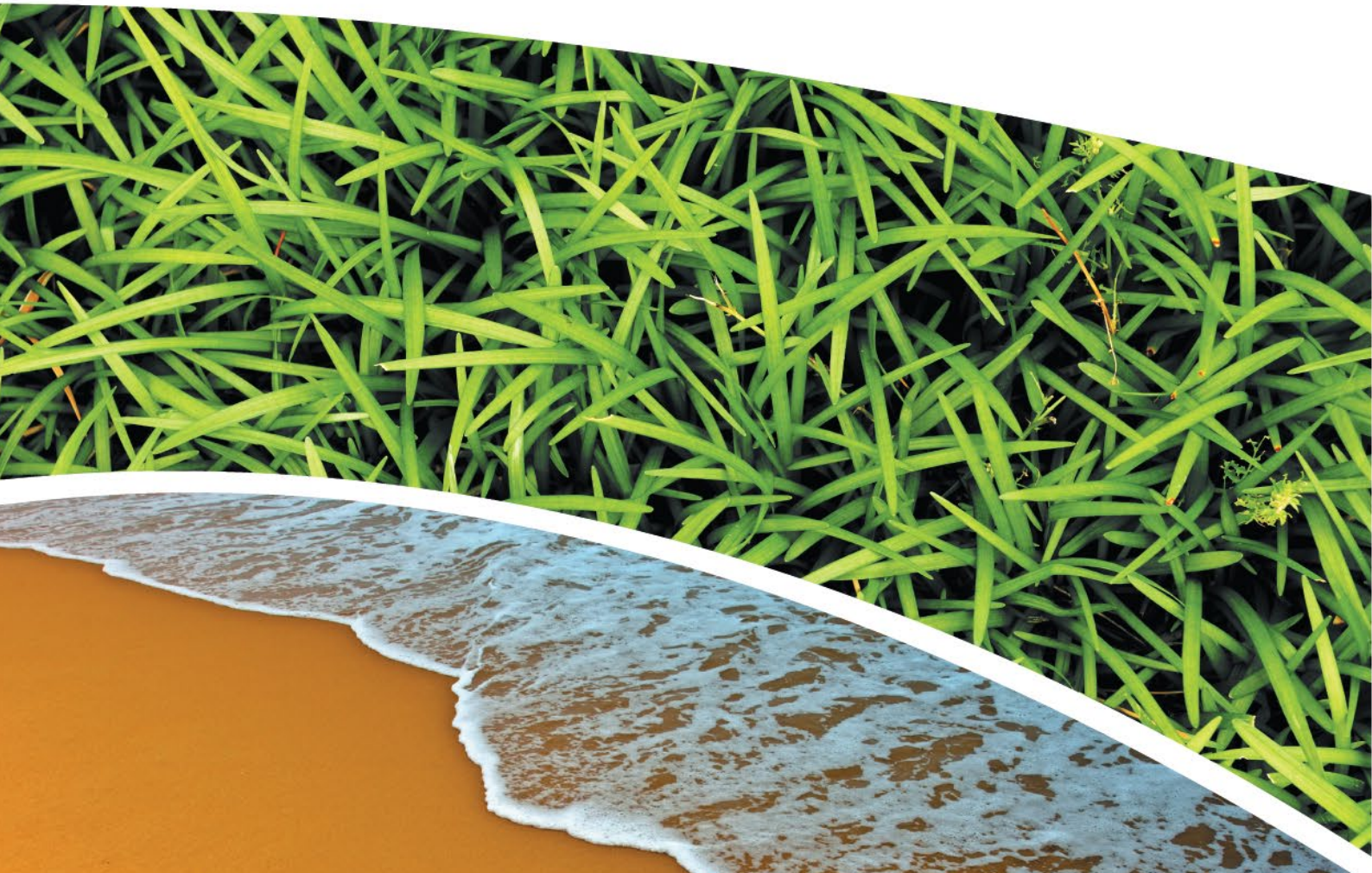

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Geotechnical Engineering
Engineering Geology
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Hydrogeology
Construction Materials Testing
Environmental Monitoring
Noise & Vibration
Occupational Hygiene

29 January 2025

TSA Management on behalf of
Health Infrastructure
361 Howick St
West Bathurst NSW 2795

Attention: Greg Skinner (TSA)
CC: Andrew Neill (TSA)mailto:andrew.neill@tsamgt.com

PRELIMINARY SITE (CONTAMINATION) ASSESSMENT
BATHURST HOSPITAL REDEVELOPMENT
361 HOWICK ST, WEST BATHURST NSW

EXECUTIVE SUMMARY

RCA has undertaken a preliminary site (contamination) assessment at the Bathurst Hospital at 361 Howick Street, West Bathurst NSW to provide an understanding of contamination-based constraints to the proposed redevelopment works.

This report has been provided to address the address Secretary's Environmental Assessment Requirements (SEAR) as presented in the table below.

SEARS Requirement	Relevant Section of Report
In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	This document

The scope of work has comprised the review of available site history documentation (some of which were provided subsequent to the previous issue of the report), a site inspection, the collection of soil samples in the proposed areas of structural development and analysis of those samples for contaminants of concern. The sampling works were undertaken in conjunction with a separately reported geotechnical assessment. This report has been prepared in general accordance with the NSW EPA guidelines (Ref [1]).

The site was first developed as a hospital in the late 1880s and has been used for that purpose with several stages of development including demolition of numerous buildings prior to the construction of the current Main Hospital Building which comprises the majority of the structures at the site and takes up approximately one third the site area. An underground petroleum storage tank (UPST) was identified as being on the site adjacent the Boiler House which has since been demolished and the Main Hospital Building constructed over its footprint. Previous assessments have identified the presence of ash and building waste at the site and asbestos at three (3) locations. Remediation undertaken in 2006 removed asbestos impacted soil from two (2) of the three (3) locations however an area in the eastern portion of the site within the fill embankment and carpark was encapsulated at an unknown depth.

Noting that the location of the encapsulated asbestos was not known at the time of the assessment fieldwork, the potential for contamination was limited to the presence of fill at the site, the UPST and potential hazardous building materials (asbestos and lead-based paint) in the demolished buildings. No activities beyond the site were considered to pose a risk of contamination at the site.

Soil samples were collected from twelve (12) locations; five (5) in the western portion and seven (7) in the southeastern portion where structural development is being considered. Samples were collected in the fill and natural materials at depths of up to 2m in the majority of locations with samples up to 5.8m below the surface at two (6) locations of deep fill. This is less than the recommendations of the NSW EPA guidelines (Ref [2]) and was reduced due to the preliminary nature of the assessment and the limitations posed by existing buildings, especially in the northwestern portion. One of the sampling locations was located within the surveyed area of encapsulated asbestos however in the absence of any visual observations, no asbestos analysis was undertaken.

Fill was encountered at the majority of locations, generally to between 0.5m to 1.5m below the surface with the exception of two (2) locations (BH6 and BH8) which are present within a fill embankment in the eastern portion of the site and to which fill was present to 7.5m and 6m respectively. The fill material generally comprised a silty sand with some lesser quantities of clay and gravel; neither ash nor anthropogenic material was specifically identified with the exception of some brick fragments in a location (BH3) to the immediate southwest of the helipad structure. No indications of the encapsulation layer were sighted during fieldwork, nor in photographs of the collected samples (refer **Section 6**).

No concentrations of hydrocarbons, metals or pesticides were detected in excess of the human health criteria (Ref [3]) for commercial / industrial sites in any of the forty-four (44) samples. Three (3) concentrations of benzo(a)pyrene were in excess of the ecological criterion within the fill material at BH6 and BH7, with minor concentrations also detected in the fill material at BH8. Based on the distribution of contaminants in the samples of the fill it is considered that there is potential for higher concentrations to be present.

RCA considers that the site is suitable for the proposed development without further assessment or remediation however notes that management will be required during construction and for long-term use to minimise the potential of exposure to asbestos materials as presented in the table below. Contingency planning and an unexpected finds protocol is also considered to be required to ensure that methodologies can be adjusted to account for any building waste, ash and other areas of asbestos materials which are encountered during the earthworks.

Project Stage	Mitigation Measure	Relevant Section of the Report
Construction	Contractor to prepare specific WHS documentation for the project.	Section 9
Construction	Induction for all construction workers to include: • Location of known encapsulated asbestos. • That there is potential contamination associated with building waste and ash. • That there is potential unidentified asbestos. • That the implementation of management measures are required to reduce risk.	Section 9
Construction	Measures to reduce potential exposure are to be implemented as is appropriate for the area and extent of works and the activities being undertaken. These may include dampening of soil, long sleeve and long pants, use of additional PPE such as masks, washing of hands and face before eating and drinking.	Section 9
Construction	All excavated soil to be assessed in accordance with the relevant guidelines prior to being re-used on site or off-site, or being removed to a licensed waste facility. All documentation regarding the classification, transport and final placement of the material is to be retained.	Section 9
Operation	Management Plan which identifies the location of any remaining contamination and requires the preparation of specific WHS documentation prior to any works that will disturb it.	Section 9

Testing undertaken to date indicates that the majority of material at the site will be able to be classified as excavated natural material (ENM) once full assessment in accordance with the NSW EPA Order (Ref [4]) has been undertaken. Any material from within the encapsulated area is to be presumed as asbestos unless tested in accordance with the NSW EPA guidelines (Ref [2]) as otherwise and based on the results of the samples at BH6 the material will likely require classification under Tier 2 criteria (Ref [5]) prior to removal to a licensed waste facility. The fill material at BH7 is unlikely to be classified as ENM due to the benzo(a)pyrene concentrations however would likely be classified as general solid waste under Tier 2 criteria. All material must be classified in accordance with NSW waste legislation and tracking documentation will be required to be kept for supply to a regulator if requested.

The asbestos register for the site will require updating following the completion of the redevelopment works if any asbestos is identified or removed.

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SUMMARY OF RESULTS

1 INTRODUCTION

This preliminary site (contamination) assessment report has been prepared by RCA Australia (RCA) on behalf of Health Infrastructure for the redevelopment of the Bathurst Hospital site. This report has been revised following the completion of plans for the development and provision of additional information.

The site is located at 361-365 Howick Street, Bathurst, in the Bathurst Local Government Area. It is occupied by Bathurst Health Service, a Level C referral facility in the Western NSW Local Health District.

This report will accompany a State Significant Development Application that seeks approval for the construction and operation of a new-build expansion, refurbishment and repurposing works to the existing Bathurst Health Service main hospital building. Proposed works will include:

- A new-build, multi-storey health services building expansion toward Mitre St (including one (1) plant level) which include overnight inpatient accommodation, non-admitted care services, and a new hospital front-of house and entrance.
- A new-build, two-storey expansion to the Emergency department and Operating Theatres (plus one (1) plant level).
- A new-build, single-storey expansion to the existing Cancer Service building – Daffodil Cottage.
- Refurbishment and repurposing to areas of the existing hospital.
- Site establishment, demolition of some existing structure, cut and fill and remediation works.
- Vehicular circulation and car parking improvements.
- Tree removal.
- Landscape works.
- Alteration and amplification of existing hospital plant and services infrastructure.

A detailed project description is presented in the Environmental Impact Statement (Ref [6]).

1.1 SCOPE

The scope of work for this assessment comprised:

- Review of site history information.
- Intrusive assessment and collection of soil samples in two (2) areas of proposed structural development.
    - An area of approximately 2,450m^2 in the western corner of the site and currently occupied by a portion of the main health services building, access drive, carparking and landscaped area.
    - An area of approximately 4,700m^2 in the eastern corner of the site and currently occupied by a staff carparking area, access driveway and landscaped / lawn areas.

- Analysis of soil samples for contaminants of concern and comparison to criteria considered relevant for the proposed land use.
- Preparation of this report.

It is noted that a concurrent geotechnical assessment has been reported separately.

It is further noted that two (2) areas included in the development were not part of the original scope of work:

- An area of approximately 4,000m^2 in the south eastern portion of the site and currently used as carpark and landscaping may be developed as a 'Community Green' under the Future Masterplan.
- An area of approximately 2,500m^2 in the northern corner of the site in which the current carparking area will be reconfigured.

Consideration of these areas has been included in **Section 4** and **Section 9**.

1.2 OBJECTIVE

The purpose of this report is to provide sufficient understanding of the potential constraints associated with contamination at the site such that the design can take these into account.

The objective of this assessment is to characterise the potential for contamination to be present based on historical and / or current use of the site and surrounding area, and ascertain whether this poses constraints to the proposed extensions.

1.3 REGULATORY COMPLIANCE

This report has been provided to address the address Secretary's Environmental Assessment Requirements (SEAR) as presented in the table below.

SEARs Requirement	Relevant Section of Report
In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	This document

Preparation of this report was undertaken with reference to (but not limited to) the following regulatory guidance documents and standards:

- *Guidelines for Consultants Reporting on Contaminated Sites*, (Ref [1]). This document was used as a reference for the derivation of the scope of work and what information was to be included in this report.
- *Contaminated Land Guidelines: Sampling Design* (Ref [2]). This document was used as a reference with regards to the number of samples required for characterisation of the site's contamination status.
- *Guidelines for the NSW Site Auditor Scheme* (3rd Ed, (Ref [7]). This document was used as a reference for the derivation of the scope of work and what information was to be included in this report.

- *State Environmental Planning Policy (Resilience and Hazards) 2021*, (Ref [8]). The SEPP requires confirmation, by assessment, that the site is suitable or can be made suitable for the proposed use.
- *National Environment Protection (Assessment of Site Contamination) Measure*, (Ref [3]). These guidelines were utilised as guideline criteria for the assessment of the contamination status of soil at the site and quality assurance.
- *Technical Report 10, Health screening levels for petroleum in soil and groundwater* (Ref [9]). These guidelines were utilised as criteria for the assessment of the contamination status of soil at the site.
- *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, (Ref [10]). These guidelines were utilised as a guide for the methodology for the collection of soil samples and quality assurance.

2 SITE IDENTIFICATION AND DESCRIPTION

The site is at 361 Howick Street, West Bathurst, NSW 2795, Lot 100 DP1126063. There are six (6) buildings on the site which are the Main Hospital Building, Early Hospital Building, Poole House, Daffodil Cottage, The Willows & Old Morgue, and Doctor's Residence.

Additional site details are shown in **Table 1**. The locality and the layout of the site are shown in **Drawing 1**, **Appendix A**.

Table 1 *Site Details*

Current zoning	SP2 Infrastructure
Current use(s) **Proposed use**	Bathurst Hospital. Unchanged
Size of site	Approximately 4.1ha. Redevelopment is proposed over approximately 0.72ha.
Land use to the: **Northwest**	Commonwealth Street, and then residential dwellings.
Northeast	Durham Street, and then residential dwellings.
Southwest	Howick Street, and then residential dwellings.
Southeast	Mitre Street, and then Victoria Park.
Nearest sensitive receptor (human health)	Residential dwellings to the northeast, northwest and southwest. Victoria Park is on the other side of the Mitre Street. The Dwelling is located at northeast corner of the site, which is approximately 15m to the northeast of one of the proposed areas of development.
Nearest sensitive receptor (environmental)	Macquarie River is approximately 550m northeast.

3 SITE HISTORY AND BACKGROUND INFORMATION

An onsite heritage assessment was undertaken as part of earlier development in 2005 (Ref [11]) and a further onsite heritage assessment (Ref [12]) was undertaken in 2018 as part of the consideration for the proposed works in the eastern portion of the site. Both present a history of the Bathurst Hospital which RCA have, drawing from both documents, summarised below:

- Part of the land which is now the site of the Hospital was reserved for that purpose in 1876 with the remainder of the current area reserved in 1882.
- The hospital was opened in 1880 with the main structure described as a two (2) storey "*detached central block and wings surmounted by a central tower and six corner turrets*". A photograph described (Ref [13]) as from the early 1880s is presented as part of **Figure 1** below.
- Seven (7) wells were sunk for use as water supply and a 1911 site plan is presented as part of **Figure 1** below. A windmill is understood to have been situated in the southern corner of the site.
- Additional buildings were constructed in the early 1920s, mid 1940s, 1964 (at which time the boiler house in the eastern portion of the land was constructed, refer #17 **Figure 1** below), 1978, 1988 and late 1990s/2000. Refurbishment was undertaken in the early 1980s.
    - Poole House was opened in 1933.
    - Daffodil Cottage was opened in 1996.
- A petrol bowser was described as next to the Boiler House (refer #17 **Figure 1** below) and an 'unusual' vent next to the Engineering Building; there is no information as to the location of this Building beyond an identification that it would be acceptable (from a heritage standpoint) to be demolished.
- A furnace is pictured adjacent the 'northwest entry to the site' and photographs are included as part of **Figure 1** below.

The location of the Boiler House has been inferred onto **Drawing 2**, **Appendix A**.

Further information relevant to the contamination status of the site is presented in **Section 3.4**.

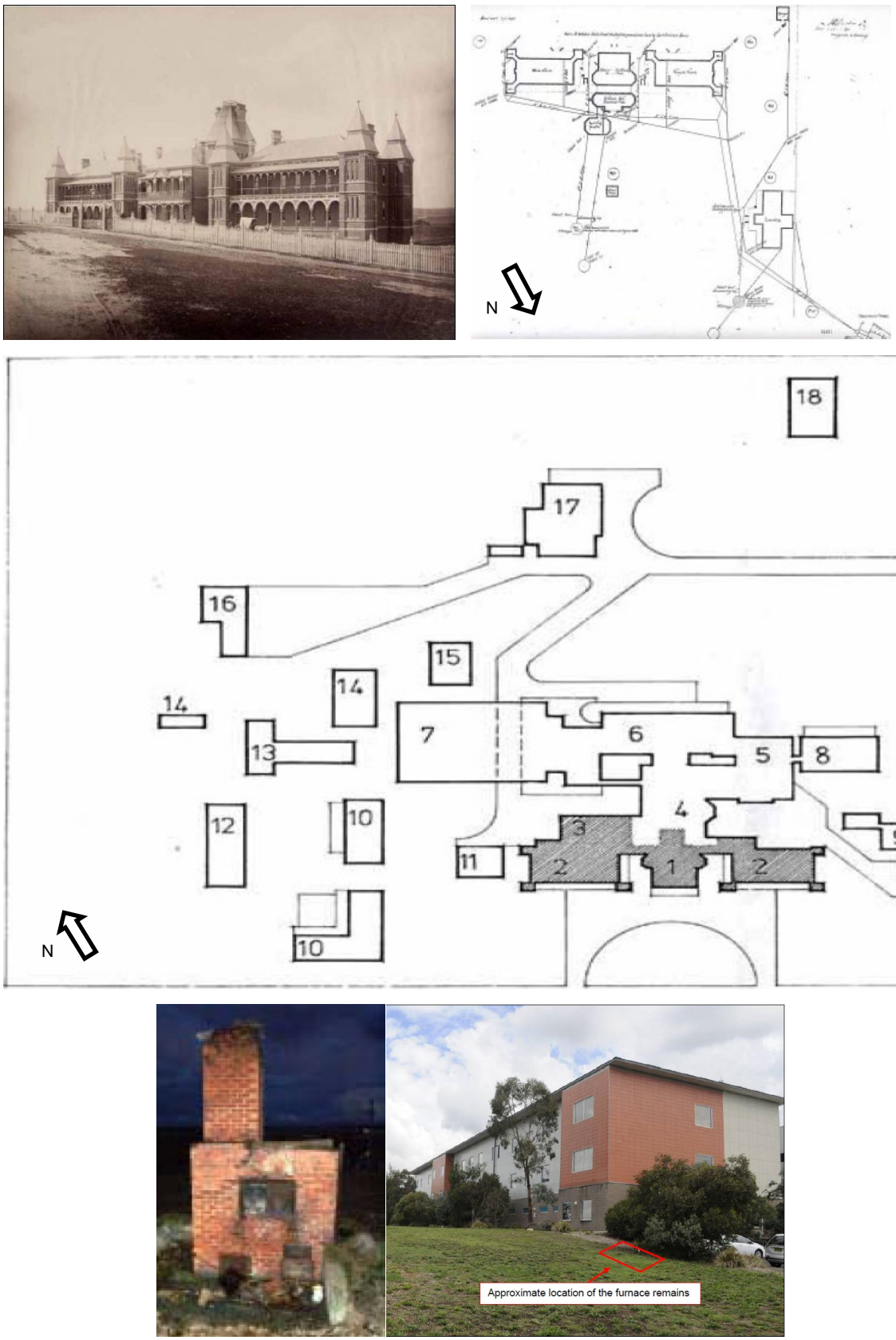


Figure 1 *Original hospital building circa 1880s (top left), 1911 drainage plan (top right) and the 1978 layout (middle), 2005 picture of furnace (bottom left) (all Ref [11]) and 2018 photograph of former furnace location (Ref [12]).*

3.1 SITE NOTIFICATIONS

The Section 10.7 Planning Certificate as specified under the Environmental Planning and Assessment Regulation 2021 includes information associated with any restrictions for the use of the land. Information relevant to this obtained from the 10.7 planning certificate and relevant to the site is contained in **Table 2**.

Table 2 *Planning Advice Contained in the 10.7 Planning Certificate*

Part 2 relevant Information	• The land use zone: **SP2 Infrastructure**.
	  • Objectives of zone: provide for infrastructure and related uses.
	  • The purposes of development in the zone: environmental protection works; extensive agriculture; intensive plant agriculture; roads.
	• Additional permitted uses apply to the land: **No**.
	• Development standards applying to the land fix minimum land dimensions: **No**.
	• Area of outstanding biodiversity value: **No**.
	• Conservation area: **Yes**.
	• The name of contributions plan under the Act, Division 7.1 applying to the land: **Bathurst Regional Community Facilities**.
	• Land within a special contributions area: **No**.
	• Complying Development pursuant: **No**.
	• Item(s) of environmental heritage identified: **One**.
	• Item(s) of state heritage identified: **One**.
	• Complying development codes: **No**.
	• Building notices and rectification orders: **None**.
	• Land reserved for acquisition: **No**.
	• Road widening and realignment: **No**.
	• Flood planning area: **No**.
	• Flood related development controls: **No**.
	• Contaminated land management policy: the land **has** the potential to be contaminated land. RCA contacted Council regarding this statement and was provided a historical contamination assessment, refer **Section 3.4.2**
	• Bush fire prone land: **No**.
	• Loose fill asbestos insulation: **No**.
	• Mine subsidence: **No**.
	• Paper subdivision information: **No**.
	• Property vegetation plans: **No**.
	• Biodiversity stewardship sites: **No**.
	• Biodiversity certified land: **No**.
	• Orders under Tree Disputes between Neighbours: **No**.
	• Prescribed as significantly contaminated land: **No**.
	• Subject to contamination management order: **No**.
	• Subject to voluntary management proposal: **No**.
	• Subject to ongoing maintenance order: **No**.
	• Subject to Site Auditor Statement: **No**.

Part 5 relevant Information	• Tree Preservation and Management Policy: **Yes**. • Heritage listings: **listed** on the register of the State Heritage Register. • Controlled under Contaminated Land Management Act 1997: **No**. • Past land uses for potential contamination to the land: **No**. • Within the Hawthornden Creek catchment: **No**. • Other matters affecting the land: **No**.

The reviewed planning certificate is included in **Appendix B**.

RCA undertook a search of the Heritage NSW heritage register[1] for the Bathurst and identified that:

- The 'Bathurst District Hospital' at Howick Street, Bathurst, and referred to as "Early Hospital Building" in this report, was listed as a state heritage item on 4th February 1999 (listing No. 00815) and as a heritage item under Local Environmental Plan (LEP) of Bathurst regional on 19th November 2014 (listing No. I285). The LEP specifies the listing includes the Victorian building only, not 'later additions & new buildings'.
- The whole site is within the Bathurst Heritage Conservation Area.
- There are no Aboriginal Places or items, no State Heritage Registers and around eleven (11) heritage items under Local Environmental Plan (LEP) of Bathurst regional within vicinity of the site.

The closest local heritage items are:

- 'Victoria Park' (gazetted on 9th June 2017, listing No. I333) which is across Mitre Street to the immediate south-east of the site.
- 'Chifley Memorial Park and bronze bust' (gazetted on 19th November 2014, listing No. I283) which is 150m west of the site.
- 'Yarras' (gazetted on 19th November 2014, listing No. I33) which is approximately 120m to the south-west of the site.
- 'Group of houses' (gazetted on 4th February 2022, listing No. I359) which are approximately 200m to the west of the site.

The search results are shown as **Figure 2** below.

RCA undertook a search of the Department of Climate Change, Energy, the Environment and Water heritage register[2] for the Bathurst and while there were multiple records within Bathurst and several on Howick Street, the only record within 500m of the site was the Bathurst General Conservation Area which includes the hospital as per **Figure 2** below.

[1] http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx

[2] http://www.environment.gov.au/heritage/publications/australian-heritage-database

Figure 2 *Heritage items at and around site (blue shaded areas presenting state heritage items, brown numerals presenting LEP heritage items, red grid area is the Bathurst Heritage Conservation Area).*

The proposed extension works are at west and east corners and approximately 50m and 30m respectively away from the Early Hospital Building. The potential impact to the Early Hospital Building will need to be considered both in regards to damage and aesthetics.

SafeWork NSW records, included within **Appendix B**, were provided in relation to dangerous goods stored at the site.

- The 1978 record includes a map which shows an underground petroleum storage tank (UPST) to the north west of the boiler house in an area covered by part of the main hospital building; the location has been inferred to **Drawing 2**, **Appendix A**. Also presented on the map is an oxygen tank and a 'brick inflammable liquids store' with other 1978 documents indicating that the oxygen tank is aboveground and that the liquids store comprise 300L of 'paint, metho, turps'.
- The 1982 record indicates that the UPST was still located at the site; no map is provided.
- The 1995 record does not include the UPST such that it is not considered to be in use. There is a note about the U/G tank in green pen however its meaning is not understood. A 'roofed store' includes 1000L of aviation fuel – the drawing indicates this is in the area of what is now the building with the helipad.
- The 2006 record indicates that the only licensed goods is the liquid oxygen tank. There is a page indicating the file was closed.
- The 2009 record includes only aboveground oxygen tanks although there is also a generator so there may be quantities of fuel which don't need a licence.

3.2 HISTORICAL MAPS AND PHOTOGRAPHS

RCA undertook a search through the State Library of NSW[3] and identified eleven (11) historical drawings of the hospital, multiple photographs (1948, 1962, 1963, 1981 (some titled 'new restoration work')) of the hospital building, and a photograph of 'Bathurst' from somewhere between 1882 and 1900s which does not appear to include the site. Representative photographs are presented in **Figure 3** below.

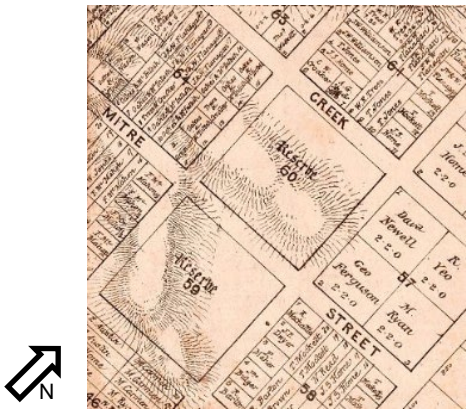
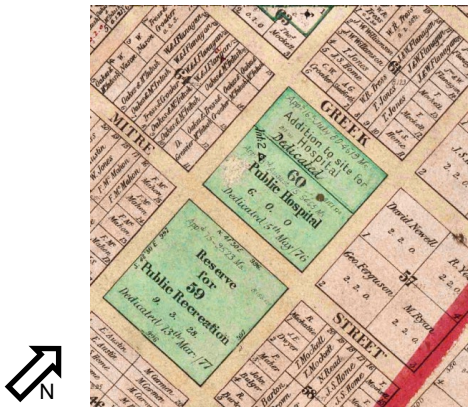
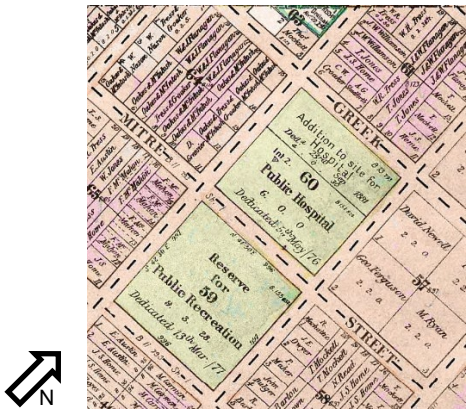
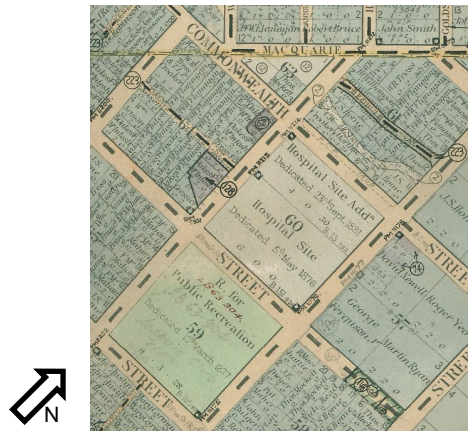
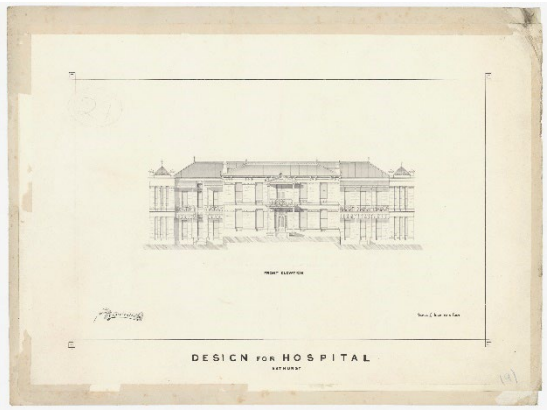
Figure 3 *Photographs from 1948 (top), 1962 (bottom left) and 1981 (bottom right).*

RCA undertook a search of the Historical Land Records Viewer[4] and identified multiple records as presented in **Table 3** below.

[3] http://archival.sl.nsw.gov.au/home

[4] http://hlrv.nswlrs.com.au/pixel.htm

Table 3 *Historical Town Maps and Images*

	
1860 town map showing the site as a reserve. Note that what is now Commonwealth Street is identified as Greek Street.	1882 town map noting that the site is dedicated for a public hospital, the southern portion states as being in 1876.
	
1897 town map noting that the site is dedicated for a public hospital, the southern portion states as being in 1876 and the northern in 1881. 1912, 1922, 1927 and 1940 maps are consistent with above except that from 1922 onwards the site is labelled 'Hospital Site'.	1962 map (although with handwritten notes up to 1972) showing that Greek Street has been re-named Commonwealth Street and subdivision across Durham Street has been undertaken. The construction of Beddie Street and a drainage easement to the north of the site are also identifiable. Multiple versions of the 1962 map, with handwritten notes up to 1976, and a 1972 map are consistent with above.
	
1977 map showing further subdivision across Durham Street.	Front Elevation of Bathurst Hospital dated 1876 from State Libray Archives.

RCA reviewed historical aerial photographs and **Table 4** summarises the observations at the site and the surrounding environment.

Table 4 *Aerial Photograph Review*

Year	Onsite review	Offsite review
1964 black & white	There are multiple buildings in the western and southwestern portion of the site along the Howick Street, between the Mitre Street and Commonwealth Street, including the Early Hospital Building, and Poole House along with a number of others which have now been demolished. Roads and pathways are present at the site along with what appears to be some formalised landscaping. The northern and eastern portions of the site along the Durham Street are mostly vacant land although there appears to be some disturbance / small structures and boundary vegetation. The size and shape of buildings are difficult to identify due to low resolution of the image.	The town of Bathurst is well developed to the south of the site; roads, streets, parks are clearly shown. There is residential development to the north and west of the site however not to the current extent. The remainder of the area appear to be farmland. The site is surrounded by residential properties at northwest and southwest immediately next to the Commonwealth Street and Howick Street, and by Victoria Park at southeast immediately next to the Mitre Street. There are some buildings on approximately 1/3 the land at northeast on the other side of Durham Street; the remainder of the portion appears to be a canine or equine racing track. The Bathurst Water Filtration Plant is approximately 400m north of the site, adjacent the Macquarie River. There is a significant commercial development approximately 600m northwest of the site consistent with the current location of Simplot.
1973 black & white	There are additional structures present at in the central and eastern portion of the site including the Boiler House; a water tank is present next to the northeast corner of the Boiler House. Trees are visible around the buildings mostly at the south portion of the site. The majority of the northeastern and eastern portion of the site appears to be vacant land with some shrubs / small trees.	The surrounding areas remain relatively unchanged with the exception of: • Residential development across Durham Street. • Further development of the Water Infiltration Plant. • Commercial development to the southeast.

Year	Onsite review	Offsite review
1984 colour	A new structure is present in the central portion of the site. The Doctor's Residence has been constructed at the eastern corner of the site with the access to the Mitre Street. The furnace is clearly identifiable in the northeastern portion of the site.	The surrounding areas remain relatively unchanged with the exception of: • The removal of the racetrack from land to the northeast. A building, consistent with the current structure, has been built. • Expansion of the Bathurst Water Filtration Plant to its north. • Further commercial development to the southeast. • The removal of a presumed dwelling from land at the southeast intersection of Durham and Mitre Streets, and the construction of part of what now forms Bathurst Tennis Centre.
1989	The site remains unchanged with the exception of: • Some significant extensions are present adjacent the Early Hospital Building. • Some earthworks / soil disturbance is visible at northern portion of the site.	The surrounding areas remain relatively unchanged with the exception of the construction of additional the buildings on the land at northeast across Durham Street.
1993 colour	The site remains largely unchanged with the exception of extensions to one of the structures in the centre of the site and the construction of a helipad in the northeastern portion of the site.	The surrounding areas remain relatively unchanged with the exception of minor alterations to the courts at the Bathurst Tennis Centre and Bathurst Netball Association to the southeast.
1998 colour	The site remains largely unchanged with the exception of the presence of Daffodil Cottage.	The surrounding areas remain relatively unchanged with the exceptions of: • Development, including new ponds, at the Bathurst Water Filtration Plant. • Alterations and additions to the courts of the Bathurst Netball Association. • The construction of a building (currently the Bathurst and District Bridge Club) on Mitre Street to the northeast of the site.
2003 colour	The site remains largely unchanged.	The surrounding areas remain relatively unchanged with the exception of some infill residential development.
2014 colour	Significant development has been undertaken with multiple buildings demolished and the Main Hospital Building constructed in the centre of the site. The layout of the site generally consistent with the current layout with the exception of the eastern carpark. Land along the Durham Street boundary appears disturbed in the current area of a landscaped embankment.	The surrounding areas remain relatively unchanged with the exception of: • Further court development at the Bathurst Netball Association. • Building construction at the across Durham Street at its corner with Mitre Street. • Children's playground in southeastern portion of the Victoria Park.

Year	Onsite review	Offsite review
2020	The site remains largely unchanged with the exception of the construction of a carpark along the eastern side of the Main Hospital Building and removal of trees at the front of the Early Hospital Building.	The surrounding areas remain relatively unchanged with the exception of further development within Victoria Park, and the construction of a large building to the northeast of the site along Commonwealth Street.
2022	The site remains largely unchanged with the exception of some slight landscaping.	The surrounding areas remain relatively unchanged.

Reviewed documentation is included in **Appendix B**.

There are multiple Google *StreetView* images of the site; RCA has reviewed these and summarised these in **Table 5** below. The images are included in **Appendix B** along with June 2023 images.

Table 5 *Google Streetview Photograph Review*

Photograph	Facing southeast from Howick St near intersection with Commonwealth St.	Facing northeast from Howick St.	Facing northwest from Mitre St.	Facing southwest from Durham St.	Facing south from Commonwealth St.
January 2008	Daffodil Cottage is present with red brick wall, white grid window and dune metal roof, generally consistent with the current structure. There is no fence along the boundary. A (presumed electrical) pole and some trees are present between the footpath and kerb along Howick Street. There is a wired enclosure present inside the fence.	The two (2) storey Early Hospital Building is present with red brick wall, wrought iron features and dune metal roof, generally consistent with the current structure. There are a few trees to the southwest of the structure and vehicles are present in the carpark. There is a red brick and cream metal fence along the boundary. A power pole and parking sign are present between pathway and kerb of Howick Street.	The Main Hospital Building is present however there are multiple containers and temporary buildings surrounded by construction fencing between it and Mitre St. A stockpile of soil is also present in the fenced area. There are mature pine trees and electrical poles present between the site boundary and Mitre Street. An excavator appears to be in the process of constructing a footpath along Mitre St. The site slopes significantly to the northeast and the site is situated up to 2m above the road surface.	The Main Hospital Building, red and grey exterior walls, is present at a significantly higher elevation to the road surface; the roof cannot be sighted. There are a few trees between the building and the steel mesh boundary fence, and one (1) electrical pole is present between the fence and Durham Street.	The Main Hospital Building, with red and grey exterior walls, is present at a significantly higher elevation to the road surface; the roof cannot be sighted although the protruding edge of the helipad is visible. The area between the carpark and the steel mesh boundary fence is landscaped and there are a few trees between the boundary and Commonwealth Street. There are two (2) access drives from the Street with the area between landscaped / lawn.

<table>
<tr><th>Photograph</th><th>Facing southeast from Howick St near intersection with Commonwealth St.</th><th>Facing northeast from Howick St.</th><th>Facing northwest from Mitre St.</th><th>Facing southwest from Durham St.</th><th>Facing south from Commonwealth St.</th></tr>
<tr><td>September 2008</td><td>The site remains unchanged except one (1) tree previously adjacent the power pole is not present.</td><td>There is no apparent change to the site however there is construction fencing which obscures the view, and a crane and trucks are present at the site.</td><td>The site remains unchanged with the exception of the removal of containers and a temporary building at eastern side of the driveway such that the stockpile and the southern wall of the Dwelling are more easily apparent.</td><td rowspan="2">The site remains largely unchanged with the exception of tree and vegetation growth.</td><td rowspan="4">The site remains largely unchanged with the exception of tree and vegetation growth.</td></tr>
<tr><td>February 2010</td><td rowspan="2">The site remains unchanged with the exception of tree growth.</td><td rowspan="2">The site appears unchanged from the January 2008 view.</td><td>All containers and temporary buildings have been removed. The stockpile is no longer present however there appears to be a vegetated fill platform present.</td></tr>
<tr><td>June 2015</td><td>The site remains unchanged with the exception of vegetation growth.</td><td>The building appears unchanged however significant landscaping has been undertaken and there are rails along the ground which may be part of landscaping or may be installed for water control purpose.</td></tr>
<tr><td>May 2017</td><td>--</td><td rowspan="3">The site remains unchanged except the two (2) big trees at the front yard of the Heritage Building are not present.</td><td>--</td><td rowspan="3">The site remains largely unchanged with the exception of tree and vegetation growth.</td></tr>
<tr><td>March 2018</td><td>The site is consistent with June 2015.</td><td rowspan="2">The site is consistent with June 2015 with the exception of vegetation growth.</td></tr>
<tr><td>August 2019</td><td>--</td><td>--</td><td>--</td></tr>
</table>

Photograph	Facing southeast from Howick St near intersection with Commonwealth St.	Facing northeast from Howick St.	Facing northwest from Mitre St.	Facing southwest from Durham St.	Facing south from Commonwealth St.
September 2022	--	--	The site is consistent with earlier photographs with the exception of construction fencing visible close to the building.	The site remains largely unchanged with the exception of tree and vegetation growth and the removal of one of the planks.	--

3.3 CONTAMINATED LAND PUBLIC RECORD

RCA undertook a search of the NSW EPA public lands register[5] and identified that the site was formerly licensed for generation and storage of between 10 and 100tonne (reduced from 100-500tonne in 2004) of hazardous, industrial or Group A waste. The environment protection licence (EPL) is included in **Appendix B** and is noted as being 'no longer in force'. There were no applications, notices, audits or pollution studies and reduction programmes applicable to the site. There are fifteen (15) parcels with an EPL in the vicinity of the site:

- Barclay Mowlem Construction Limited – for (presumed construction works) Ben Chiefly Dam and surrendered 2001. The dam is situated 18km to the south of the site and not considered to pose a risk of contamination to the site.
- Bathurst Regional Council:
  - For animal accommodation (presumed pound) and surrendered 2009. The licensed premises (Bathurst Saleyards) is situated 3.5km to the south of the site and not considered to pose a risk of contamination to the site.
  - For the water filtration plant. The premises is situated approximately 330m to the northeast of the site and not considered to pose a risk of contamination to the site.
  - For the waste management centre. The premises is situated approximately 6.4km to southwest of the site and not considered to pose a risk of contamination to the site.
- Boral Resources (Country) Pty. Limited – for wood preservation of up to 10,000m^3. There are no monitoring conditions associated with the licence and the premises is approximately 1.8km to the southwest and not considered to pose a risk of contamination to the site.
- Cleanaway Pty Ltd – for waste storage. There are no monitoring conditions associated with the licence and the premises is approximately 2.7km to the southeast and not considered to pose a risk of contamination to the site.
- Devro Pty Limited – for tanneries or fellmongeries of up to 10,000tonne and surrendered in 2017. There are no monitoring conditions associated with the licence and the premises is approximately 3.6km to the southeast and not considered to pose a risk of contamination to the site.
- Emoleum Road Services Pty Ltd – for bitumen mixing of between 30,000 and 100,000tonne. There are no monitoring conditions associated with the licence and the premises is approximately 4.1km to the southeast and not considered to pose a risk of contamination to the site.

[5] http://www.epa.nsw.gov.au/publicregister/

- Hanson Construction Materials Pty Ltd:
    - For land based extractive industry of between 100,000 and 500,000tonne and surrendered in 2009. There were no monitoring requirements for the licence and while the specific location of the premises isn't stated, as it is listed as 'Mitchell Highway' it is considered to be more than 2.5km away from the site and not to pose a risk of contamination at the site.
    - For concrete works of between 13,000 and 25,000m^3. There are no monitoring conditions associated with the licence and the premises is approximately 3.3km to the southeast and not considered to pose a risk of contamination to the site.
- Holcim (Australia) Pty Ltd – for concrete works of between 13,000 and 25,000m^3. There are no monitoring conditions associated with the licence and the premises is approximately 3km to the south and not considered to pose a risk of contamination to the site.
- Omya Australia Pty Limited – for crushing, grinding and separating of between 100,000 and 500,00tonne of material annually. There are no monitoring conditions associated with the licence and the premises is approximately 6.2km to the south and not considered to pose a risk of contamination to the site.
- Simplot Australia Pty Limited – for general agricultural processing of between 100,000 and 500,00tonne of material annually. The only monitoring conditions are associated with the volumes of effluent irrigated on the premises which is approximately 475m to the northwest of the site. Contamination is considered to be limited only to groundwater if this flows from the premises to the site.

RCA undertook a search of parcels notified[6] to the NSW EPA as potentially requiring regulation (as updated April 2023) and confirmed that the site is not notified. There are twelve (12) notified parcels in Bathurst, as presented in **Table 6**. None of the parcels currently require regulation and as such RCA infers that there are no offsite contamination issues. The Former Police Station and Former Gasworks, for which regulation was formerly being undertaken, are considered too distant to potentially impact the site.

RCA undertook a search of the NSW EPA gasworks database[7] and determined that there are three (3) gasworks in Bathurst at southeast of the site. The closest gasworks is 1.5km away from the site thus all the three (3) gasworks are considered too distant to potential impact the site.

RCA undertook a search of the NSW Office of Fair Trading asbestos insulation register[8] and determined the absence of known loose-fill asbestos insulation in the buildings at the site.

[6] http://www.epa.nsw.gov.au/clm/publiclist.htm

[7] http://www.epa.nsw.gov.au/clm/gasworkslocation.htm

[8] www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register

Table 6 *List of notified parcels in Bathurst.*

Site Name	Address	Contamination / Activity Type	Management Class	Distance from Site
Shell Coles Express Service Station	298 Stewart Street	Service Station	Regulation under CLM Act not required	1.35km south
Former Shell Depot Bathurst	56 Bant Street	Other Petroleum	Regulation under CLM Act not required	3.15km south
Bathurst Rail Fabrication Centre	34 Alpha Street	Other Industry	Regulation under CLM Act not required	2.60km southeast
Bathurst – Former Caltex Depot	114 Howick Street	Other Petroleum	Regulation under CLM Act not required	2.20km southeast
Caltex Bathurst Service Station	53 Durham Street	Service Station	Regulation under CLM Act not required	1.60km southeast
Former Police Station	Corner of William Street and Durham Street	Other Petroleum	Contamination formerly regulated under the CLM Act	1.50km southeast
Former Mobil Depot	1 Lambert Street	Other Petroleum	Regulation under CLM Act not required	2.50km southeast
Crago Mill site	Piper Street	Other Industry	Regulation under CLM Act not required	2.40km southeast
Former Mobil Depot	Lower Russell Street	Other Petroleum	Regulation under CLM Act not required	2.30km southeast
Shell Coles Express Bathurst Service Station	59 Durham Street	Service Station	Regulation under CLM Act not required	1.50km southeast
Former Gasworks	71 Russell Street	Gasworks	Contamination formerly regulated under the CLM Act	2.30km southeast
Former Devro Cattle Hide Processing Plant	46 Vale Road	Other Industry	Regulation under CLM Act not required	3.70km south

RCA undertook a search of the NSW Department of Primary Industries register[9] and determined that there are no known cattle dip sites within the Bathurst local government area.

RCA undertook a search of the Department of Defence register for unexploded ordnance (UXO)[10] and determined that there is no unexploded ordnance at the site. The nearest mapped Defence controlled area is '1216 Lone Pine' with a slight potential due to use as a field firing range during WW2 from 1940 to 1946, approximately 12.5kms northeast of the site.

[9] www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator

[10] https://uxo-map.defence.gov.au

RCA undertook a search of the Department of Industry mapping of naturally occurring asbestos[11] and determined that there are no naturally occurring asbestos at the site.

3.4 PREVIOUS INVESTIGATIONS

In addition to the documents discussed below, RCA were provided with an incomplete copy of an 'ash clearance' report dated 19th December 2007 which certified that there was no asbestos within an inspected area of ash and in a collected sample of the material. The laboratory report wasn't included with the copy provided to RCA, nor was there any diagram showing the location of the inspected area. As such, RCA considers that this document is not suitable for use as part of the contamination assessment.

3.4.1 PRELIMINARY ENVIRONMENTAL INVESTIGATION, 2004 (REF [13])

An incomplete copy of a preliminary environmental investigation which was conducted in early 2004 (Ref [13]) was provided to RCA as part of this assessment. The 2004 works comprised:

- A site inspection.
- Review of records associated with development and building approvals, historical aerial photographs from 1984, waste disposal at the site and site layout plans.
- Drilling at twenty (20) locations at the site. No drawing / map was provided to show the drilling locations; the report stated that fifteen (15) of the sampling locations were 'where historically the least probable contaminating activities had taken place' and that five (5) locations were in the 'more potentially contaminated area'.
    - Soil samples were collected from just below the (grass) surface, 0.1-0.3m and 1.0-1.2m below the surface. Additional samples were collected below the base of the fill.
    - The majority of samples were apparently composited prior to analysis however insufficient detail is provided to verify how many soil samples were used in each composite.
    - Samples were analysed for metals with a section also analysed for hydrocarbons and pesticides.

The potential for contamination identified from the site inspection and review of records was limited to the:

- Presence of fill in three (3) areas:
    - Soil embankment to the west of the Doctor's Residence and below a building. Asbestos and other building materials were identified. A photograph from the heritage assessment (Ref [11]) of the area is presented as **Figure 4** below.
    - Area around the furnace to the north of the helipad, thought to contain biological waste and tested as having low levels of lead contamination.
    - An area to the north of the staff carpark in which approximately 1.8m of ash was identified and drilling was refused on scrap metal.

[11] trade.maps.arcgis.com/apps/PublicInformation/index.html?appid=87434b6ec7dd4aba8cb664d8e646fb06

- An underground petrol (unleaded) storage tank. The location of the tank was not mentioned in the report.

Figure 4 *Photograph of fill embankment near Doctor's Residence (Ref [11])*

The encountered strata were summarised as sandy silt overlying gravelly sand considered typical of weathered granite except where fill was present. Neither rock nor groundwater was identified within the maximum drilling depth of approximately ten (10) metres below the surface.

Metals were detected in all samples however none of the results were in excess of the guideline criteria for recreational land which were the guidelines considered relevant at the time, noting that the criteria have not been adjusted for the use of composited samples. Hydrocarbons and pesticides were not detected in any sample with the exception of polycyclic aromatic hydrocarbons (PAH) was detected in one sample at a low concentration.

The report identified that there were 'signs' of contamination in the form of metals (chromium, copper, mercury, lead, zinc) around the incinerator and due to asbestos (chrysotile) being present in the embankment above the Doctor's Residence.

The report stated that the site could be made suitable for the proposed hospital land use following the remediation of the locations around the incinerator towards the northern corner of the site and the embankment above the Doctor's Residence.

3.4.2 ENVIRONMENTAL SITE INVESTIGATION, 2005 (REF [14])

An incomplete copy of an environmental site investigation was provided by Bathurst Regional Council in response to RCA's request to clarify a notation on the Section 10.7 planning certificate (refer **Table 2**). This investigation was undertaken on behalf of the Department of Commerce with regards to consideration of three (3) models for the upgrade of the hospital.

The assessment comprised:

- Consideration of site history. It is not clear whether this assessment was independent of the 2004 investigation (Ref [13]) as the author of that investigation is referenced. The report does state that the two (2) tanks are 'near the maintenance building'.
- Drilling at an unspecified number of locations. In the absence of any maps or drawings in the copy of the report provided to RCA Australia it is unknown where the drilling was undertaken. The report stated that samples were undertaken on a 15m grid.
- Collection of twenty (20) samples from near surface and eight (8) samples from 'shallow' depths.
    - Seventeen (17) samples were analysed for metals, six (6) samples were analysed for pesticides and polychlorinated biphenyls (PCB) and seven (7) samples were analysed for hydrocarbons.

The report summarised the encountered strata as shallow sandy topsoil overlying weathered granite with bedrock present in the vicinity of 4-5m below the surface. Fill was identified in one location (BH3) comprising coal chitter and ash to a depth of 0.4m below the surface. Groundwater was not encountered.

Metals were detected in all samples however none of the results were in excess of the guideline criteria for recreational land which were the guidelines considered relevant at the time. Pesticides, PCB and hydrocarbons were not detected in any sample with the exception of PAH in two (2) samples were at low concentrations.

The site was considered suitable for the proposed upgrade proposal with no further environmental investigation.

3.4.3 SUPPLEMENTARY GEOTECHNICAL INVESTIGATION, FEBRUARY 2006 (REF [15])

A fax from Douglas Partners (Ref [15]) referred to further works undertaken as a follow-up to previous reports dated 23 September 2005 and 3 February 2006: RCA has not sighted either of these reports.

The supplementary investigation comprised eight (8) test pits and the encountered strata was described as topsoil and sandy clayey filling overlying gravelly silty clay and extremely to highly weathered, red brown and grey granite. 'Ashy' filling was described in one location and wire and pottery were described in another. No 'free' groundwater was encountered nor is any seepage recorded on the logs.

A map of the locations indicates that these are all in the area of the Main Hospital Building therefor RCA does not considered that these are relevant to the current assessment.

3.4.4 REMEDIAL ACTION PLAN (RAP), MAY 2006 (REF [16])

This RAP by Earth Air Water Consulting and Monitoring Pty Limited (EAWCM) refers to the identified of asbestos contamination at three (3) locations as presented in **Figure 5** below. These areas were based on a previous assessment, not referenced however inferred by RCA to be that as summarised in **Section 3.4.1**, along with 'additional survey information'. The asbestos was identified to comprise fragments of bonded asbestos material (i.e., non-friable) distributed within the soil.

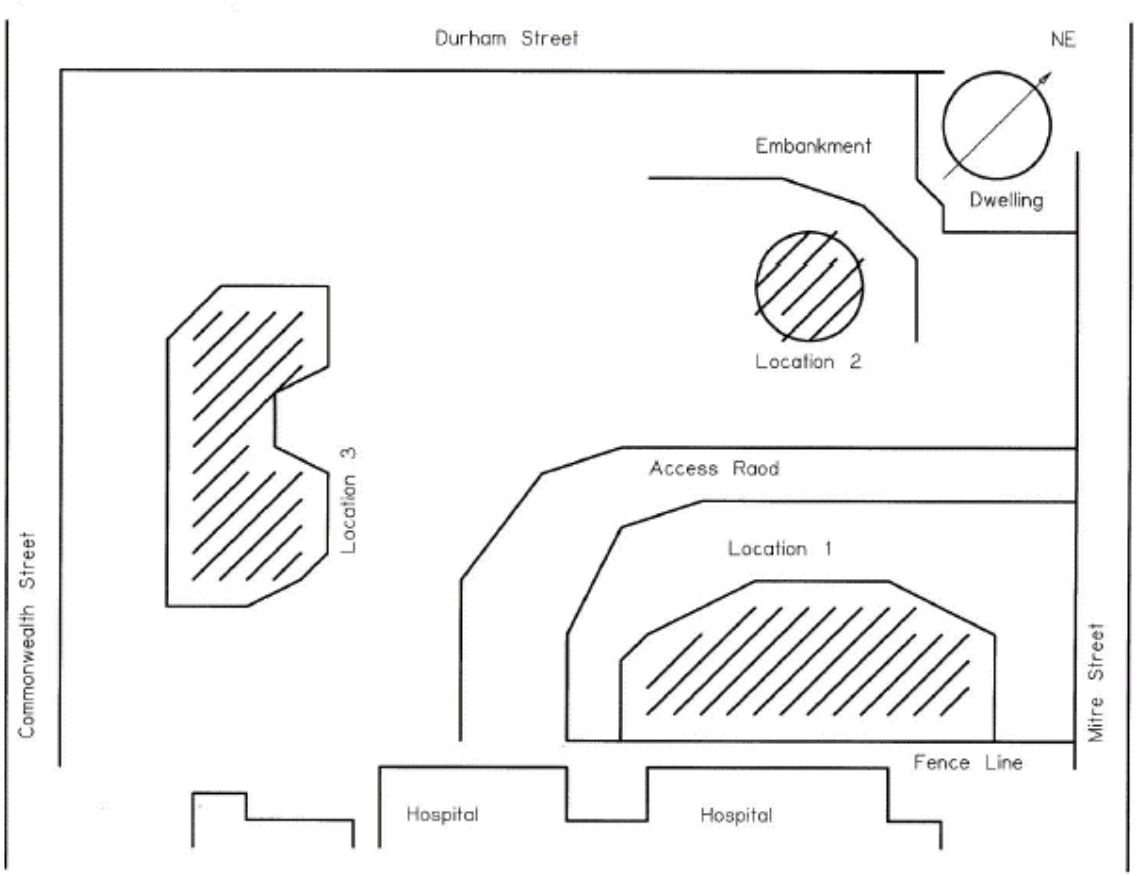


Figure 5 *Locations Identified in the RAP as being Subject to Remediation*

Limited site history information was provided; no potential source of the asbestos was identified however no other potential contamination was identified at the site other than fill 'within the embankment at location 2' which was described as ash and considered likely to be sourced from the site's 'boilers and furnaces'. EAWCM did not consider that there was evidence that fill had been imported to the site. The ash was identified to be of 'inert nature' although consideration was ongoing at the time of the RAP.

The remedial strategy comprised:

- Physical demarcation of the areas with asbestos fragments.
- Excavation in 100mm layers in conjunction with dust minimisation controls.
    - Designated personnel were to inspect each layer for the presence of asbestos to direct the next layer of excavation.
- Removal of soil to a waste facility licensed to receive asbestos waste.
- Validation of the extent of excavation by a combination of visual inspection and asbestos analysis of soil samples collected at a frequency of 1/10m^2 within the excavated area.

Management controls were broadly outlined for stormwater / sediment control, stockpiles, noise, dust and OH&S during construction however as all contamination was expected to be removed during remediation it was not considered that a long-term management plan was required.

3.4.5 VALIDATION REPORT, APRIL 2007 (REF [17])

The validation report documented the findings of sampling of remediated areas and air sampling that was undertaken during the excavation of asbestos impacted soils; no drawing of the sampling locations, laboratory report sheets or waste tracking records were included in the copy provided to RCA.

The areas identified as having been remediated are presented in **Figure 6**, noting that remediation of Location 2 comprised some asbestos removal (7,270.31tonne) and encapsulation of the remainder of asbestos. A survey-based outline of the area encapsulated is included in **Figure 6** below and inferred to **Drawing 2**, **Appendix A**. A register of asbestos for the three (3) areas was included as an appendix to the validation report stated that the encapsulation area was situated within the 'cut batter of foundations' and that the encapsulated material comprised 'bonded sheeting, ash material'. The sheeting was stated as being 'intact or minor damage'.

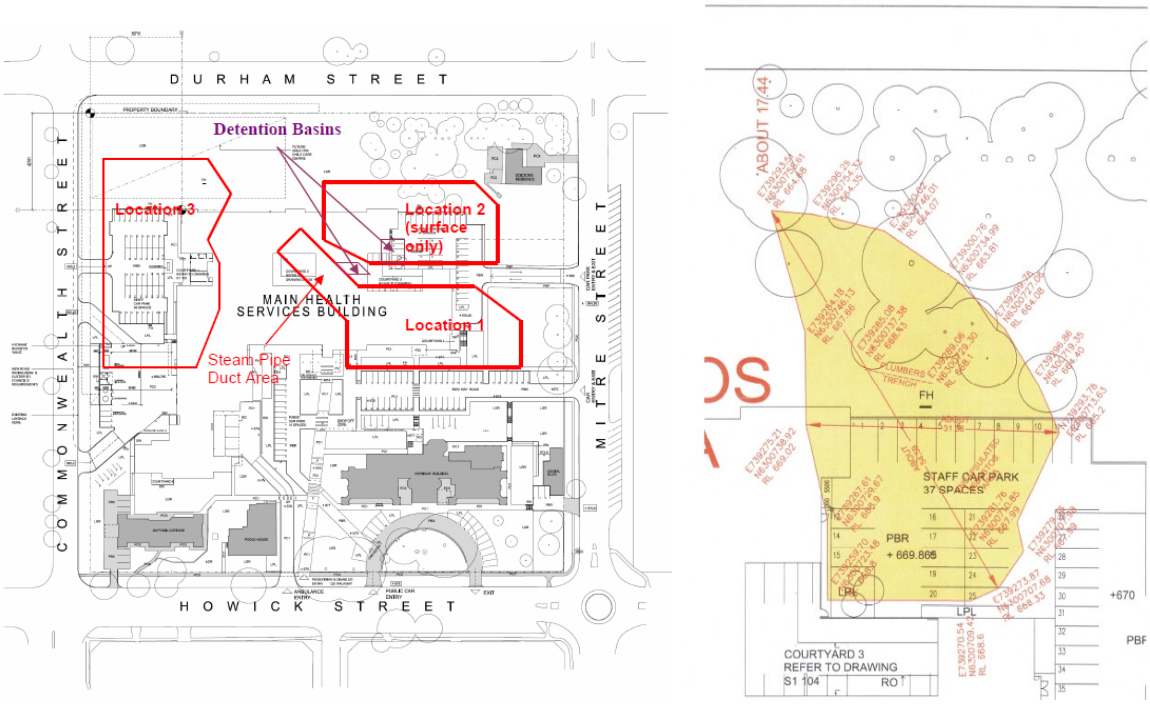


Figure 6 *Areas Remediated by Excavation (left) and Encapsulation (Right)*

No detail was provided regarding the material used to encapsulate the asbestos apart from a photographic caption of 'bitumen geo-fabric' which is inferred by RCA to be bitumen infused geofabric or possibly geofabric which has then been sprayed with bitumen; based on the photographs included in the validation report and re-produced below it is considered that the former is more likely.

Figure 7 *Photographs of Asbestos Encapsulation, to the south and west respectively.*

No information regarding the depth that excavation was undertaken, however sampling was undertaken at a maximum depth of 0.3m such that this is considered likely to be the maximum depth of excavation. No asbestos was present in the sample results with the exception of two (2) which were identified as 'Embankment 001' and 'Embankment 002', and are presumed therefore to be related to Location 2 in **Figure 6** above, in which chrysotile and amosite asbestos was found.

No information was provided regarding the depth or source of material placed over the encapsulation layer.

The report noted that in the event that further asbestos was identified during the construction works that it should be addressed as per the RAP (Ref [16], refer **Section 3.4.4**) by a contractor licensed to undertake friable asbestos works with appropriate air monitoring for asbestos / dust.

Long term monitoring was not considered to be required however the responsibility for maintenance of the integrity of the encapsulation area was to be the responsibility of the Greater Western Area Health Service (now Heath Infrastructure NSW), and the surveyed area was to be included in the HAZMAT register for the site as well as held on file by the Hospital. Penetration of the encapsulation was to be restricted and only to be undertaken by contractors licensed for friable asbestos works.

3.4.6 RAP ADDENDUM, SEPTEMBER 2007 (REF [18])

The RAP Addendum outlined that an area of encapsulated asbestos required excavation due to changes in the construction works however it is noted that the location provided, reproduced in **Figure 8** (and inferred onto **Drawing 2**, **Appendix A**) is situated between the new hospital construction and the heritage listed building and not consistent with the surveyed encapsulation area and appears to be related to Location 1 (refer **Figure 6**). Further the asbestos is considered to be potentially friable due to evidence of 'incinerated sheeting fragments' identified in a 'previous contamination report': RCA has no record of this finding unless it refers to ash which has been identified in multiple areas of the site.

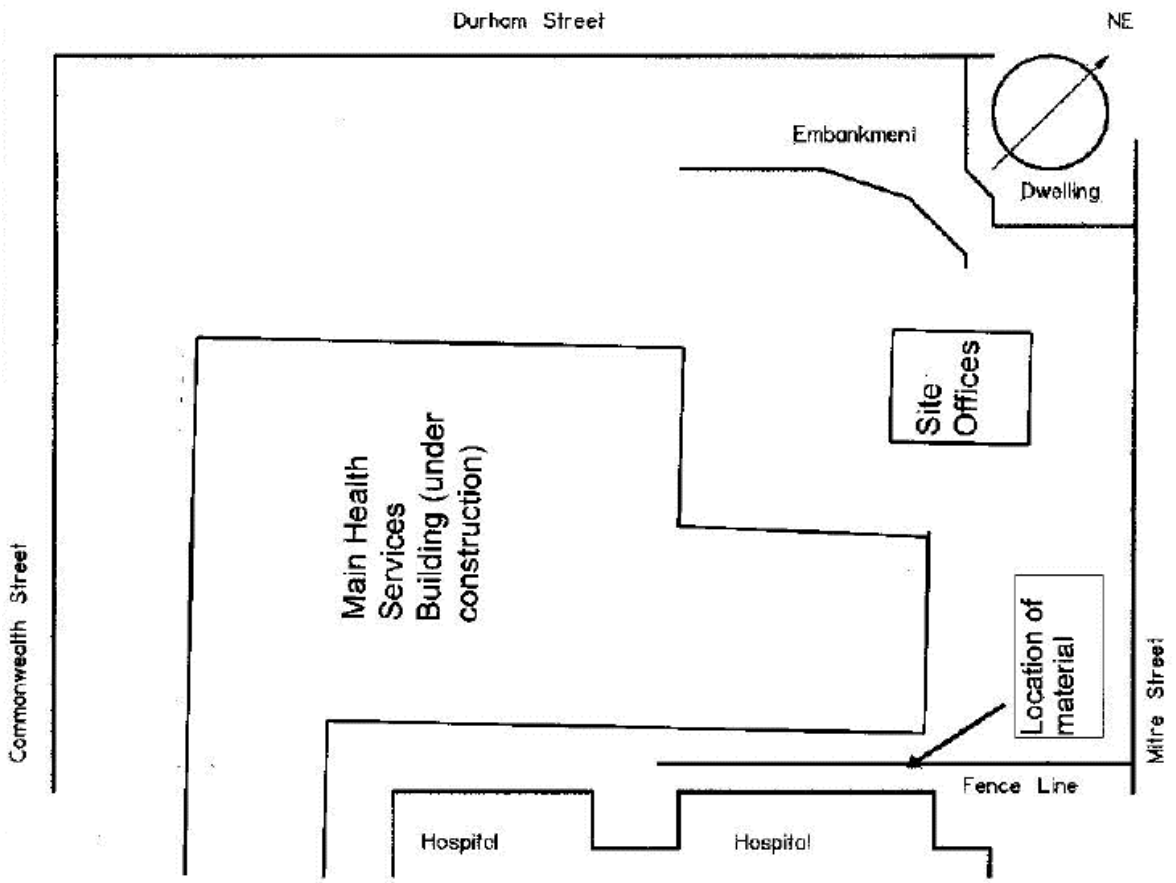


Figure 8 *Location of Asbestos Subject to Remediation after Validation*

The methodology of remediation was to be based on the RAP (Ref [16], refer **Section 3.4.4**) with additional dust minimisation and controls due to the friability of the asbestos. The potential for lateral restrictions to the excavation was noted with any material that could not be removed due to proximity to buildings to be encapsulated with 'concrete or bitumen spray reinforced with stabilised matting / webbing'. The RAP Addendum stated that the 'encapsulated material will be addressed in contamination assessment of the next stage of hospital development program'.

No long-term management plan was recommended: the construction of the hospital was considered to 'negate' the need for a plan.

RCA notes that there has not been a validation report provided for works subsequent to those reports in April 2007 (Ref [17]) and it is unknown whether the remedial works described in the RAP Addendum were undertaken.

3.4.7 ASBESTOS REGISTER, 2012 (REF [19])

An audit of the presence of asbestos at the Bathurst Hospital campus was undertaken in April 2012 and comprised inspection of all remaining buildings to the extent possible following the completion of construction of the Main Hospital Building. A total of ten (10) samples of 'flat sheeting' for which visual classification of asbestos presence couldn't be undertaken were laboratory analysed for asbestos.

The audit refers to the removal of approximately 7,000tonnes of asbestos contaminated from the site and to the remaining encapsulated area consistent to that identified in the validation report (Ref [17], refer **Section 3.4.5**). The presence of asbestos within the campus was mapped as reproduced in **Figure 9** below.

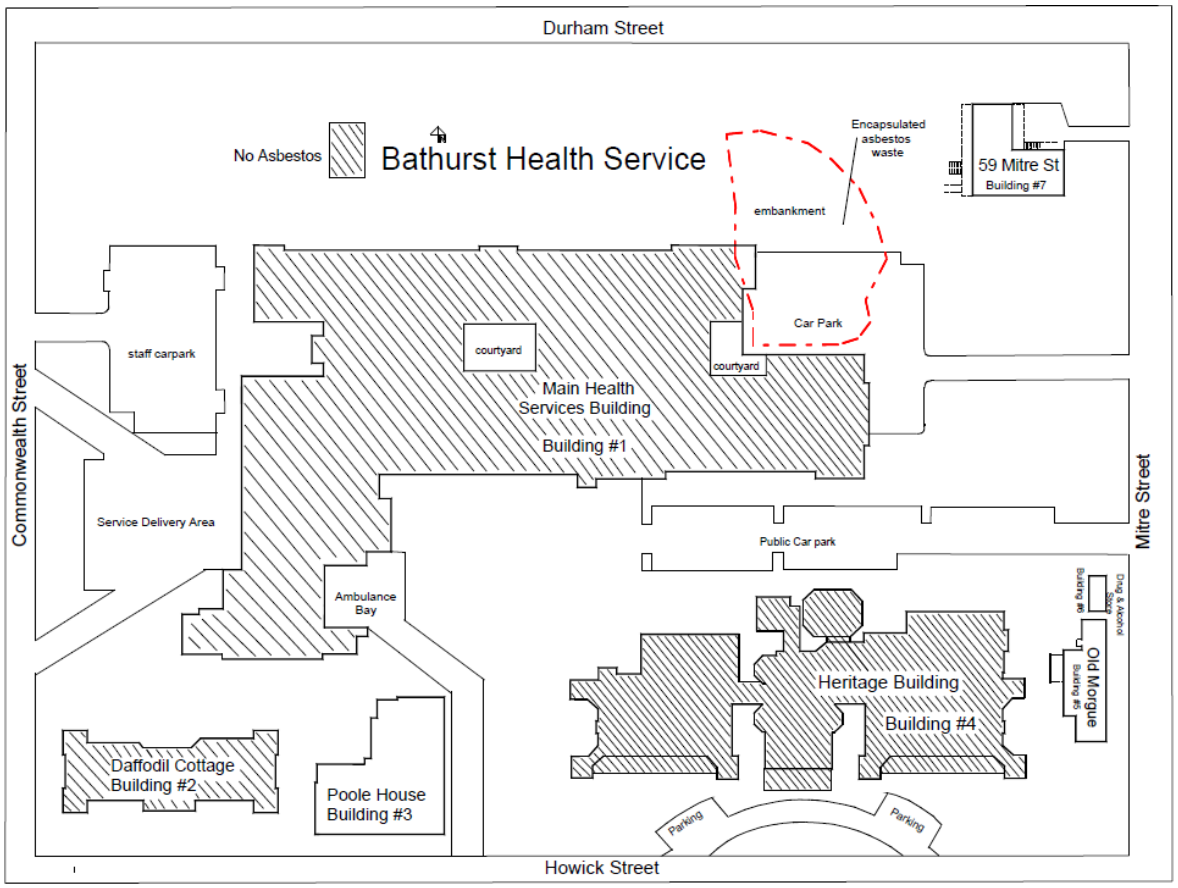


Figure 9 *Map of Areas of Campus with Asbestos Identified*

The audit includes a full asbestos register with locations of confirmed asbestos, description of the type of asbestos (sheeting / lagging), type (bonded / friable), hazard rating (definition included in register), photograph(s) and comments (such as condition and whether painted).

The photograph of the encapsulated area is reproduced as **Figure 10** below. The register assigned:

- A hazard rating of 0 which is defined as there being no asbestos present, presumed to mean at the surface, and therefore no personal protection required.
- No action unless disturbed at which time specific requirements in relation to the use of tools (such as saws) which generate fine asbestos dust is prohibited and the use of respiratory devices, wetting of materials and disposal apply. It is noted that the action is not specific to the encapsulated material as the same action has been assigned to multiple areas of the campus.

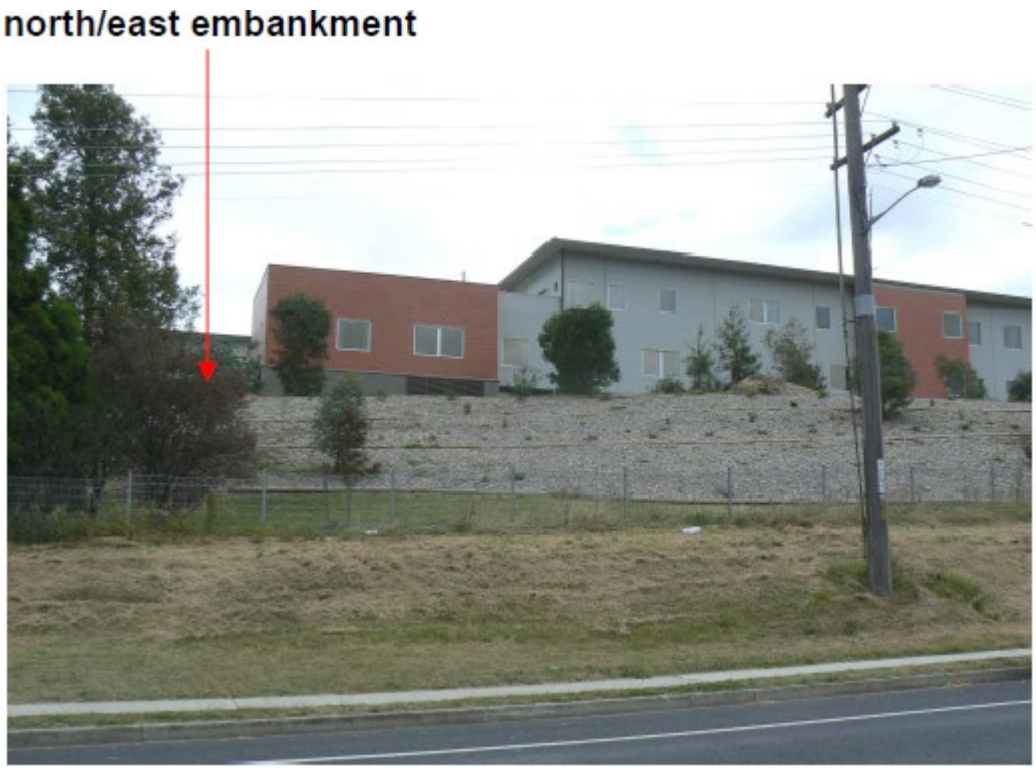


Figure 10 *Photograph from Asbestos Register regarding Location of Encapsulated Asbestos*

The audit further refers to the removal of all asbestos during major renovations carried out between 2008 and 2012 from the Heritage Building as depicted in **Figure 11**. It is considered that this may include material identified in the RAP Addendum (Ref [18], refer **Section 3.4.6**) although is not specifically mentioned.

Figure 11 *Heritage Building as at 2012 Asbestos Register*

3.4.8 GEOTECHNICAL INVESTIGATION REPORT, 2017 (REF [20])

This was a geotechnical assessment with no specific consideration of contamination, undertaken in 2017 for the purpose of an extension to the carpark in the northeastern portion of the site.

Two (2) drilling locations (BH01 and BH02) are in the vicinity of the furnace (refer **Section 3.4**) and describe the presence of fill with tile, brick, granite and plastic pipe, and a clinker (stony residue from burnt coal or from a furnace) fragment at BH01 and fill with brick, siliceous material, ask and clinker material, and black plastic at BH02.

One of the drilling locations (BH06) is considered to be in the vicinity of one of the areas currently being assessed for potential development. Fill is described as including brick, concrete, wood and glass along with red brick fragments and charcoal. It is noted that there were geotechnical constraints identified with the compaction levels at this drilling location.

The logs from this investigation are included in **Appendix B** and their inferred locations included on **Drawing 2**, **Appendix A**.

3.5 GEOLOGY AND HYDROGEOLOGY

RCA reviewed published geological and hydrogeological maps and summarised the findings in **Table 7**.

Table 7 *Geology and Hydrogeology*

Soil type	The Bathurst soil landscape comprises non-calcic brown soils (dominant) with yellow solodic soils (common) on the lower slopes and in drainage lines. The non-calcic topsoil is dark reddish to greyish yellow sandy loam (pH 6.0–7.5) and the subsoil is reddish brown to brown sandy clay loam, or sandy to heavy clay (pH 6.5-7.0). The yellow solodic topsoils are brown to brownish black loamy sand to sandy loam (pH range from 5.0–6.5) and dull yellowish brown to light grey sandy loam (pH 6.5-7.5) and the subsoil is greyish brown mottled sandy clay loam to heavy clay (pH 8.0-8.5)[12]. The NSW seamless geology map (published by the department of Regional NSW) indicates the site is underlain by the Bathurst Granite unit described as coarse-grained, porphyritic biotite granite.
Acid sulfate soil	There is no Acid Sulfate risk map for the area such that it is not considered that there is potential for acid sulfate soil to be present.
Groundwater use	There are a maximum of four (4) groundwater monitoring wells within the 500m of the site, depending at which corner the search is based on. GW804667 is a monitoring bore, and the other three (3) bores are registered for domestic use.
Number of monitoring wells on site	There are no registered groundwater wells on site. The fate of the former seven (7) wells is unknown however presumed as capped if not decommissioned.
Depth to groundwater	The depth to groundwater at the site is unknown. The record standing water levels range between 3.5 to 22m below the surface in the register wells.
Estimated Groundwater flow direction	Groundwater flow direction is unknown, but it is assumed to flow towards the Macquarie River which is approximately 550m to the north of the site.
Background water quality	The regional groundwater quality is unknown however is not expected to be significant due to absence of industrial use at or near the site.

The groundwater information is attached in **Appendix C**.

3.6 INTEGRITY ASSESSMENT

All the desktop information above was collected from various sources which include a combination of government bodies and private organisations, in the purpose of the assessment of the geotechnical and contamination conditions at the site.

Information sourced from government registers may not be updated and / or incomplete due to reliance on third parties.

[12] https://www.environment.nsw.gov.au/eSpade2Webapp/

All consultants are considered to have undertaken works in general accordance with the relevant guidelines such that the information is reliable however the provided documentation is incomplete such that there is uncertainty with regards to the relevancy of the sampling results. Furthermore, the guidelines (refer **Section 5**) have changed since the time of the assessments, the target of the previous assessments were different areas of the site than are currently being considered for development and the geotechnical assessment did not include specific consideration of contamination. As such the previous information is considered to be indicative only with the exception of the surveyed area of encapsulated asbestos. There is some uncertainty associated with the location of asbestos as identified in the RAP Addendum (Ref [18]) as being encapsulated whereas the earlier validation stated that this asbestos in this area (refer **Figure 8**) had been removed. The asbestos register (Ref [19]) indicates that there is no asbestos in the Heritage Building which may be taken as supportive evidence that there is only one area of encapsulated asbestos on the site.

The historical data was obtained from aerial images maintained by the NSW Government and *GoogleEarth,* therefore it was subjected by image resolution issues and only provides information for the time of the image.

RCA has evaluated the available data and information based on professional judgement and considers that it is sufficient to provide a general understanding of the site use.

4 PRELIMINARY CONCEPTUAL SITE MODEL

Based on the reviewed historical information, the site was first developed for the Bathurst Hospital and has been used for that purpose since 1880s. The extent of development has altered since initial development, starting in the western portion of the site and extending to the eastern portion with some buildings constructed and subsequently demolished to enable construction in the site's current form. Two (2) previous contamination assessments have not identified contamination in the excess of what was considered to be relevant human health and ecological criteria however there doesn't appear to have been adjustment of the guidelines for the use of composite samples such that the conclusion may not be appropriate for at least one of the reports. As RCA does not have any details regarding the location and compositing of the samples, RCA are unable to undertake to make further assessment. The presence of ash and other building waste material is considered to represent the potential for contamination, and the presence of asbestos is considered to represent contamination in the encapsulated area of the fill embankment near the Doctor's Residence. There is a further potential for friable asbestos to be present in the area of a carpark known as the eastern front of house carpark based on the RAP Addendum (Ref [18]).

Based on RCA's understanding of the site, the potential contamination, exposure pathways, and receptors are considered as follows:

- Storage of petroleum in underground facilities:
    - The fate of the UPST however based on its inferred location from historical maps under a portion of the main hospital building, it is presumed to have been decommissioned by filling with concrete (or similar) or been removed.

  - The storage, and dispensing of fuel, may have resulted in surface and subsurface soil contamination and may have caused groundwater contamination directly or due to infiltration.
  - The risks associated with this material are considered to be inhalation, especially in the case of vapours beneath buildings, underground structures and service pits, as well as ingestion and dermal contact.
  - Off-site impacts are possible, depending on the extent of the contamination.
- Encapsulation of asbestos in a fill embankment to the east and south of the main hospital building as well as an area of asbestos, which hasn't been defined beyond being between the Main Hospital Building and the Heritage Building.
  - There are conflicting details regarding the location of the encapsulation however RCA considers that the survey data is the most reliable. There are conflicting details regarding the friability of asbestos within the encapsulation area such that all material below the encapsulation area should be considered to be friable.

    The proposed structural development and the proposed landscaping area is overlaid onto the encapsulated asbestos area in **Drawing 3**, **Appendix A** along with the proposed extent of cutting earthworks.
  - Risks associated with asbestos contamination are considered to be inhalation directly or secondarily from adhered fibres on equipment and clothing following any disturbance of the encapsulation area.
  - Off-site impacts are not considered likely although in the absence of a known source of the material, it is possible that other sites used similar fill material.
- Historical filling of the site:
  - Filling has been undertaken across the site and has comprised industrial and building waste in some locations. Asbestos has been identified and concentrations of low levels of lead were also identified.
  - Risks associated with this material are considered to be direct exposure by ingestion or dermal contact. The presence of asbestos may give rise to an inhalation risk depending on whether there are loose fibres associated with the materials or whether these will be generated by disturbance.
  - Off-site impacts are considered to be related only to the potential for groundwater contamination although it is possible that similar fill has been used on adjacent sites.
- Use of hazardous building materials at the site such as asbestos, lead based paint, synthetic mineral fibres (SMF) and PCB containing capacitors:

- There were a number of buildings constructed in the 1960a to 1980s which are likely to have included asbestos in at least the 'wet' areas of the site and may have had lead-based paint. The 2012 asbestos register (Ref [19]) documented all materials which could be identified however notes the potential for additional asbestos to be present in buildings, with the exception of the Main Hospital Building and Daffodil Cottage for which asbestos was not used in their construction. The only area with actionable management measures was the sub-floor of Poole House in which lagging was observed in poor condition; this material is not considered to have potential to impact in the proposed areas of redevelopment. The potential for SMF and PCB containing capacitors is unknown.
- Lead based paint may have resulted in the contamination of soil in the vicinity of the structure and / or during demolition if not appropriately managed.
- Asbestos, depending on the condition and location within the building as well as demolition practices, may have resulted in surface soil contamination. Subsurface contamination may be present if excess building materials were inappropriately disposed of at site at time of construction or demolition.
- Synthetic mineral fibres, utilised within insulation, and PCB containing light capacitors would be unlikely to cause contamination unless disposed of at the site as part of demolition.
- The risks associated with this lead and asbestos contamination are considered as inhalation directly or secondarily from adhered fibres on equipment and clothing. There are additional risks associated with dermal contact and ingestion of lead contaminated soil. It is noted that the footprint of the former buildings is now taken up by the Main Hospital Building.
- Off-site impacts are not considered likely.

5 SAMPLING AND ANALYTICAL QUALITY PLAN

No formal sampling and analytical quality plan (SAQP) was developed for the project, however **Table 8** provides details and rationale regarding the scope of works undertaken.

Table 8 *Data Quality Objectives of the Site Investigation*

Data Quality Objective	Description
Step 1- State the Problem	Development in three (3) areas of the site is proposed and the potential for contamination was unknown. Previous investigations have identified the presence of industrial fill and building waste, including asbestos at one location, however there is no detail regarding the specific locations of samples such that the relevancy to the proposed structural development areas is unknown. A UPST was, and may still be, situated on the site and while it is beneath a building, there hasn't been any testing undertaken in its vicinity as best can be ascertained by the information provided. Characterisation of the potential contamination at the site is required to enable consideration of potential constraints to the proposed structural development of the site.
Step 2- Identify the Goal and Decisions	The goal of the assessment was to adequately characterise the areas of proposed structural development with regards to contamination such that any constraints could be identified. The specific decisions to be made to address the goal of the assessment are as follows: • Is there potential for contamination of the site from previous land use and/or adjoining uses? • Is there soil contamination in the areas of proposed structural development? • Does the contamination exceed guidelines for the proposed use?

Step 3- Identify the Inputs to the decisions	The specific types of information needed to resolve the decision statements in Step 2 are noted as follows:
	• Site history information including that from previous assessment reports.
	• Current site condition observed during site inspection.
	• Soil sampling results.
	• Guidelines for assessing risk to human health and the environment from contaminated soil and/or water.
	  • Best practise in alignment with SEPP55 (Ref [8]) prescribes assessment on the basis of the most sensitive allowable site use. RCA considers the human health criteria as defined (Ref [3] and Ref [9]) for commercial land use to be appropriate. It is noted that this is a less sensitive land use than considered appropriate by the previous assessments (refer **Section 3.4**) however the site has been significantly developed since 2005 and 2006 such that there is less accessible soil and the proposed structural developments will further reduce the accessible soil.
	  • RCA considers the ecological criteria as defined (Ref [3]) for commercial / industrial land use is the most appropriate soil criteria.
	Full details of the relevant guidelines are included in **Appendix D**.

<table>
<tr><th>Data Quality Objective</th><th colspan="4">Description</th></tr>
<tr><td>Step 4- Define the Boundaries of the investigation</td><td colspan="4">The horizontal extent of the assessment has been defined by the proposed structural development areas, as inferred in the field by site drawings and existing infrastructure.
The vertical extent was based on consideration of the conceptual site model and was to be 2m below the ground surface based on presumed maximum depth of excavation, noting that the concurrent geotechnical assessment required deeper investigations. Groundwater wasn't intended to be assessed based on the presumed absence of potential contamination and the absence of use of groundwater as part of the proposed structural development however was subject to observations and findings of the soil investigation.
Practical constraints that could have interfered with sampling comprised underground services.
No specific temporal constraints were identified however design elements are contingent on the findings of this assessment.
No specific financial constrains were identified, noting that any variations to costs identified to client were to be confirmed with client prior to their occurrence.</td></tr>
<tr><td rowspan="4">Step 5- Develop the Decision Rules</td><td>Accuracy</td><td>Internal – surrogates, laboratory control samples, matrix spikes, method blanks.
External – interlaboratory duplicates, trip spikes, trip blanks.</td><td colspan="2">Surrogate, LCS, spike recovery data to be 70-130%.
Blanks results to be <PQL (practical quantification limit).
Relative percentage difference (RPD) of duplicates to be:
• <60% for sample results >10xPQL.
• <85 for sample results >5 to ≤10xPQL.
• <100 for sample results >2 to ≤5xPQL.
Absolute difference to be <2.5xPQL for sample results ≤2xPQL.</td></tr>
<tr><td>Precision</td><td>Internal – laboratory duplicates.
External – intralaboratory duplicates.</td><td colspan="2">RPD of duplicates to be:
• <50% for sample results >10xPQL.
• <75 for sample results >5 to ≤10xPQL.
• <100 for sample results >2 to ≤5xPQL.
Absolute difference to be <2.5xPQL for sample results ≤2xPQL.</td></tr>
<tr><td>Completeness</td><td colspan="2">The percentage of completed data points, taking in account consideration of other DQI.</td><td>95%</td></tr>
<tr><td>Representativeness</td><td colspan="3">Whether there has been sufficient sampling by appropriate methodology with relevant analysis to determine that the assessment is representative of the site conditions.</td></tr>
</table>

Data Quality Objective	Description	
Step 5- ctd	Comparability	• All samples collected during this sampling programme will be obtained by adequately trained RCA personnel using consistent sampling methodologies throughout the project. • All samples must be received by the laboratory cool and appropriately preserved for the requested analysis with sufficient time within the specified holding time. • All laboratory analyses will be conducted by NATA accredited methodologies that comply with the international standard methods. • Comparable analytes should show some concurrence between analytical results and to identified field observations.
Step 6- Acceptable Limits on Decision Rules	The following provides the basis of the data's useability assessment which is not in accordance with the DQI: • The result's closeness to the guideline concentrations. • Specific contaminant of concern (carcinogen, bioaccumulation potential, available exposure pathways). • The area of sample location(s) in question including the potential lateral and vertical extent of questionable information. • Whether the uncertainty can be effectively managed by site management controls.	

The scope of work in **Section 6** below is considered to comprise Step 7 of the DQO.

6 FIELDWORK

RCA undertook a site inspection on 23 March 2023, and further as part of fieldwork in June 2023; observations are presented in **Table 9**.

Table 9 *General Site Conditions and Observations*

Topography	The site is located on the lower slopes of a north-east facing hill with overall slopes of about 5-10°. The site levels have been significantly modified by cut and fill earthworks, primarily cut to the south-west of the Main Hospital Building lower storey/car parking/loading dock areas and fill over the north-east of the site.
Site condition	The site contains the hospital buildings, asphalt driveways and car parking, concrete loading dock and ambulance bay hardstands and landscaped areas.
Condition of building and roads	The site is an operational hospital and all buildings and roads were in appropriate condition.
Visual signs of contamination	Nil observed.
Signs of erosion	Nil observed.
Presence of drums or waste	Nil observed.

Identification of potential asbestos bearing materials	Nil observed, noting that RCA did not undertake a hazardous materials audit of the structures.
Visible signs of plant stress	Nil observed.
Odours noticeable on site	Nil observed.
Evidence of current or former petroleum facilities	Nil observed.
Chemicals stored on site	While RCA considers that significant quantities of chemicals are stored at the site, none were observed as part of RCA's works, noting that much of the site was not observed by RCA.
Evidence of waste burial: (anecdotal or otherwise)	Nil observed.

The locations of photographs taken during the site inspection are shown on **Drawing 1**, **Appendix A** and attached in **Appendix E**.

A geotechnical engineer undertook the fieldwork between the 5th and 9th June 2023. The scope of work included:

- Drilling at nine (9) locations with a further hand auger and three (3) test pits to provide coverage of the remainder of the site and to provide geotechnical information. It is noted that the locations had been approved by TWA prior to works being undertaken.
- The collection of soil samples from all locations. Samples were generally collected at the surface / immediately below the concrete bedding sands, and at 0.5m, 1.0m and 2m below the surface. Additional samples were collected from deep fill to a maximum depth of approximately 5.8m. No further samples were considered necessary based on field observations.
    - Samples were collected from the auger or by hand at the surface and with the use of the standard penetration test (SPT) tube at depth.
    - All samples were screened with a photoionisation detector (PID) for the presence of volatile hydrocarbons.
    - All samples were stored on ice in an insulated container until submitted to the analytical laboratory.
- Logging of boreholes including description of samples for texture, colour, odour, moisture content. Logs of the augered portions of the boreholes are attached in **Appendix F**: refer to the concurrent geotechnical report for cored logs.
- Re-instatement of all excavations.

Fill was identified to a maximum of 7.5m below the surface at BH6 and comprised predominantly a silty sand with gravel and clay also present. Brick fragments were identified at BH3.

No indications of contamination, beyond the bricks at BH3, were observed during the fieldwork.

No indications of the encapsulation layer were identified during the drilling of BH6, noting that RCA were not aware of its presence until after the completion of the fieldwork, and none were sighted in the collected samples. It is possible that the SPT tube, which is advanced into the ground by a 63.5kg hammer attachment to the drill rig, cut through the bitumen geofabric without obvious disruption however the photographs of the material, as presented in **Figure 12** below, suggest a relatively uniform layer of material of between 0.95m and 1.5m below the surface which may constitute the soil overlying the encapsulation layer.

Groundwater was not encountered during drilling; coring was undertaken at some locations however the use of water as part of the process did not allow the identification of the presence of groundwater.

Figure 12 *BH6 Materials*

7 QUALITY ASSURANCE/QUALITY CONTROL

RCA have assessed the data in accordance with the DQI as specified in **Section 5** in **Appendix G** as follows:

- Accuracy
  - The accuracy of the data has been assessed by internal means (surrogates, laboratory control samples, matrix spikes and method blanks) as being acceptable. All results were within the acceptance criteria.
  - The accuracy of the data has been assessed by external means (interlaboratory duplicate, trip spike and trip blank) as being acceptable. Results were within the acceptance criteria or were not considered to represent significant uncertainty in the results.
- Precision
  - The precision of the data has been assessed by internal means (duplicates) as being acceptable. Results were within the acceptance criteria or not considered to represent significant uncertainty in the results with the exception of one (1) result for which data substitution has been undertaken to ensure conservative consideration of contamination status.
  - The precision of the data has been assessed by external means (intralaboratory duplicates) as being acceptable. Results were within the acceptance criteria or were not considered to represent significant uncertainty in the results with the exception of one (1) result for which data substitution has been undertaken to ensure conservative consideration of contamination status.
- Completeness
  - All data that was sought during the investigation was able to be retrieved. Chain of custody were completed for all samples. As such, completeness is considered acceptable.
- Representativeness
  - This assessment has considered soil contaminant concentrations on-site. The method of sampling was appropriate for the sampling of volatile compounds within soil. As such the soil data is considered representative of the concentrations at the site.
- Comparability
  - Works were undertaken by personnel familiar in the sampling of potentially contaminated soil.
  - All samples were appropriately preserved for the requested analysis and all soil samples were kept on ice or in the refrigerator between sampling and analysis.
  - All laboratory analyses have been conducted by NATA accredited methodologies that comply with the international standard methods.

  As such it is considered that the comparability of the data is appropriate.

It is therefore considered that the data obtained from this testing is accurate and reliable in as far as it can be ascertained and found it to be acceptable for the purpose of site assessment.

8 RESULTS

All soil results are compared to the relevant criteria for assessment of suitability of use in **Appendix H**. The following section presents a summary.

- BTEXN concentrations were not detected and below the relevant criteria (Ref [3] and [9]).
- TRH concentrations were not detected in the majority of samples and low concentrations of semi-volatile compounds were detected in three (3) samples; all concentrations were below the relevant criteria (Ref [3] and [9]).
    - It is noted that analysis for volatile TRH (C_6-C_{10}) was not undertaken as part of the analysis and therefore no consideration of the F1 concentrations can be made.
- PAH concentrations were not detected in all but four (4) samples; all results are below the criteria (Ref [3]) except for:
    - The benzo(a)pyrene concentrations in three (3) samples in excess of the ecological criterion (Ref [3]).
- Metals concentrations were either not detected or detected at levels below the relevant criteria (Ref [3]).
- Pesticides were not detected in any of the five (5) analysed samples and are considered below the relevant criteria (Ref [3]).
- Herbicides were not detected in any of the five (5) analysed samples and are considered below the relevant criteria (Ref [3]).

RCA compared the results to the ENM criteria (Ref [4]) to facilitate consideration of the potential re-use of soil excavated as part of the development and the NSW EPA guidelines (Ref [5]) for removal to a licensed waste facility. With the exception of the three (3) detected concentrations of benzo(a)pyrene which are in excess of the absolute maximum criterion, all results are consistent with ENM classification. It is noted that no testing for foreign materials or asbestos was undertaken such as is necessary for formal classification as ENM. Similarly, all samples with the exception of those in which PAH was detected are classified as general solid waste under Tier 1 criteria. Samples BH6c and BH7a are currently classified as restricted solid waste whereas sample BH7b is classified as hazardous waste; all samples indicate the potential to be reclassified as general solid waste if leachate results of benzo(a)pyrene are less than the Tier 2 criterion (Ref [5]).

9 SITE CONTAMINATION CHARACTERISATION

The site has been used as the Bathurst Hospital since the late 1880s with various stages of construction and demolition undertaken to the point of the current layout. Former buildings included a Boiler House with a former UPST in proximity, both of which Are inferred to potentially be under the footprint of the current Main Hospital Building. Previous assessments undertaken in 2004/2005 did not identify any contamination which represents a risk to the use of the site with the exception of asbestos, some of which was removed and some of which has been sequestered beneath a bitumen geofabric layer and soil, and is now partially situated beneath a carparking area and partially within a landscaped embankment. There is some uncertainty regarding another area of asbestos, identified as friable however mapped away from the surveyed area and stated as being subject to removal however without a corresponding validation report which confirms its status. Based on the identified presence of ash and building waste in multiple areas of the site it is considered that there is potential for further contamination in areas of fill. There are no activities in the area which are considered to pose a risk of contamination at the site.

Forty-four (44) soil samples were collected from twelve (12) locations to characterise the potential of contamination in the two (2) areas of proposed structural development. This number is significantly less than the fifty (50) locations recommended by the NSW EPA guidelines (Ref [2]) for a site of 4.1ha however only slightly less than the recommended seventeen (17) concentrations for an area of development of 0.7ha. The number of samples is considered appropriate given the preliminary nature of the assessment and the coverage of most of the intended development areas by an operational hospital building.

There was no intrusive works of the landscaping or carpark reconfiguration areas included in the scope of work. The area for which there is an unverified reference to the presence of asbestos is situated in the area of proposed landscaping and the former furnace location is within the area of the carparking reconfiguration.

No contamination in excess of human health criteria (Ref [3] and [9]) was identified by this investigation in regards to commercial / industrial land use which is consider appropriate based on the large extent of paving at the site. One of the sampling locations was within the surveyed extent of the encapsulated asbestos however no indications of the bitumen infused geofabric layer was identified; in the absence of any reason for uncertainty in the survey data it is considered that the layer was penetrated without obvious indications rather than it not being present, however the possibility that bitumen geofabric layer has degraded significantly cannot be discounted. No testing of the soils for asbestos was undertaken as RCA was not aware of the encapsulation at the time of fieldwork and there were no identifiable indications of anthropogenic waste.

Concentrations of PAH in excess of the ecological criteria (Ref [3]) are present in two (2) locations within fill; no indications of hydrocarbons or ash were identified in any of the samples, and none of the elevated samples are in the vicinity of BH3 in which brick fragments were encountered. BH6 is in close proximity to the former Boiler House footprint however the identified hydrocarbons are not considered consistent with that expected from bulk storage of petrol such that the UPST is not considered the likely source and the identified concentrations may be related to the use of a bitumen infused geofabric, although the depth of the sample is significantly beyond what may be expected for the geofabric's placement given the limited detail provided in the validation report (Ref [17]). There has never been infrastructure in the area of BH7 as far as has been ascertained. As such that the source of the PAH concentrations is considered likely to be the fill at these locations however not specifically associated with any visually identifiable material. Due to the uncertainty in the source the potential for higher concentrations cannot be discounted.

The lateral extent of the PAH impacted material has not been defined other than by the absence of concentrations except at very low concentrations in the fill material at BH8. Based on the data set from this assessment it is considered that the area of potential PAH impact is likely limited to the vicinity of the former Boiler House, however the potential for contamination in fill at other areas of the site cannot be discounted.

The vertical extent of the PAH impacted material has been defined at both BH6 and BH7 by overlying and / or underlying samples at those locations. Given however that there are multiple samples within the same fill layer at BH6 and BH7 (as well as BH8) which exhibit varying concentrations of PAH it is considered that the distribution of contamination in the fill material at the site is random depending on the specific makeup of the fill layer.

As the PAH concentrations are below the human health criteria (Ref [3]), it is not considered that there is any potential risk to human health in the site's current condition. Construction works, by which PAH impacted material is disturbed will give risk to risks associated with inhalation of dust, ingestion of and dermal contact with dust and soil however it is expected that these risks can be adequately managed with industry best practice occupational hygiene and dust minimisation.

The locations of BH6 and BH7 are within a paved carpark area however, BH7 especially is in close proximity to grassed / landscaped areas. The depth of the PAH impacted material at BH6 is considered to beyond that which may pose a risk to the environment, except potentially deep-rooted trees, however the PAH impacted material is situated at shallow depths at BH7. Potential exposure is considered limited to the direct take-up of contamination by plants; vertical migration to groundwater is not considered likely based on the vertical distribution and lateral migration via transport of soil particles is not considered likely with the current surfacing. Excavation of PAH impacted materials will increase the potential for contamination of surface waters however it is expected that these risks can be managed with industry best practice water and erosion controls.

RCA therefore considers that the site is suitable for the proposed development for use without further assessment or remediation, noting that long-term management of the encapsulated asbestos is considered to be required to ensure that any future workers undertaking intrusive works are informed of the risks prior to commencement of works.

Based on the earthworks plan provided to RCA, there will be a surplus of approximately 2,400m^3 / 3,800tonne which will require removal from site. The scope of completed testing is insufficient to provide formal classification and as such any material being removed from site will require assessment during construction in accordance with either the ENM Order (Ref [4]) or the NSW EPA guidelines for sampling (Ref [2]) and disposal to licensed landfill (Ref [5]). RCA recommends that fill and natural materials are classified separately to maximise the beneficial re-use of excavated material.

All material removed from site must be tracked to demonstrate that it has been suitably managed, transported and placed in accordance with the requirements of the NSW waste legislation. Documents to be maintained comprise:

- Load sheets – truck registration being loaded, time loaded, approximate quantity, description of material being loaded, details of person doing the recording.
- Receival sheets – truck registration received, time received, approximate quantity, description of material being received, details of person doing the recording.
    - Dockets from the waste facility will be appropriate.
- Truck dockets as maintained by the driver transporting the loads.

These records should be kept in readiness for provision to a regulatory authority upon request.

It is recommended that that the asbestos register be updated, if it hasn't already, in accordance with the requirements of SafeWork NSW. Depending on observations and extent of works during the construction at the site, the register may need to be updated prior to the end of the legislated period to reflect confirmed asbestos and / or removal of asbestos.

9.1 MITIGATION MEASURES

Management controls will be required during the construction to mitigate the risks to workers, Hospital employees and patrons, and the environment during excavations and to ensure soil is removed to an appropriate waste facility. Specifically, controls will be required in regards to:

- The presence of asbestos within the encapsulation area which will be disturbed by the footings for Level 01.
- The potential for asbestos in between the Main Hospital Building and the Early Hospital Building, which may be disturbed by earthworks.
- Ash within the fill embankment, within the northern area of carparking configuration and other areas will need specific consideration regarding earthworks methodology and final fate of excavated material.

WHS documents for the construction work are to include the potential for building waste including asbestos to be encountered, and an unexpected finds protocol which stops works when building waste, suspected asbestos material, and visually or olfactorily impacted material is encountered until appropriate controls are implemented.

10 CONCLUSIONS

This report has presented the findings of a detailed site (contamination) assessment undertaken within the grounds of the Bathurst Hospital, situated within a block of land between Howick, Mitre, Durham and Commonwealth Streets at West Bathurst, NSW.

The site was developed for use as a hospital in the late 1880s and has been used for that purpose since. The original building remains as do a number of buildings constructed since the 1930s however there have been numerous buildings constructed between the 1940s and 1980s which were demolished as part of substantial redevelopment to the current format in the late 2000s. Previous investigations undertaken in the mid 2000s included sampling and analysis for contaminants such as hydrocarbons, metals and pesticides. None were identified in excess of guidelines considered relevant for the proposed land use however asbestos was identified in a fill embankment adjacent the Doctor's Residence and the assessment, and later assessments in the late 2010s, identified the presence of ash and building waste within the fill.

The surrounding area has been predominantly used for residential purpose since the area was developed based on early town maps; aerial photographs confirm this from the 1960s. Areas to the east of the site have been agricultural and the Water Infiltration Plant is also situated to the east of the site. None are considered to have the potential to pose a risk of contamination at the site.

Potential contamination at the site was considered to be limited to the use of fill at the site and leaks / spills from an UPST which has been inferred from historical records and now is under part of the Main Hospital Building. The potential for hazardous materials such as asbestos and lead based paint from previously demolished buildings was initially not considered to be relevant to the areas of development as the former buildings were in the footprint of the Main Hospital Building and its associated carparking. Further information provided after fieldwork was undertaken identified that approximately 7,000tonne of asbestos impacted soil was removed from the site as part of the construction of the Main Hospital Building however an area of asbestos was encapsulated in the eastern portion of the site. There is a further record of another area of remaining asbestos between the Main Hospital Building and the Heritage Building, however this is considered unverified based on the absence of specificity in the location, the confliction with the validation report (Ref [17]) regarding the removal of asbestos, and the absence in a 2012 asbestos audit (Ref [19]) of the site. Both of these areas are subject to disturbance as part of the proposed development.

Contamination which is considered to pose a constraint to the proposed (and current) use of the site was not identified in the samples collected as part of the works, noting that no asbestos analysis was undertaken on soil samples collected from the one location (BH6) that was identified to have encapsulated asbestos, and no indications of asbestos were observed at the time of sample collection. Low concentrations of PAH were identified at two (2) locations with the fill material which are in excess of ecological criteria (Ref [3]) only and are not considered to be a constraint to the development of the site. The source of the PAH is unknown and presumed to be components of the fill present at varying levels in the general vicinity of the former Boiler House however potentially present elsewhere on the site.

RCA therefore considers that the site is suitable for the proposed development for use without further assessment or remediation.

Mitigation measures which are required are presented in **Table 10** below.

Table 10 *Mitigation Measures*

Project Stage	Mitigation Measure	Relevant Section of the Report
Construction	Contractor to prepare specific WHS documentation for the project.	Section 9
Construction	Induction for all construction workers to include: • Location of known encapsulated asbestos. • That there is potential contamination associated with building waste and ash. • That there is potential unidentified asbestos. • That the implementation of management measures are required to reduce risk.	Section 9
Construction	Measures to reduce potential exposure are to be implemented as is appropriate for the area and extent of works and the activities being undertaken. These may include dampening of soil, long sleeve and long pants, use of additional PPE such as masks, washing of hands and face before eating and drinking.	Section 9
Construction	All excavated soil to be assessed in accordance with the relevant guidelines prior to being re-used on site or off-site, or being removed to a licensed waste facility. All documentation regarding the classification, transport and final placement of the material is to be retained.	Section 9
Operation	Management Plan which identifies the location of any remaining contamination and requires the preparation of specific WHS documentation prior to any works that will disturb it.	Section 9

The reviewed asbestos register (Ref [19]) is considered to be out of date and needs to be updated in line with SafeWork NSW's requirements. This should be undertaken as soon as practicable with another update undertaken if the construction works as part of the proposed development remove existing asbestos or encounter unidentified asbestos materials.

11 LIMITATIONS

This report has been prepared for Health Infrastructure in accordance with an agreement with RCA Australia (RCA) dated 14th March 2023. The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Health Infrastructure. The report may not contain sufficient information for purposes of other uses or for parties other than Health Infrastructure. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

RCA AUSTRALIA

Fiona Brooker
Manager of Environmental Services
BEng(Env)

REFERENCES

[1] Ethos Urban, *Environmental Impact Statement, Bathurst Hospital Redevelopment*, pending 2024.

[2] NSW EPA, *Contaminated Land Guidelines: Sampling Design Part 1 – Application*, August 2022.

[3] NSW EPA, *Guidelines for Consultants Reporting on Contaminated Sites,* April 2020.

[4] NSW EPA, *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, October 2017.

[5] *State Environmental Planning Policy (Resilience and Hazards) 2021*, current version 21 November 2022.

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[8] Standards Australia, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, AS 4482.1-2005.

[9] NSW Government's Architect's Office, *Conservation Management Plan – Bathurst Hospital*, *Final*, June 2005.

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[11] Earth Air Water Consulting and Monitoring Pty Ltd, *Preliminary Environmental Investigation, Bathurst Base Hospital – NSW 2795*, Ref: J/No 426, February 2004.

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[14] Earth Air Water Consulting and Monitoring Pty Limited, *Remedial Action Plan – Bathurst Base Hospital Development Area, Bathurst NSW 2795*, Ref: 801, 31 May 2006.

[15] Earth Air Water Consulting and Monitoring Pty Limited, *"Stage 4" Validation and Monitoring Report – Bathurst Base Hospital Development Area, Bathurst NSW 2795*, Ref: 801RAP Add.1, 3 September 2007.

[16] Earth Air Water Consulting and Monitoring Pty Limited, *Addendum 1 for Remedial Action Plan – Bathurst Base Hospital Development Area, Bathurst NSW 2795*, Ref: 801, 31 May 2006

[17] B. Finlay of Western NSW Local Health District, *Asbestos Register, Bathurst Health Service*, 9 May 2012.

[18] Macquarie Geotech, *Geotechnical Investigation Report, Bathurst Base Hospital – Pavement Investigation*, Job No.: B17406, 22 September 2017.

[19] Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014, The excavated natural material order 2014.

[20] NSW EPA, Waste Classification Guidelines, Part 1; Classifying Waste, November 2014.

GLOSSARY

ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure.
EIL	Ecological investigation level. Relates to soil concentrations which may pose a risk to ecological health.
ESL	Ecological screening level. Relates to vapour risk from petroleum hydrocarbons which may pose a risk to ecological health.
HIL	Health investigation level. Relates to soil concentrations which may pose a risk to human health in soil.
HSL	Health screening level. Relates to the vapour risk from petroleum hydrocarbons which may pose a risk to human health in soil.
In-Situ	In place, without excavation.
Intralaboratory	A sample split into two and sent blind to the sample laboratory for comparative analysis.
ISL	Investigation screening levels for soil. Comprised of HIL/EIL and HSL/ESL
kg	kilogram, 1000 gram.
LEP	Local environment plan. A planning tool for the Local Government.
NEPC	National Environment Protection Council.
NSW EPA	NSW Environment Protection Authority – made a separate entity in 2011 to regulates the contaminated land industry.
PID	Photoionisation detector. Measures volatile gases in air or emanating from soil or water.
PQL	Practical Quantitation Limit.
QA	Quality Assurance.
QC	Quality Control.
RPD	Relative Percentage Difference.
SPT	Standard Penetration Test.
UPSS	Underground petroleum storage system.
UPST	Underground petroleum storage tank.
VENM	Virgin excavated natural material.

Chemical Compounds

BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene. Straight chain hydrocarbons which are volatile. Occur naturally in crude oil, gas emissions from volcanoes and forest fires. Present in emissions from motor vehicles and aircrafts, cigarette smoke, processing of petroleum products, and during the production of COD Chemical oxygen demand, the amount of oxygen (in mg/L) to oxidise both organic and oxidisable inorganic compounds.
PAH	Polycyclic aromatic hydrocarbons. Multi-ring compounds, persistent and carcinogenic found in fuels, oils and creosote. These are also common combustion products.
TRH / TPH	Total recoverable / petroleum hydrocarbons. Mixture of (typically) straight chain chemicals mainly comprising hydrocarbon and carbons found in compounds sourced from crude oil. Fractions are based on behaviour in soil / water and contain many individual chemicals.

Appendix A

Drawings

Notes:
1. Aerial image taken from Nearmap, 6 December 2023 (used in accordance with commercial licence)
2. Drawing adapted from plans supplied by TSA Management Drawn by Billard Leece Partnership Pty Ltd, Drawing BHR-BLP-DRW-ARC-SSD-003-XX002_DWG[C] - SITE CONTEXT PLAN -PROPOSED STAGE 2

LEGEND

- Approximate site boundary
- Approximate area of consideration for development
- Approximate area of eastern Front of House carpark
- Approximate photograph location and direction

0 12.5 25 50 75 100
metres

N

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

SITE LAYOUT, LOCALITY AND PROPOSED DEVELOPMENT PLAN PRELIMINARY SITE (CONTAMINATION) ASSESSMENT BATHURST HOSPITAL HOWICK STREET, WEST BATHURST

CLIENT	Health Infrastructure			RCA Ref	16547-201/4
DRAWN BY	RC/FB	SCALE	1:1,500 (A3)	DRAWING No 1	REV 4
APPROVED BY	FB	DATE	24/01/2025	OFFICE	NEWCASTLE

LEGEND

- Approximate site boundary
- Surveyed extent of asbestos encapsulation
- Possible area of unverified asbestos presence
- Approximate borehole location (Macquarie Geotech Report 2017)

0 12.5 25 50 75 100
metres

N

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

FORMER INFRASTRUCTURE OF INTEREST AND POTENTIAL CONTAMINATION PRELIMINARY SITE (CONTAMINATION) ASSESSMENT BATHURST HOSPITAL HOWICK STREET, WEST BATHURST

CLIENT	Health Infrastructure			RCA Ref	16547-201/4
DRAWN BY	RC/FB	SCALE	1:1,500 (A3)	DRAWING No 2	REV 1
APPROVED BY	FB	DATE	24/01/2025	OFFICE	NEWCASTLE

Commonwealth Street
Durham Street
Howick Street
Mitre Street
BH1
BH2
BH3
BH4
BH5
BH6
BH7
BH8
BH9
BH10
TP1
TP2

Notes:
1. Aerial image taken from Nearmap, 6 December 2023 (used in accordance with commercial licence)
2. Drawing adapted from plans supplied by TSA Management Drawn by Billard Leece Partnership Pty Ltd, Drawing BHR-BLP-DRW-ARC-SSD-003-XX002_DWG[C] - SITE CONTEXT PLAN -PROPOSED STAGE 2
3. Cut locations taken from drawing BHR-TTW-DRC-CIV-02-XX-011, 012, 013 & 014 (Earthworks Cut and Fill Volumes Plan)

LEGEND

- Approximate site boundary
- Proposed building footprint
- Surveyed extent of asbestos encapsulation
- Possible area of unverified asbestos presence
- Approximate area of cut
- Approximate test pit location
- Approximate borehole location
- Approximate hand auger location
- Approximate 300mm diameter pavement borehole location

0 12.5 25 50 75 100
metres

N

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

SAMPLING LOCATION PLAN
PRELIMINARY SITE (CONTAMINATION) ASSESSMENT
BATHURST HOSPITAL
HOWICK STREET, WEST BATHURST

CLIENT	Health Infrastructure			RCA Ref	16547-201/4
DRAWN BY	RC/FB	SCALE	1:1,500 (A3)	DRAWING No 3	REV 2
APPROVED BY	FB	DATE	24/01/2025	OFFICE	NEWCASTLE

Appendix B

Site History Documentation

BATHURST REGIONAL COUNCIL

PLANNING CERTIFICATE

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979

Certificate Issue Date: 6 February 2023

Applicant:
Planning Pty Ltd
33/129 Spit Road
Mosman NSW 2088

158 Russell Street
Private Mail Bag 17
BATHURST NSW 2795
Ph: 02 6333 6111
Fax: 02 6331 7211
council@bathurst.nsw.gov.au

Application No: 48872
Certificate No: 10.7/24734
Applicant Reference: Bathurst Hospital

Property: 363 Howick Street WEST BATHURST 2795
Description: Lot: 100 DP: 1126063
Parcel No: 41741

INFORMATION PROVIDED PURSUANT TO SECTION 10.7(2) OF THE ACT.

1. Names of relevant planning instruments and development control plans

The names of:

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

Bathurst Regional Local Environmental Plan 2014

A copy of the current *Bathurst Regional Local Environmental Plan 2014* is available on the NSW Legislation website – www.legislation.nsw.gov.au

The following State Environmental Planning Policies (SEPP) apply to the Bathurst Regional LGA:

SEPP (Biodiversity and Conservation) 2021

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Housing) 2021

SEPP (Industry and Employment) 2021

SEPP (Planning Systems) 2021

SEPP (Precincts – Regional) 2021

SEPP (Primary Production) 2021

SEPP (Resilience and Hazards) 2021

SEPP (Resources and Energy) 2021

SEPP (Transport and Infrastructure) 2021

SEPP No. 65 - Design Quality of Residential Flat Development

A full copy of the SEPPs are available on the NSW Legislation website – www.legislation.nsw.gov.au

(2) each development control plan that applies to the carrying out of development on the land:

Bathurst Regional Development Control Plan 2014

(3) each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land:

There are currently no draft Environmental Planning Instruments or draft Development Control Plans that apply to the land.

2. Zoning and land use under relevant planning instruments

The following matters for each environmental planning instrument or draft environmental planning instrument that includes the land in a zone, however described:

(a) the identity of the zone;

Zone SP2 Infrastructure

Objectives of zone

- **To provide for infrastructure and related uses.**
- **To prevent development that is not compatible with or that may detract from the provision of infrastructure.**

(b) the purposes for which development in the zone:

(i) may be carried out without development consent:

Environmental protection works; Extensive agriculture; Intensive plant agriculture; Roads

(ii) may not be carried out except with development consent:

Aquaculture; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

(iii) is prohibited:

Any development not specified in item (i) or (ii)

NOTE: On 26 April 2023, Business and Industrial zones will be replaced by Employment zones within standard instrument local environmental plans. The Department of Planning and Environment exhibited in May 2022 details of how each Local Environmental Plan that includes a Business or Industrial zone will be amended to include Employment zones. The exhibition detail can be viewed on the Planning Portal.

(c) whether additional permitted uses apply to the land:
No additional permitted uses apply to the land.

(d) whether development standards applying to the land fix minimum land dimensions for the erection of a dwelling house on the land and, if so, the fixed minimum land dimensions:
No.

(e) whether the land is in an area of outstanding biodiversity value under the Biodiversity Conservation Act 2016:
No.

(f) whether the land is in a conservation area (however described):
The land to which the certificate relates is in a conservation area.

(g) whether an item of environmental heritage (however described) is located on the land:
The land to which the certificate relates contains an item of environmental heritage.

3. Contributions plans

(1) The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contributions plans:

Bathurst Regional Community Facilities

(2) If the land is in a special contributions area under the Act, Division 7.1, the name of the area.
The subject land is not within a special contributions area.

4. Complying development

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

No. The property is excluded from Complying Development persuant to Clauses 1.17A (1)(c) to (e),(2),(3) and (4), 1.18(1)(C3) and 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) If complying development may not be carried out on the land because of 1 of those clauses, the reasons why it may not be carried out under the clause:

The whole of the land contains a Heritage Item or draft Heritage Item.

The land is within a Conservation Area or draft Conservation Area. Development for a detached outbuilding or swimming pool may be carried out.

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

(4) If the complying development codes are varied, under that Policy, clause 1.12, in relation to the land.
There are no code variations for the Bathurst Regional local government area.

5. Exempt development

(1) If the land is land on which exempt development may be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that Policy, clause 1.16(1)(b1)–(d) or 1.16A:
No. The land is excluded from exempt development pursuant to Clauses 1.16(1)(b1)-(d) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) If exempt development may not be carried out on the land because of 1 of those clauses, the reasons why it may not be carried out under the clause:
The whole of the land contains a Heritage Item listed on the State Heritage Register.

(3) If the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land, a statement that:
(a) a restriction applies to the land, but it may not apply to all of the land, and
(b) the council does not have sufficient information to ascertain the extent to which exempt development may or may not be carried out on the land.
Not applicable, see above.

(4) If the exempt development codes are varied, under that Policy, clause 1.12, in relation to the land:
There are no code variations for the Bathurst Regional local government area.

6. Affected building notices and building product rectification order

(1) Whether the council is aware that:

(a) an affected building notice is in force in relation to the land; or
(b) a building product rectification order is in force in relation to the land that has not been fully complied with; or
(c) a notice of intention to make a building product rectification order given in relation to the land is outstanding.

(2) In this section:

affected building notice has the same meaning as in the *Building Products (Safety) Act 2017*, Part 4.

building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017*.

Council is not aware of any affected building notice or building product rectification order that applies to the subject land.

7. Land reserved for acquisition

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

No, the land is not subject to land acquisition.

8. Road widening and road realignment

Whether the land is affected by road widening or road realignment under:
(a) the *Roads Act 1993*, Part 3, Division 2, or
(b) an environmental planning instrument, or
(c) a resolution of the council.
The land to which the certificate relates is not affected by road widening or realignment.

9. Flood related development controls information

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

The land to which the certificate relates is not within the flood planning area identified under the Bathurst Regional Development Control Plan 2014 and therefore is not subject to flood related development controls.

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

No.

(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.

10. Council and other public authority policies on hazard risk restrictions

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

Contaminated Land Management Policy Information:
The land to which this certificate relates has been used for purposes that have the potential to contaminate land. Council records do not have sufficient information to determine whether the land is contaminated. Council's adopted Contaminated Land Policy restricts the development on the land by requiring that the land undergoes some level of assessment for land contamination, and/or remediation if required, where zoning changes are proposed or consent is required for the carrying out of any development. Council's adopted policy provides information on how these restrictions will be applied in accordance with provisions under relevant State legislation. It is recommended that persons relying on this certificate undertake their own assessment of the land's suitability for purposes that do not require development consent.

Other Policy Information:
No further lands located within 400 metres of the Bathurst Sewerage Treatment Works will be rezoned for residential or rural residential purposes.

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

11. Bush fire prone land

If any of the land is bush fire prone land, designated by the Commissioner of the NSW Rural Fire Service under the Act, section 10.3:
No, the land to which the certificate relates is not identified as bushfire prone.

12. Loose-fill asbestos insulation

If the land includes residential premises, within the meaning of the *Home Building Act 1989*, Part 8, Division 1A, that are listed on the Register kept under that Division:

No.

13. Mine subsidence

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

No.

14. Paper subdivision information

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

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

There are no paper subdivisions within the Bathurst Regional local government area.

15. Property vegetation plans

If the land is land in relation to which a property vegetation plan is approved and in force under the *Native Vegetation Act 2003*, Part 4, a statement to that effect, but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act:
Council is not aware of any property vegetation plans affecting the land to which the certificate relates.

16. Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the *Biodiversity Conservation Act 2016*, Part 5:

Note: Biodiversity stewardship agreements include biobanking agreements under the *Threatened Species Conservation Act 1995*, Part 7A that are taken to be biodiversity stewardship agreements under the *Biodiversity Conservation Act 2016*, Part 5.
Council is not aware of any biodiversity stewardship agreements affecting the land to which the certificate relates.

17. Biodiversity certified land

If the land is biodiversity certified land under the *Biodiversity Conservation Act 2016*, Part 8:

Note: Biodiversity certified land includes land certified under the *Threatened Species Conservation Act 1995*, Part 7AA that is taken to be certified under the *Biodiversity Conservation Act 2016*, Part 8.
No. The land is not identified as Biodiversity Certified Land.

18. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land:
No.

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

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

(2) In this section:

existing coastal protection works has the same meaning as in the *Local Government Act 1993*, section 553B.

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

Bathurst Regional Council is not a Coastal Council.

20. Western Sydney Aerotropolis

Whether under *State Environmental Planning Policy (Precincts—Western Parkland City) 2021*, Chapter 4 the land is:

(a) in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17, or
(b) shown on the Lighting Intensity and Wind Shear Map, or
(c) shown on the Obstacle Limitation Surface Map, or
(d) in the "public safety area" on the Public Safety Area Map, or
(e) in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

State Environmental Planning Policy (Precincts—Western Parkland City) 2021 does not apply to the Bathurst Regional LGA.

21. Development consent conditions for seniors housing

If *State Environmental Planning Policy (Housing) 2021*, Chapter 3, Part 5 applies to the land, any conditions of a development consent granted after 11 October 2007 in relation to the land that are of the kind set out in that Policy, section 88(2):
Not applicable.

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

(1) Whether there is a current site compatibility certificate under *State Environmental Planning Policy (Housing) 2021*, or a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land and, if there is a certificate:
(a) the period for which the certificate is current, and
(b) that a copy may be obtained from the Department.
Not applicable.

(2) If *State Environmental Planning Policy (Housing) 2021*, Chapter 2, Part 2, Division 1 or 5 applies to the land, any conditions of a development consent in relation to the land that are of a kind referred to in that Policy, section 21(1) or 40(1).
Not applicable.

(3) Any conditions of a development consent in relation to land that are of a kind referred to in *State Environmental Planning Policy (Affordable Rental Housing) 2009*, clause 17(1) or 38(1).
Not applicable.

(4) In this section:

former site compatibility certificate means a site compatibility certificate issued under *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

Note 1:

The following matters are prescribed by Section 59(2) of the *Contaminated Land Management Act 1997* as additional matters that are to be specified in a planning certificate:

(a) Is the land (or part of the land) to which the certificate relates **significantly contaminated land** within the meaning of the *Contaminated Land Management Act 1997*?

Council has not received notification that the land to which this certificate relates is significantly contaminated land under the Contaminated Land Management Act 1997.

(b) Is the land to which the certificate relates subject to a **management order** within the meaning of the *Contaminated Land Management Act 1997*?

Council has not received notification that the land to which this certificate relates is subject to a management order under the Contaminated Land Management Act 1997.

(c) Is the land to which the certificate relates the subject of an **approved voluntary management proposal** within the meaning of the *Contaminated Land Management Act 1997*?

Council has not received notification that the land to which this certificate relates is subject to an approved voluntary management proposal under the Contaminated Land Management Act 1997.

(d) Is the land to which the certificate relates the subject to an **ongoing maintenance order** within the meaning of the *Contaminated Land Management Act 1997*?

Council has not received notification that the land to which this certificate relates is subject to an ongoing maintenance order under the Contaminated Land Management Act 1997.

(e) Is the land to which the certificate relates the subject of a **site audit statement** within the meaning of the *Contaminated Land Management Act 1979*?

Council has not received a Site Audit Statement that relates to the land.

Note 2:

The following matters are prescribed by Section 10 of the *Water Supply (Critical Needs) Act 2019* as additional matters that are to be specified in a planning certificate:

(a) Is the land (or part of the land) to which the certificate relates land where any development to which the authorisation relates is to be carried out within the meaning of the *Water Supply (Critical Needs) Act 2019*?

No.

Note 3:

The following matters are prescribed by Section 202 of the *Local Government Act 1993* as additional matters that are to be specified in a planning certificate:

(a) is the land within a **special entertainment precinct** within the meaning of the *Local Government Act 1993*?

No.

D. Sherley
GENERAL MANAGER
Bathurst Regional Council

Per:

Daniel Dwyer
6-Feb-2023

ADDITIONAL INFORMATION PROVIDED PURSUANT TO SECTION 10.7(5) OF THE ACT.

101. Tree Preservation and Management Policy

Is an approval required to remove a tree or vegetation on the subject land?

Yes, refer to Council's Tree Preservation and Management Policy.

102. Heritage listings

Is the land to which the certificate relates subject to any additional heritage listings?

The property has been listed on the register of The State Heritage Register.

103. Contaminated Land Management Act matters

The following notations are required by Section 59(3) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

The land to which this certificate relates has not been controlled under the Contaminated Land Management Act 1997.

Other relevant matters affecting the land of which Council may be aware:

Council, at the date of this certificate, is not aware of any other relevant matters in relation to the land to which the certificate relates at this time.

Council is aware that the land has been used for the following potentially contaminating activities:

Council, as at the date of this certificate, has not identified any past land uses that have the potential to contaminate land.

104. Hawthornden Creek

The property is not within the Hawthornden Creek catchment.

105. Other matters affecting the land of which Council may be aware of

There are no other matters that Council is aware of relating to this property.

D. Sherley
GENERAL MANAGER
Bathurst Regional Council

Per:

Daniel Dwyer
6-Feb-2023

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POLICY:	TREE PRESERVATION AND MANAGEMENT
DATE ADOPTED:	Director Environmental Planning & Building Services Meeting Report #8.2.9 Council 17 November 2021 Resolution Number: ORD2021-399
ORIGINAL ADOPTION:	Director Environmental Planning & Building Services Meeting Report #1 Council 16 December 2013 Minute Book No. 11690-11691
FILE REFERENCE:	20.00143
OBJECTIVE:	To protect, preserve, manage and enhance the environmental amenity, special landscape characteristics and the ecological values of trees within Heritage Conservation areas of the Bathurst Regional Local Government Area (LGA).

1. OBJECTIVES OF THE POLICY

The objectives of this Policy are to:

- To define Council's responsibilities and requirements with respect to the protection, retention and enhancement of trees covered by this Policy.
- Protect trees within Heritage Conservation areas of the Bathurst Regional Local Government Area as identified in Schedule 5 of the Bathurst Regional Local Environmental Plan (LEP) 2014.
- Identify trees that may be pruned or removed without a Tree Permit.
- Protect and enhance native vegetation, habitat for native fauna and biodiversity within the Bathurst region.
- Conserve trees of ecological, heritage, aesthetic, cultural and local significance.
- Detail requirements for the submission of sufficient and relevant information by applicants, and rights of appeal against Council's decisions.

2. DEFINITIONS

The following definitions apply to the Tree Preservation and Management Policy:

Arboriculture means cultivating and managing trees as individuals and in small groups for amenity purposes.

Arborist means a qualified person who has attained a minimum of a Certificate (**Level 3**) of Arboriculture or equivalent qualification, based upon the Australian Qualification Framework, and is specifically employed to prune and remove trees.

Authorised Officer means a Council Officer responsible for assessing and administering Tree Preservation Permits, or the Manager Recreation.

Bushfire hazard reduction work has the same meaning as in the Rural Fires Act 1997.

Consulting Arborist means a qualified Arborist who has attained a Diploma (**Level 5**) of Arboriculture or equivalent qualification, based upon the Australian Qualification Framework.

Crown means that part of any single tree containing the branches, leaves, flowers and fruit that is the entire area of the foliage supported by the branches.

Dead tree means any tree that is no longer capable of performing any one of the following processes:

a) Photosynthesis;
b) Take up of water through the root system;
c) Hold moisture in its cells; or
d) Produce new shoots.

Destroy means any activity leading to the death, disfigurement or mutilation of a tree.

Dripline means a line formed around the outer perimeter of the crown.

Exempt tree means a tree (excluding a tree within the curtilage of a Heritage Item) which is any of the following:

a) The following table provides a list of trees which are exempt:

Exempt Tree List	
Botanical name	**Common name**
Eucalyptus nicholii	Narrow Leaved Black Peppermint
Acacia Spp	Wattles
xCupressocyparis leylandii	Leylandii Pines (all varieties)
Salix Spp	Willow
Ligustrum lucidum	Privet
Robinia pseudoacacia	Robinia
Gleditsia triacanthus	Locust
Populus Spp	Poplars

b) A noxious weed under the Noxious Weeds Act 1993.
c) A dead tree.

Habitat tree means any tree which is a nectar feeding tree, roost and nest tree or a hollow-bearing tree which is suitable for nesting birds, arboreal marsupials (possums), micro-bats or which support the growth of locally indigenous epiphytic plants such as orchids.

Height means the distance measured vertically between the horizontal plane of the lowest point of the base of the tree which is immediately above ground and the horizontal plane of the uppermost point of the tree.

Injury means damage to a tree and includes:

a) lopping and topping;
b) poisoning, including applying herbicides and other plant toxic chemicals to a tree or spilling of oil, petroleum, paint, cement, mortar etc. onto the root zone or parts of the tree;
c) cutting, tearing, breaking or snapping of branches and roots that is not carried out in accordance with accepted arboricultural practices or is done for invalid reasons, including vandalism;
d) ring-barking, scarring the bark when operating machinery, fixing objects by nails, staples or wire or fastening materials that circle and significantly restrict the normal vascular function of the trunks or branches;
e) damaging a tree's root zone by compaction or excavation, asphyxiation including unauthorised land filling or stockpiling of materials around the tree trunk;
f) underscrubbing, unless carried out by hand tools such as brushcutters and the like.

Noxious weed means a plant declared noxious under the Noxious Weeds Act 1993.

Prescribed tree means any woody plant which is:

a) greater than nine (9) metres in height; or

b) has a stem diameter of one (1) metre or more at a height of one (1) metre from the ground; or
c) has a branch spread of fifteen (15) metres or more; or
d) is not an exempt tree.

and to which clause 5.9 of the Bathurst Regional Local Environmental Plan 2014 applies.

Private land means any land in private ownership by individuals or companies but excludes land owned or in the care, control or management of Council, a Crown Authority, government department or statutory authority.

Pruning means the removal of any branch or root, dead or alive, from a tree which conforms to the pruning types defined within the Australian Standard AS4373 Pruning of Amenity Trees. The pruning types are: dead wooding, crown thinning, selective pruning, formative pruning, reduction pruning, crown lifting, remedial pruning and line clearance, but excludes lopping or topping.

Remnant tree or vegetation means a native tree or any stand of native vegetation which remains in the landscape after removal of the majority of the native vegetation in the locality.

Remove means to cut down, take away or transplant a tree from its place of origin.

Tree means a woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground.

3. APPROVALS

Section 13.2.3 of the Bathurst Regional Development Control Plan 2014 states that a person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree to which section 13.2 of the Bathurst Regional Development Control Plan 2014 applies, without development consent or a permit being granted by Council.

Any work where root severance or grade changes within the root zone of a prescribed tree is likely, then an application for a Tree Permit must also be submitted.

In accordance with section 13.2 of the Bathurst Regional Development Control Plan 2014, the Tree Preservation and Management Policy covers the following sites/locations:

a) all heritage items as listed under schedule 5 of the Bathurst Regional Local Environmental Plan 2014, and
b) all Heritage Conservation areas listed under Schedule 5 of the Bathurst Regional Local Environmental Plan 2014.

-

Outside the identified Heritage Conservation areas, a tree permit is not required to remove, lop or prune a tree.

Three processes have been established to deal with the assessment and determination of applications for the removal, lopping and pruning of trees:

a) Prescribed Tree Permit Application; or
b) Exempt Tree Notification Form; or
c) Development consent as part of a development application.

4. PRESCRIBED TREE PERMIT APPLICATION

A prescribed tree permit application **must** be lodged with Council to ringbark, cut down, top, lop, remove, injure or wilfully destroy any **prescribed tree** located in a heritage conservation area (not a listed Heritage Item).

A Prescribed Tree Permit Application Form, signed by the owner of the land where the tree is located

and any other relevant property owner(s), is to be lodged with Council prior to the removal of the prescribed tree.

Note 1: A copy of your drainage diagram may be obtained from Council and used as the site plan for your prescribed tree permit application.

Note 2: Where a property forms part of a Strata Plan under the Strata Schemes (Freehold Development) Act 1973,or the Strata Schemes (Leasehold Development) Act 1986, or a Community Title Scheme (under the Community Land Development Act 1989), the written consent of the Body Corporate and their common seal is required. This authorises the lodgement of the application for the specific type of works to be undertaken.

Note 3: Where a tree is growing on a common property boundary the ownership will need to be determined by the relevant parties, for example by survey.

Note 4: Removal of the tree is not permitted until a permit or Development Application has been issued by Council.

5. EXEMPT TREE NOTIFICATION FORM

An exempt tree notification form is to be lodged with Council to remove, lop, top or cut down an **exempt tree** that:

a) is greater than nine (9) metres in height; or
b) has a stem circumference of one (1) metre or more at a height of one (1) metre from the ground; or
c) has a branch spread of fifteen (15) metres or more.

Note 1: A copy of your drainage diagram may be obtained from Council and used as the site plan for your prescribed tree permit application or exempt tree notification form.

Note 2: Where a property forms part of a Strata Plan under the Strata Schemes (Freehold Development) Act 1973,or the Strata Schemes (Leasehold Development) Act 1986, or a Community Title Scheme (under the Community Land Development Act 1989), the written consent of the Body Corporate and their common seal is required. This authorises the lodgement of the application for the specific type of works to be undertaken.

Note 3: Where a tree is growing on a common property boundary the ownership will need to be determined by the relevant parties, for example by survey.

Note 4: Removal of the tree is permitted upon lodgement of the Exempt Tree Notification Form with Council. A permit is not issued by Council for exempt trees.

Note 5: It is the property owners' responsibility to:

a) ensure that the species of tree that is to be removed is the species identified in the definition of an exempt tree.
b) seek the advice of a qualified arborist or horticulturalist to confirm the species, and
c) provide evidence of the species by photograph attached to the document; "Exempt Tree Notification Application" form, prior to the removal of the tree.

6. DEVELOPMENT CONSENT

An application for the removal of a **prescribed tree** may be lodged concurrently with a development application. A Development Application is also required for the removal of **any tree (prescribed or exempt)** within the curtilage of a Heritage Item listed on either Schedule 5 of the Bathurst Regional LEP 2014 or the State Heritage Register.

Accompanying a Development Application, the following information is required:

a) A site plan of the site showing the location of the tree(s) to be removed or pruned, include location of any building(s).
b) An Arborist's report, where in the opinion of Council, such a report is warranted.
c) A Statement of Heritage Impact, where in the opinion of Council, the tree's removal is likely to have a significant impact on the Heritage Item or the Heritage Conservation Area.

NOTE: Removal of the tree is not permitted until the Notice of Determination for the Development Application has been issued by Council.

7. EXCLUSIONS

The following list defines works that do not require a Prescribed Tree Permit, an Exempt Tree Notification or development consent for their removal, lopping or pruning:

a) Tree(s) that are less than nine (9) metres in height, have a trunk circumference of less than one (1) metre when measured at a height of one (1) metre from the ground and has a branch spread of fifteen (15) metres or less.
b) Any works to a Prescribed Tree carried out by, or on behalf of, Bathurst Regional Council.
c) Prescribed Tree(s) that require pruning in accordance with the provisions of Section 48 of the Electricity Supply Act 1995 and the Electricity Supply (General) Regulation 2001. This exclusion does not apply to tree trunks, only to branches up to 50mm in diameter and within 1 metre of private service lines.
d) Where bushfire hazard reduction work is undertaken as authorised by the NSW Rural Fire Service under the Rural Fires Act 1997.
e) Any works to make safe a Prescribed Tree where there is an immediate threat of injury to persons or damage to property provided that contact has been made with Council's Authorised Officer and verbal approval has been provided, or to comply with a direction from an Emergency Service directive. Evidence must be provided by an Arborist at the earliest possible time following the elimination of the threat.
Note: This does not negate the need for an application to be submitted at the earliest opportunity upon the elimination of the threat of injury or damage.
f) The pruning and deadwood removal of a prescribed tree that is undertaken in accordance with AS4373 Pruning of Amenity Trees, and undertaken for the purpose of preserving the tree structure, health and amenity.

8. ADDITIONAL INFORMATION REQUIREMENTS

Council may require additional supporting information (at the applicant's cost) for a Prescribed Tree Permit Application or for a Development Application, which may include, but not be limited to, the following:

(a) Arborist's report;
(b) Tree survey;
(c) Flora and fauna impact assessment;
(d) Geotechnical or structural engineer's report;
(e) Plumber's report;
(f) Details of proposed root barriers;
(g) Medical certificate from a clinical immunologist/allergy specialist in cases where the removal or pruning of a tree is requested due to quality of life health issues (e.g. allergies);
(h) Survey of property boundary to determine ownership of the tree(s);
(i) Statement of Heritage Impact.

Sewerage pipe damage - Any roots causing damage to a pipe must be retrieved and identified, and documented evidence offered relative to the specific identification of the culprit tree from where the roots originated. In cases where a tree has caused damage to a sewer, the application must include written evidence from a licensed plumber stating the extent of the problem. This is necessary given that damage to a sewer is often unidentifiable from the natural ground surface level.

Structural damage by roots (heave, matrix suction) – any roots causing structural damage to a driveway,

foundation, slab etc. must have supporting evidence provided relative to the identification of the culprit tree responsible for the damage. Evidence may include, but not be limited to, root mapping (ground penetrating radar, air spade), or laboratory root identification (microscopy, DNA).

9. INSTALLATION OF SOLAR PHOTO VOLTAIC PANELS & HOT WATER SYSTEMS

Where a Prescribed Tree Permit Application or Development Application is lodged requesting removal or pruning of tree(s) for the installation of solar PV panels or solar hot water systems, Council will require a preliminary assessment from the installers outlining the extent that the tree(s) will impact upon the PV panels, taking into account summer and winter sun elevations.

Further evidence in the form of shadow diagrams prepared by an architect/draftsman who is unrelated to the installation process may be required.

Council will then make an assessment of the tree(s) taking into consideration the health, structure, and significance of the tree(s) e.g. outstanding specimen tree, locally significant species.

If the tree(s) are considered to be of local or regional significance to the area by Council's arborist, an alternative location for the installation of solar panels may need to be investigated.

If the tree(s) are considered to be healthy and structurally sound but of little significance to the local amenity and environment, Council may allow the removal of the tree(s) upon receipt of documentation that the solar panels have been installed. The significance of a tree should be determined by lodging a Prescribed Tree Permit or Development Application prior to the installation of any solar PV panels or solar hot water system.

10. ARBORIST REPORTS

An arborist report may be required in the following circumstances to support a Prescribed Tree Permit application or Development Application:

(a) Any proposed removal of trees considered by Council to be locally significant species.
(b) Any proposed removal of trees or vegetation which constitutes a threatened flora species, endangered population, endangered ecological community under the Threatened Species Conservation Act 1995 or the Environment Protection and Biodiversity Conservation Act 1999; or
(c) Where, in the opinion of Council, the proposed works may result in adverse impacts upon the scenic environmental quality or amenity of the locality; or
(d) Where a Development Application under the Environmental Planning and Assessment Act 1979 involves more than five (5) trees and/or other vegetation or where proposed works may impact upon a neighbouring tree or trees located outside of the area proposed for works.

An arborist report is to be prepared by an arborist and contain the following information in accordance with AS 4373 Pruning of trees and AS4970 Protection of trees on development sites:

a) Name, address, telephone number, qualifications and experience of the arborist carrying out the inspection and reporting.
b) Who the report was prepared for, the date of the report, property address and the aims of the report.
c) Methods and/or techniques used in the inspection.
d) A scaled plan accurately showing:
    i) Location of trees on the subject site and any adjoining trees which may be affected by the development. Trees identified on this plan should be numbered. Any arborist report provided for the purpose of supporting a development application must include a tree plan (site plan) which has been drawn by a registered surveyor.
    ii) Lot boundaries, dimensions and north point
    iii) Proposed development including services, driveways and any alteration to existing levels and drainage.
e) For each tree to be injured, a table showing:
    i) The number of the tree as indicated in the plan.

ii) Tree name, botanical and common name.
iii) Age class.
iv) Height.
v) Trunk diameter at one (1) metre above ground level.
vi) Crown spread.
vii) Health and condition, and estimated useful life expectancy.
viii) Photograph of the tree.
ix) A recognised tree rating system such as SRIV, TREE-AZ or SULE.

f) A discussion of other relevant information, including details of tree hollows for wildlife, tree structure/weaknesses, root form and distribution, pests and diseases and tree hazard assessment.
g) Proposed replacement plantings, landscaping and soil remediation.
h) Tree protection measures and a post-construction tree maintenance program which can be used as conditions, should the application be approved.

A consulting arborist report is required to be provided to Council in the following circumstances:

(a) To support an appeal of the determination or the conditions imposed on a Prescribed Tree Permit application or
(b) A request for a review of a determination of a Development Application made in accordance with section 82A of the Environmental Planning and Assessment Act 1979.

A consulting arborist report is to be prepared by a consulting arborist and contain the following information in accordance with AS 4373 Pruning of trees and AS4970 Protection of trees on development sites:

The consulting arborist report is to be in the following format:

a) Name, address, telephone number, qualifications and experience of the arborist carrying out the inspection and reporting.
b) Who the report was prepared for, the date of the report, property address and the aims of the report.
c) Methods and/or techniques used in the inspection.
d) A scaled plan accurately showing:
i) Location of trees on the subject site and any adjoining trees which may be affected by the development. Trees identified on this plan should be numbered. Any consulting arborist report provided for the purpose of supporting a development application must include a tree plan (site plan) which has been drawn by a registered surveyor.
ii) Lot boundaries, dimensions and north point.
iii) Proposed development including services, driveways and any alteration to existing levels and drainage.
iv) The Tree Protection Zone and Structural Root Zone as determined by the consulting arborist.
e) For each tree to be injured, a table showing:
i) The number of the tree as indicated in the plan.
ii) Tree name, botanical and common name.
iii) Age class.
iv) Height.
v) Trunk diameter at one (1) metre above ground level.
vi) Crown spread.
vii) Health and condition, and estimated useful life expectancy.
viii) Photograph of the tree.
ix) A recognised tree rating system such as SRIV, TREE-AZ or SULE.
f) A discussion of other relevant information, including details of tree hollows for wildlife, tree structure/weaknesses, root form and distribution, pests and diseases and tree hazard assessment.
g) Proposed replacement plantings, landscaping and soil remediation.
h) Tree protection measures and a post-construction tree maintenance program which can be used as conditions, should the application be approved.
i) Sources of information referred to in the report.

j) Any other relevant matters.

NOTE:

With respect of either an arborist report or a consulting arborist report, any tree or part of a tree recommended for removal which contains a hollow that is likely to house arboreal wildlife (such as possums, sugar gliders, etc.) or is likely to be a potential nesting site for birds, will require an experienced wildlife handler (for example, a member of the Native Animal Network Association or WIRES) to be present at the time of pruning/removal to re-accommodate any displaced wildlife. Nesting boxes are recommended to be installed within the closest retained trees for any animals removed. At least one nest box is recommended for installation for each hollow removed that has been considered to have accommodated wildlife (irrespective of whether the hollow had an animal in it at the time of removal/assessment).

A letter signed by the wildlife handler is required by Council after the removal/pruning exercise as confirmation that the handler was present at the time of removal/pruning.

11. PROCESSING OF APPLICATIONS

A prescribed tree permit application will generally be processed within twenty-one (21) working days from the date of receipt of the application form together with all supporting documentation, including the application fee. The application fee will be determined in accordance with Council's adopted fees and charges.

A written permit will be provided for all approved prescribed tree permit applications authorising the scope and nature of permitted works. In the case of an application being refused the reasons for refusal will be detailed in a letter to the applicant.

For each tree that is granted approval for removal, a minimum of one (1) replacement tree will be required to be planted within the property, unless Council's authorised officer determines otherwise.

12. ASSESSMENT CRITERIA USED TO DETERMINE APPLICATIONS

Council may take into consideration any or all of the following criteria when assessing an application for the removal of a prescribed tree:

(a) Potential life of the tree – whether the tree is senescing or declining.
(b) Whether the tree is causing structural damage to a building, structure, pipe or sewer. Note: A report may be required by a suitably qualified and experienced consultant where the damage is not visually evident.
(c) Whether the tree is severely stressed, diseased or is suffering insect damage and without the opportunity for mitigation.
(d) Whether the growth habit or mature size of a tree is undesirable in a given situation (e.g. power lines, root interference with service, infrastructure or building).
(e) Whether the tree shows poor form, shape and/or vigour typical to the species.
(f) Where the branches are dangerous and overhanging a building or an adjoining property. In this case, the assessing Council officer will determine the amount of pruning permitted to address any public nuisance issue.
(g) Whether the tree species is appropriate in terms of its proximity to dwellings, adjoining dwellings or other buildings.
(h) Whether the clearing or removal of the tree or other vegetation has the potential to directly or indirectly affect a threatened species, population, ecological community or their habitats (Threatened Species Conservation Act 1995).
(i) Whether the tree species is of regional significance (i.e. identified regionally as a rare species due to heavily cleared or under-represented vegetation community).
(j) Whether the tree is of local significance and is considered relatively rare or has limited distribution or is a critical indigenous species.
(k) Whether the removal of the tree(s) will pose any adverse impact upon the amenity or scenic environmental quality of the locality.

(l) Whether the removal of the tree(s) is necessary as part of any bushfire hazard reduction work under the Rural Fires Act 1997.
(m) Whether the removal of the tree(s) involves a habitat tree (e.g. nesting tree or roosting tree) for any threatened fauna species.
(n) Whether the removal of the tree(s) will cause any potential adverse slope instability or geotechnical impacts upon the site or the locality.
(o) Whether the removal of the tree (s) is part of an endangered population, endangered ecological community or is critical habitat for any threatened fauna species.
(p) Whether the applicant has provided a medical certificate from a clinical immunologist/allergy specialist which states that the pruning or removal of a tree is necessary for maintaining quality of life.
(q) Whether any previous condition of development consent required the retention of the tree(s).

13. REASONS NOT CONSIDERED AS JUSTIFICATION FOR TREE WORK

These are common requests for tree removal/works which generally provide insufficient reason for a permit or approval to be issued:

(a) Shedding of flowers, leaves, bark, twigs, fruit, and sap causing nuisance.
(b) Animals (insect, bird, bat, possum etc.) that inhabit trees causing nuisance.
(c) To enhance amenity views.
(d) Damage to underground services (such as sewer lines, water services and the like), where there are alternatives to mitigate and retain the tree.
(e) Construction of fences.
(f) Minor heave (lifting) of paths, paving, fences and minor structures where mitigation is not appropriate.
(g) Tree does not suit the existing or proposed landscape.
(h) Unsubstantiated fear of tree failure.
(i) Tree removal for fire hazard reduction, where the property is not within a bushfire prone area as defined by the Rural Bush Fire Service.
(j) Tree is considered to be too large or high.
(k) Pruning to reduce height.
(l) To increase solar access unless sufficient evidence is provided.
(m) To allow for a proposed development.

NOTE:

For trees that would be affected under a Development Application Process, tree removal or other work requests that have been presented and documented as part the development application will be considered within the development assessment process. For trees that require works / removal due to a Development Application approval, but the tree (s) have not been specifically assessed in the DA, the Development approval will not be regarded as a valid reason for removal / works to trees under a prescribed tree permit application.

14. APPROVAL VALIDITY PERIOD

A prescribed tree permit is valid for five (5) years from the issue date.

15. RIGHTS OF APPEAL AGAINST A COUNCIL DECISION

An applicant who is dissatisfied with Council's decision has a right to appeal the decision of the prescribed tree permit or the conditions imposed on the prescribed tree permit.

An application to appeal the decision of Council or the conditions imposed on a permit must be lodged within 3 months of the determination and supported by a consulting arborist's report prepared in accordance with this Policy.

Additional information is to be provided by an expert in the relevant field, for example, a consulting arborist or structural engineer.
An appeal will be reviewed by another qualified Council assessment officer and may be determined

either under delegated authority or may be reported to Council for its determination.

16. COMPLIANCE AND MONITORING

A prescribed tree permit or development consent may be monitored by Council for compliance with the tree permit issued.

Any works carried out without approval or not in accordance with a prescribed tree permit or development consent will be dealt with in accordance with relevant legislation. This may result in a Penalty Infringement Notice or legal action through either the Local Court or the Land and Environment Court against all parties involved in any breach of Bathurst Regional Local Environmental Plan 2014 or conditions of approval.

17. REQUESTS FOR WORK / REMOVAL OF TREES ON COUNCIL OWNED OR MANAGED LAND

Correspondence may be sent by adjoining property owners or occupants requesting that Council carry out the pruning or removal of a tree(s) within any public reserve, road reserve (street trees) or other property owned or managed by Council. Verbal requests may also be made directly with Council's Engineering Department for registration in Council's Customer Request Management System.

All requests for pruning or removal of trees or other vegetation within Council owned or managed land will be forwarded to Council's Recreation Section for assessment.

The result of the assessment will determine whether approval will be granted for the pruning or removal of the subject tree(s) and this will be based upon the assessment criteria contained in this Policy. Requests for tree work which are not deemed appropriate for action are outlined within this Plan. All approved works will be carried out as and when resources permit.

18. THREATENED SPECIES CONSERVATION ACT 1995

Any action such as clearing or removal of trees or other vegetation has the potential to directly or indirectly affect a threatened species, population, ecological community or their habitat. Therefore, an assessment may be required pursuant to Part 5A of the Environmental Planning and Assessment Act 1979 or Part 6 of the Threatened Species Conservation Act 1995.

The clearing or removal of any threatened flora species, endangered population, endangered ecological community or critical habitat under the Threatened Species Conservation Act 1995 requires separate approval from the Office of Environment and Heritage.

19. ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The clearing or removal of remnant trees or other native vegetation which is listed as a "matter of national significance" under the Environment Protection and Biodiversity Conservation Act 1999 requires the separate approval from the Commonwealth Minister for the Environment.

20. TREE DISPUTES ARISING BETWEEN NEIGHBOURS

It is not the role of Council to intervene in neighbourhood disputes regarding trees. Conflicts may be resolved through legal avenues. The Trees (Disputes Between Neighbours) Act 2006 allows tree disputes to be heard by the NSW Land and Environment Court in certain circumstances. You should seek your own independent legal advice in relation to this matter.

N.S.W. GOVERNMENT DEPARTMENT OF INDUSTRIAL RELATIONS

DANGEROUS GOODS BRANCH

RETRIEVED FROM ARCHIVES 21/12/94
BOX No. 509

BATHURST DISTRICT HOSPITAL

WCA - Unclassified
Recfind File
35/022278
WorkCover Authority of NSW
Custodian Licensing Unit - OHS
Created 1/01/1975

HEALTH & SAFETY MANAGEMENT - LICENSING - Dangerous Goods Keeping Licence 35/022278 - Bathurst, Howick St

KEEPING LICENCE

INSPECTION DISTRICT NO. 17

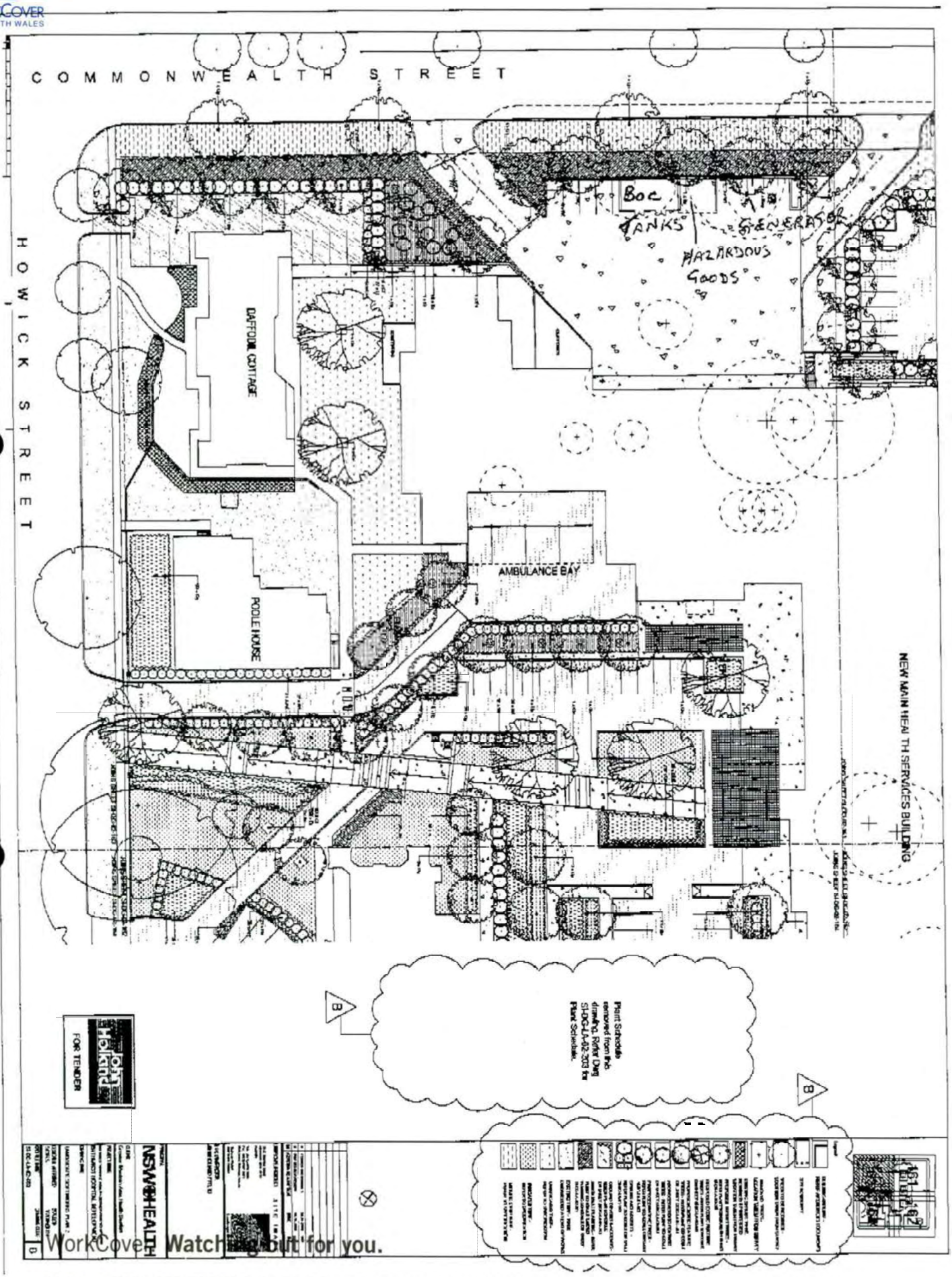
COUNTRY (METROPOLITAN INSPECTION)

HIGH OXYGEN

FILE SCANNED
DATE 23/4/92
BY EC.
DISK NAME 25B

LICENCE No. 35/022278 VOL

DISPOSAL UNIT



WorkCover Watching out for you.

WorkCover NSW ABN 77 682 742 966 92-100 Donnison Street Gosford NSW 2250 Locked Bag 2906 Lisarow NSW 2252
Telephone 02 4321 5000 Facsimile 02 4325 4145 WorkCover Assistance Service 13 10 50
DX 731 Sydney Website **www.workcover.nsw.gov.au**

WC03116 0208

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM **FDG01**

CONTACT FOR NOTIFICATION INQUIRIES

Title: Mr / Miss / Ms / Mrs / Other (please specify) MR **Family name** BAYLISS
Given name KEITH **Other names**
Business phone 02 63305294 **Business fax number** 02 63329572
Business email address KEITH.BAYLISS@SPOTLESS.COM.AU

Previous Licence Number or Acknowledgement Number (if known)
35/

Previous Occupier (if known)

Site on which dangerous goods are to be kept
Number Street
COMMONWEALTH ST

Suburb/Town/Locality Postcode
BATHURST 2795

Nearest cross Street
HOWICK

Lot and DP if no street number

Is the site staffed? If yes state number of employees YES 400
Site staffing: Hours per day 24 Days per week 7

Site Emergency Contact
Phone number **Name**
(02) 63305306 DIRECTOR OF NURSING

Nature of site (eg petrol station, warehouse etc)
HOSPITAL.

Nature of primary business activity
MEDICAL.

ABN Number (if any) Website details (if any)
EXEMPT

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)
Code Description

Attach a site sketch(s) of the premises. Refer to the Guide GDG01 for information on the requirements for the site sketch.

Attach a legible photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an X.

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM FDG01

List the dangerous goods that will be stored and/or processed on these premises (refer to Guide GDG01). Copy this page and attach additional sheets if there is insufficient space.

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1	ABOVE GROUND TANK	1	7,000

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1073	BOC LIQUID OXYGEN.	1		MEDICAL LIQUID OXYGEN.	2PE	7000	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1	ABOVE GROUND TANK	1	1500

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1	BOC LIQUID OXYGEN.	1		MEDICAL LIQUID OXYGEN	2PE	1500	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

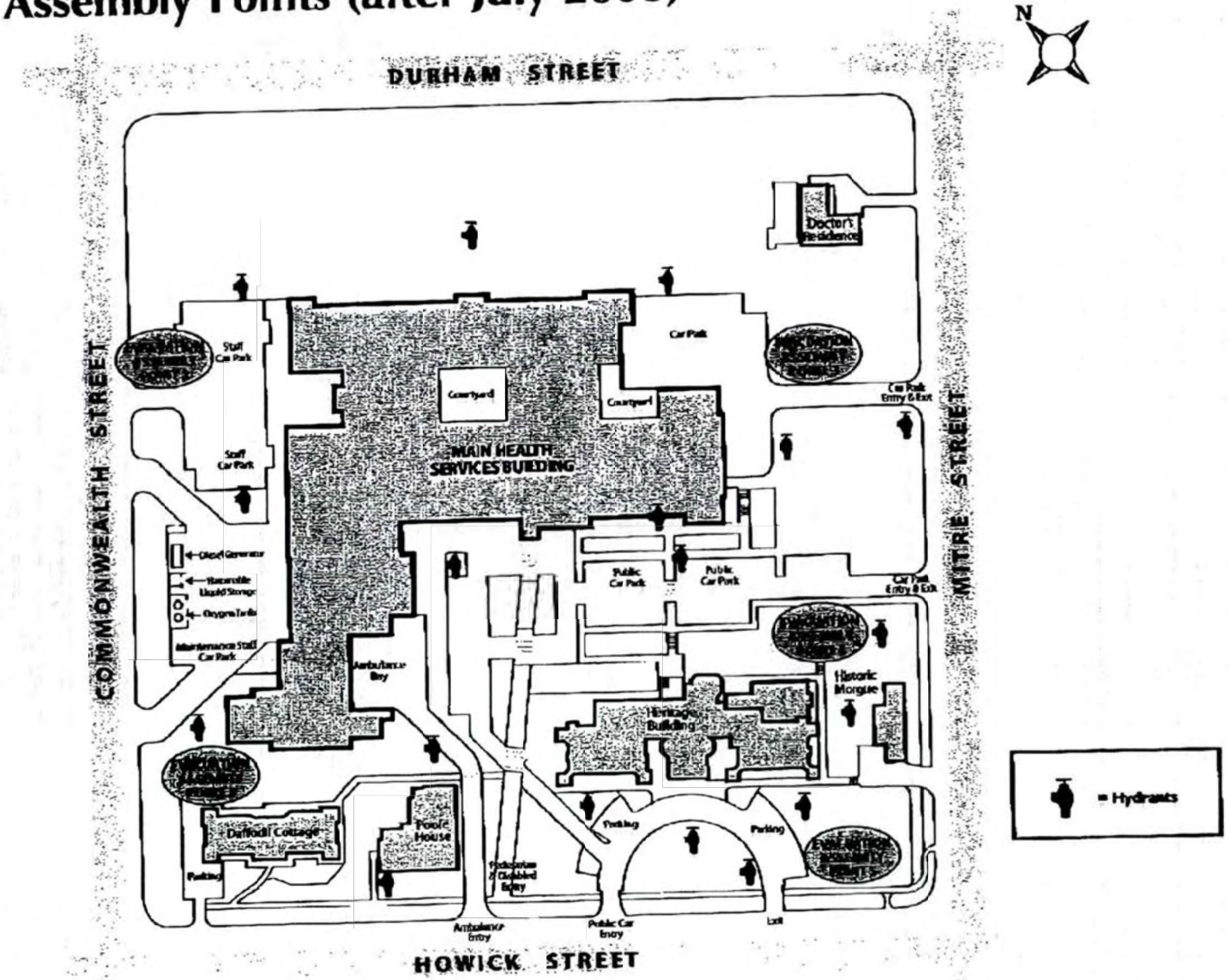
Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

Bathurst Health Service

Evacuation Assembly Points (after July 2008)

ADAIR
FIRE & EMERGENCY
CONSULTANTS



Adair - 934 - 02/08
ADAIR FIRE & EMERGENCY CONSULTANTS
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617683 R&G #

NSW Occupational Health and Safety Act 2000 • NSW Occupational Health and Safety Regulation 2001

ABN 77 682 742 966

FDG01
August 2006

NOTIFICATION
OF DANGEROUS GOODS ON PREMISES FORM

EXPLANATORY NOTES AND FORM CHECKLIST

This form is used to notify WorkCover of dangerous goods stored on premises. This form is to be completed in conjunction with the Guide – Notification of Dangerous Goods on Premises (GDG01). Notification is a requirement of the Occupational Health and Safety Regulation 2001.

Persons who wish to handle explosives or security sensitive dangerous substances need to obtain a licence under the Explosives Regulation 2005. See the WorkCover website www.workcover.nsw.gov.au or call 13 10 50 for information about explosives licensing.

LODGMENT INSTRUCTIONS

1. You must complete all sections of this form.
2. You may lodge your notification with Australia Post or with Workcover NSW at Locked Bag 2906 Lisarow NSW 2252.
3. **You must sign and date this notification by completing the declaration on the last page.**
4. Payment of the notification fee must accompany this form.

Note: No proof of identity check is required for this notification.

NOTIFICATION CHECKLIST

Please tick the appropriate box to ensure that your notification is complete and secure prior to submission to Australia Post or WorkCover

Notifer Use Only

- Notification Form (this form) Completed and Signed ☐
- Site Sketch(s) – only A4 size is acceptable ☐
- Photocopy from street directory or map showing locality ☐
- Non-refundable fee $100 ☐

PRIVACY COMPLIANCE STATEMENT

This information is collected by WorkCover New South Wales ("WorkCover") for the purposes of undertaking an evaluation, assessment and processing a notification of dangerous goods on premises as required by the *Occupational Health and Safety Act 2000* and the *Occupational Health and Safety Regulation 2001*.

This information may also be used by WorkCover for the purposes of confirming applicant details in the event replacement acknowledgements are applied for, and may also be used to establish and maintain a database and to assist the WorkCover Inspectorate with their work generally. Information is also made available to local councils and emergency services assist with emergency response and planning.

Except for the purposes of prosecution and unless such disclosure is otherwise required by law, the information will not be accessed by any third parties in a way that would identify the individual without the consent of that individual.

You may also apply to WorkCover to access and correct any information WorkCover holds if that information is inaccurate, incomplete, not relevant or out of date. Applications should be made in writing to:
Privacy Contact Officer, WorkCover NSW Head Office Locked Bag 2906 Lisarow NSW 2252

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM **FDG01**

CONTACT FOR NOTIFICATION INQUIRIES

Title: Mr / Miss / Ms / Mrs / Other (please specify) MR Family name BAYLISS

Given name KEITH Other names

Business phone 02 63305294 Business fax number 02 63329572

Business email address KEITH.BAYLISS@SPOTLESS.COM.AU

Previous Licence Number or Acknowledgement Number (if known)

35/ 35/0 22718 7/5/09

Previous Occupier (if known)

Site on which dangerous goods are to be kept 361 Howick St

Number Street

COMMONWEALTH ST

Suburb/Town/Locality Postcode

West BATHURST 2795

Nearest cross Street

HOWICK

Lot and DP if no street number

Is the site staffed? If yes state number of employees YES 400

Site staffing: Hours per day 24 Days per week 7

Site Emergency Contact

Phone number Name

(02) 63305306 DIRECTOR OF NURSING

Nature of site (eg petrol station, warehouse etc)

HOSPITAL.

Nature of primary business activity

MEDICAL.

ABN Number (if any) Website details (if any)

EXEMPT

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)

Code Description

Attach a site sketch(s) of the premises. Refer to the Guide GDG01 for information on the requirements for the site sketch.

Attach a legible photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an X.

NOTIFICATION OF DANGEROUS GOODS ON PREMISES FORM FDG01

List the dangerous goods that will be stored and/or processed on these premises (refer to Guide GDG01). Copy this page and attach additional sheets if there is insufficient space.

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1A	ABOVE GROUND TANK	1	7,000

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1073	BOC LIQUID OXYGEN.	1		MEDICAL LIQUID OXYGEN.	2PE	7000	L

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1B	ABOVE GROUND TANK	1	1500

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1	BOC LIQUID OXYGEN.	1		MEDICAL LIQUID OXYGEN	2PE	1500	L
1073							

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

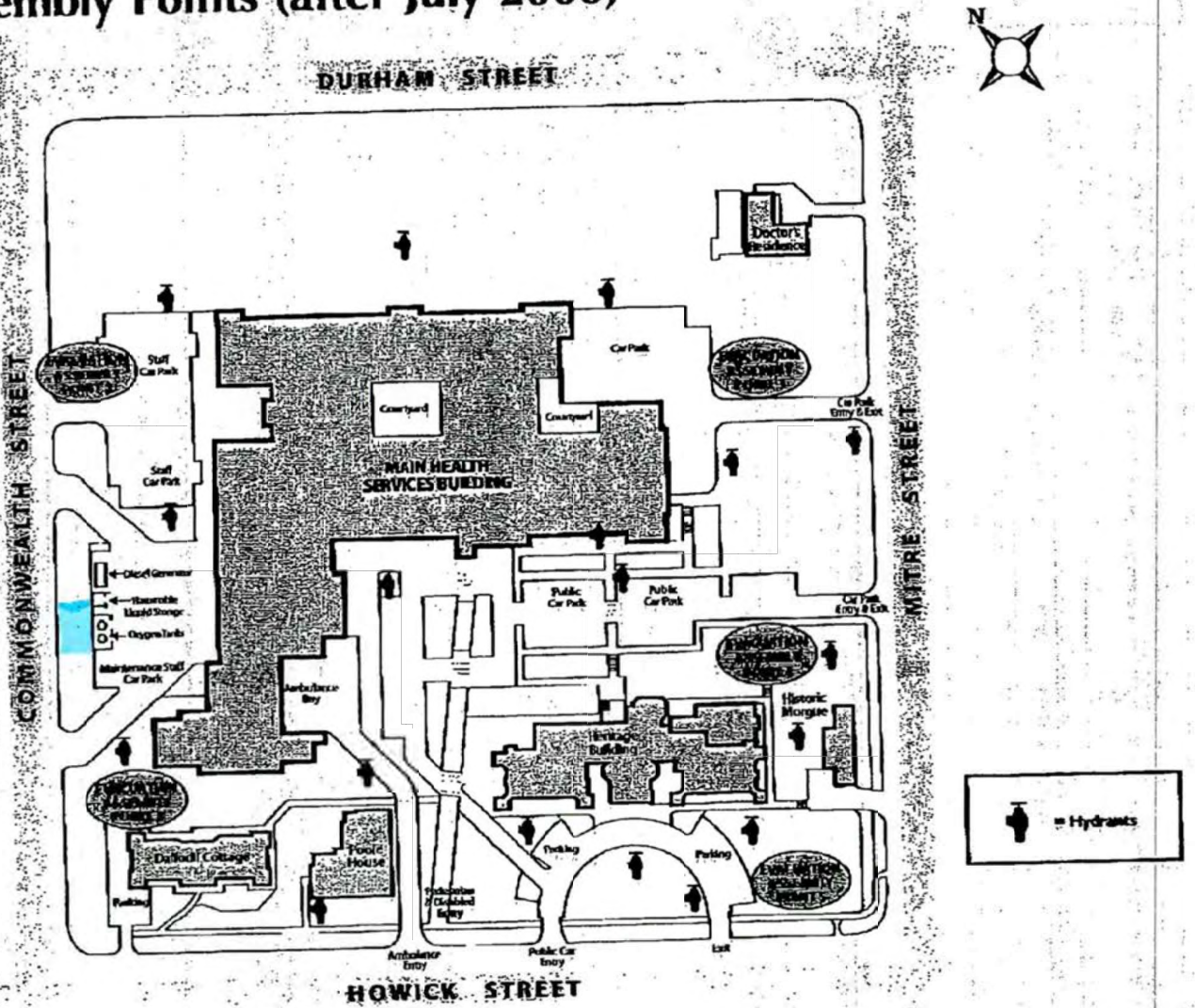
Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg

Bathurst Health Service

Evacuation Assembly Points (after July 2008)

ADAIR FIRE & EMERGENCY CONSULTANTS



WORKCOVER
NEW SOUTH WALES

Licence Number 35/022278

CLOSED FILE
2006

Occupier: BATHURST BASE HOSPITAL

Site:

HOWICK ST,
BATHURST 2795

Application for Licence to Keep Dangerous Goods

DG1

Application for: New Licence ☑ Amendment ☐ Transfer ☐ Renewal of expired licence ☐

PART A - *Applicant and site information* (See page 2 of Guidance Notes)

1 Name of applicant — ABN
Bathurst Hospital — 880 18692 002

2 Postal Address of Applicant — Suburb/Town — Postcode
Howick St — Bathurst — 2795

3 Trading Name or Site Occupier's Name
Bathurst Base Hospital

RECEIVED SERVICE CENTRE 16 MAY 2006 WORKCOVER NEW SOUTH WALES

4 Contact for Licence Inquiries
Phone — Fax — Name
(02) 63316905 — (02) 63316905 — Clive Jensen

5 Previous Licence Number (if known) 35/ 022278

6 Previous Occupier (if known)

7 Site to be Licensed (Please include photocopy page from a local Street Directory with the site marked X)
No Street
Howick St Bathurst NSW 2795

8 Main Business of Site: Hospital

9 Site staffing: Hours per day: 24 Days per week: 7

10 Site Emergency Contact
Phone — Name
(02) 6339 5311 — Mick Lavelle

11 Major Supplier of Dangerous Goods: BOC Ltd

12 If a new site or for amendments to depots - see page 4 of Guidance Notes.
Plans Stamped by: — Signature of Competent Person — Printed Name — Date stamped
C. Allen — Greg Allen — 3/5/06

I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

13 Signature of Applicant — Printed Name
[signature] — Gail Slater

Dangerous Goods Licensing,
WorkCover NSW, Locked Bag 2906, LISAROW NSW 2252

What is a depot? See page 5 of the Guidance Notes

PART C (Cont.) - Dangerous Goods Storage Complete one section per depot

If you have more depots than that space provided, photocopy sufficient sheets first

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity
1	Above Ground Tank	2.2	7000L

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3
1073	Oxygen, Refrigerated Liquid	2.2	N/A	Liquid Oxygen Medical	1	7000L

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

What is a depot? See page 5 of the Guidance Notes

PART C - Dangerous Goods Storage Complete one section per depot

If you have more depots than that space provided, photocopy sufficient sheets first

Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3

Registry EJ 4/12/98

5 NOV 1998

SECTION

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Telephone 9370 5000 ALL MAIL TO LOCKED BAG 10, CLARENCE STREET SYDNEY 2000

WORKCOVER NEW SOUTH WALES

Licence No. 35/022278

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/022278 to 24/10/1999 . I confirm that all the licence details shown below are correct (amend if necessary).

(Signature)	(Please print name)	(Date signed)
W Lavelle	MICK LAVELLE	2/11/98

for: BATHURST BASE HOSPITAL

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section (Level 3)
Locked Bag 10
CLARENCE STREET SYDNEY 2000

Enquiries: ph (02) 9370 5187
fax (02) 9370 6105

DATA
17 NOV 1998
ENTERED

Details of licence on 18 September 1998

Licence Number 35/022278 **Expiry Date** 24/10/1998

Licensee BATHURST BASE HOSPITAL

Postal Address: HOWICK ST BATHURST NSW 2795

M. LAVELLE 0263395294 0263329572

Licensee Contact ~~J BUIST~~ Ph. ~~063 328 545~~ Fax. ~~063 328 557~~

Premises Licensed to Keep Dangerous Goods
BATHURST BASE HOSPITAL
HOWICK ST BATHURST 2795

Nature of Site HOSPITALS (EXCEPT PSYCHIATRIC HOSPITALS)

Major Supplier of Dangerous Goods VARIOUS

Emergency Contact for this Site OIC Ph. ~~063 33 1311~~ 0263395301

Site staffing 24HRS 7DAYS

RECEIVED
15 NOV 1998
SCIENTIFIC SERVICES

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
FL1	**ROOFED STORE**	**Class 3**	**3000 L**
		UN 1170 ETHANOL (ETHYL ALCOHOL)	540 L
		UN 1294 TOLUENE	120 L
		UN 1863 FUEL, AVIATION, TURBINE ENGINE	1000 L
NFG1	**ABOVE-GROUND TANK**	**Class 2.2**	**2542 L**
		UN 1073 OXYGEN, REFRIGERATED LIQUID	2542 L
NFG2	**EXEMPT - STORAGE AREA**	**Class 2.2**	**232 M3**
		UN 1066 NITROGEN, COMPRESSED	6 M3
		UN 1070 NITROUS OXIDE	145 M3
		UN 1072 OXYGEN, COMPRESSED	81 M3

Form DG10

Licences are issued for specified sites. If control of a site is transferred (by way of sale, lease or otherwise), the person who held the licence immediately before the transfer must, within seven days after the transfer, notify the Chief Inspector of Dangerous Goods. This notification must be in writing, and must specify the date on which the transfer was effected and the name and address of the transferee.

Dangerous goods are divided into the following classes. Certain dangerous goods may be kept without a licence, providing the quantity of the goods kept does not exceed the amount specified in the Dangerous Goods Regulations, 1978. Some common examples are listed below.

EXPLANATION OF DANGEROUS GOODS AND THEIR CLASSES

1 Explosives (including blasting explosives, detonators).
1.4 Safety cartridges.
2.1 Flammable gases (e.g. LPG, acetylene).
2.2 Non-flammable, non-toxic gases (eg. oxygen, nitrogen).
2.3 Toxic gases (e.g. ammonia, chlorine).
3 Flammable liquids (e.g. petrol, kerosene, solvents, methylated spirits).
C1 Combustible liquids (e.g. diesel fuel, heating oil).
C2 Combustible liquids (e.g. engine oil, olive oil).
4.1 Flammable solids (e.g. nitrocellulose, hexamine).
4.2 Substances liable to spontaneous combustion (e.g. aluminium alkyls).
4.3 Substances which in contact with water emit flammable gases (e.g. sodium, xanthates).
5.1 Oxidizing substances (e.g. dry pool chlorine, ammonium nitrate).
5.2 Organic peroxides (e.g. dibenzoyl peroxide)
6.1 Toxic substances (e.g. sodium cyanide, some pesticides);
6.2 Infectious substances (administered by NSW Dept Health)
7 Radioactive substances (storage of Class 7 is NOT covered by the Dangerous Goods Act 1975, but is administered by NSW Environment Protection Authority).
8 Corrosives (e.g. hydrochloric acid, sulfuric acid, sodium hydroxide, sodium hypochlorite).
9 Miscellaneous (e.g. polystyrene beads, lithium batteries, dry ice).

EXEMPTIONS FROM LICENCE FOR SOME COMMON DANGEROUS GOODS

- ***Acetylene:*** Storage of 60 cubic metres or less of acetylene per premises (ie. up to and including 8 x "G" size cylinders, the most common size of acetylene cylinder).
- ***Petrol and other Class 3, Packing Group I & II dangerous goods***: Storage of 100 litres or less per premises.
- ***Kerosene and other Class 3, Packing Group III dangerous goods***: Storage of 1,000 litres or less per premises when stored aboveground.
- ***Class C1 (eg. diesel fuel, heating oil)***: Storage of 50,000 litres or less per tank.
- ***Class 6 (poisonous substances)***: Not more than 10 L or kg of Packing Group I; not more than 100 L or kg of Packing Group II; not more than 1000 L or kg of Packing Group III.
- ***Class 8 (corrosive substances)***: Not more than 50 L or kg of Packing Group I; not more than 500 L or kg of Packing Group II; not more than 1000 L of Packing Group III.

For further information and licensing enquiries, please contact the Dangerous Goods Licensing Section of WorkCover on ☎ 02 9370 5187. Advice on dangerous goods storage can also be obtained from the following **WorkCover Offices:**

	☎		☎		☎
SYDNEY CITY	02 9370 5027	LINDFIELD	02 9936 3000	WAGGA WAGGA	02 6921 8766
PARRAMATTA	02 9841 8550	GOSFORD	02 4324 3384	PORT MACQUARIE	02 6584 1188
LIVERPOOL	02 9827 8600	NEWCASTLE	02 4921 2900	WOLLONGONG	02 4222 7333
HURSTVILLE	02 9598 3366	ORANGE	02 6361 7070		

504

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SERVICE CENTRE
6 OCT 2000
NEW SOUTH WALES

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Tel: 9370 5000 Fax: 9370 5999 ALL MAIL TO G.P.O. BOX 5364 SYDNEY 2001

Licence No. 35/022278

WORKCOVER NEW SOUTH WALES

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/022278 to 23/10/2001 . I confirm that all the licence details shown below are correct (amend if necessary).

M Lavelle | MICK LAVELLE | 12/9/00

(Signature) *(Please print name)* *(Date signed)*

for: BATHURST BASE HOSPITAL

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:** **(please do not fax)***

WorkCover New South Wales
Dangerous Goods Licensing Section
GPO BOX 5364
SYDNEY 2001

Enquiries: ph (02) 9370 5187
fax (02) 9370 6104

Details of licence on 4 September 2000

Licence Number 35/022278 **Expiry Date** 23/10/2000

Licensee BATHURST BASE HOSPITAL

Postal Address: HOWICK ST BATHURST NSW 2795

Licensee Contact MICK LAVELLE Ph. 0263 395 294 Fax. 0263 329 572

Premises Licensed to Keep Dangerous Goods
BATHURST BASE HOSPITAL
HOWICK ST BATHURST 2795

Nature of Site HOSPITALS (EXCEPT PSYCHIATRIC HOSPITALS)

Major Supplier of Dangerous Goods VARIOUS

Emergency Contact for this Site CIC Ph. 0263 395 301

Site staffing 24HRS 7DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
FL1	ROOFED STORE	Class 3	3000 L
		UN 1170 ETHANOL (ETHYL ALCOHOL)	540 L
		UN 1294 TOLUENE	120 L
		UN 1863 FUEL, AVIATION, TURBINE ENGINE	1000 L
NFG1	ABOVE-GROUND TANK	Class 2.2	2542 L
		UN 1073 OXYGEN, REFRIGERATED LIQUID	2542 L
NFG2	EXEMPT - STORAGE AREA	Class 2.2	232 M3
		UN 1066 NITROGEN, COMPRESSED	6 M3
		UN 1070 NITROUS OXIDE	145 M3
		UN 1072 OXYGEN, COMPRESSED	81 M3

Form DG10

PART A

LICENCE TO KEEP DANGEROUS GOODS

WorkCover NEW SOUTH WALES

(Dangerous Goods Act 1975)

MAIL ROOM
24 OCT 1995
NEW SOUTH WALES

Application for new licence, amendment or transfer

2nd Recharge

1. Name of applicant: BATHURST BASE HOSPITAL — ACN:

2. Site to be licensed
   No: — Street: HOWICK ST.
   * send U/ground ltr For 5000L tank
   Suburb/Town: BATHURST — Postcode: 2795

3. Previous licence number (if known): 35/022278

4. Nature of site: HOSPITAL

5. Emergency contact on site:
   Phone: 331311 — Name: IN CHARGE OFFICER AT TIME

6. Site staffing: Hours per day: 24 — Days per week: 7

7. Major supplier of dangerous goods: B.O.C. GASES / MOBIL

8. If new site or significant modification
   Plan stamped by: — Accredited consultant's name: — Date stamped

RECEIVED
24 OCT 1995
SCIENTIFIC SERVICES BRANCH

9. Number of dangerous goods depots at site: 2

10. Trading name or occupier's name: BATHURST BASE HOSPITAL

11. Postal address of applicant: HOWICK ST. — Suburb/Town: BATHURST — Postcode: 2795

12. Contact for licence enquiries:
    Phone: 063328545 — Fax: 063328557 — Name: J. BUIST

I certify that the details contained in this application (or the accompanying computer disk) are true and correct

13. Signature of applicant: [signature] — Date: 20/10/95

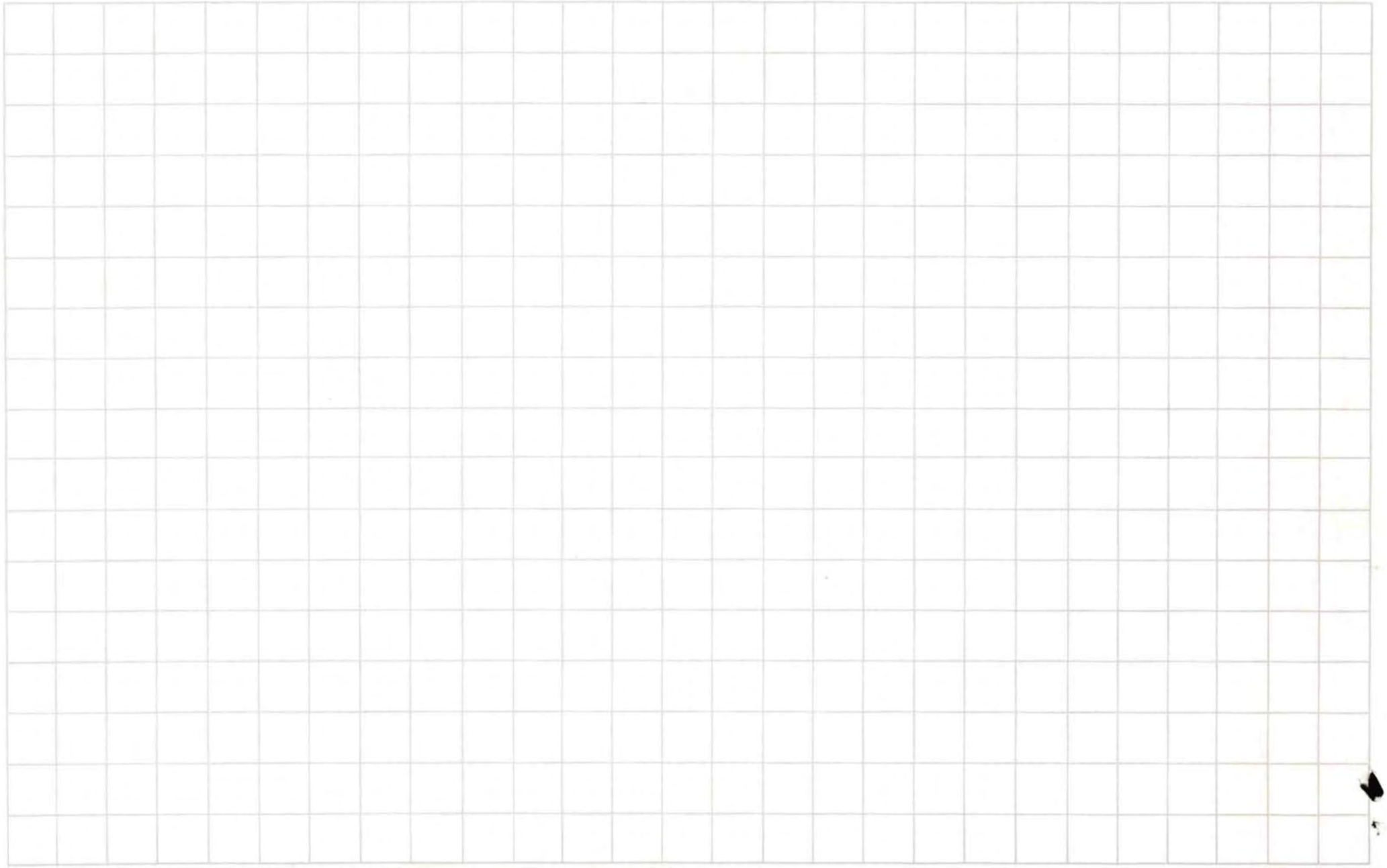
Please complete attached site sketch, depot listing and check sheet (if required) and return to WorkCover Authority in envelope provided.

31 OCT 1995

Form DG1

Site Sketch

Please carefully read the instructions in Part B of the guide before sketching the site.



Complete 1 section per depot

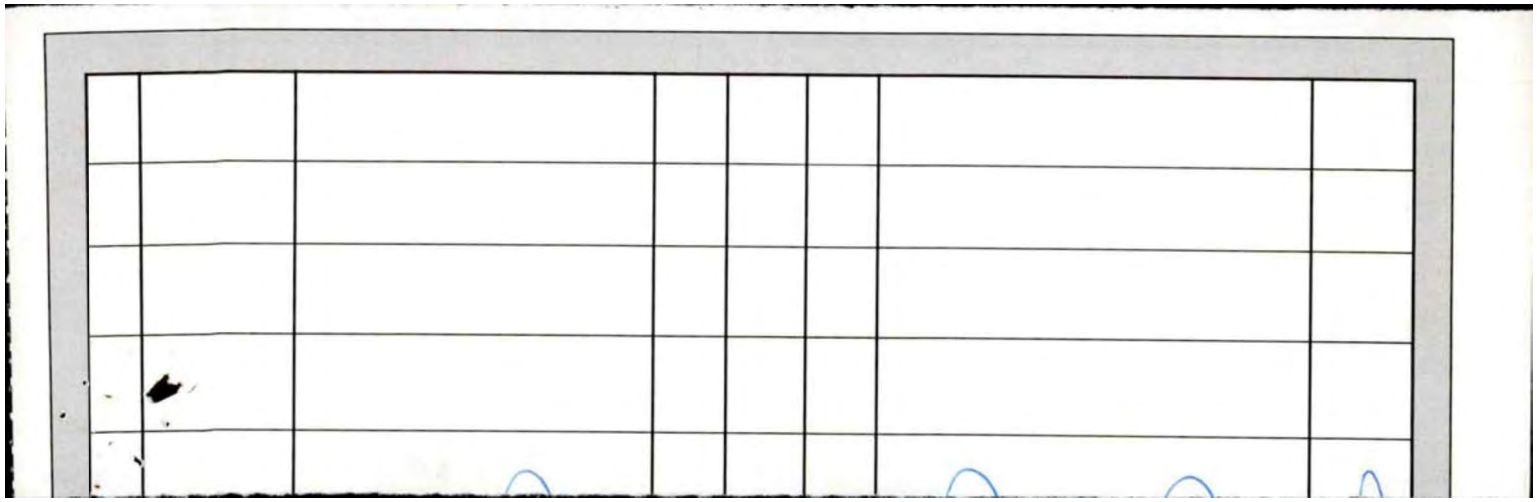
If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
FL1	ROOFED STORE	3	

UN number	Shipping name	Pkg. Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1863	AVIATION FUEL	3	III			1000	L
1170	ETHANOL	3.1	2			540	L
1294	TOLUENE	3				120	L

Depot number	Type of depot	Class	Licensed maximum storage capacity
NFG1	ROOFLESS STORE	2.2	

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1073	LIQUID OXYGEN	2			2542	2542	L



Depot number	Type of depot	Class	Licensed maximum storage capacity
NFG2	ROOFED STORE	2.1	

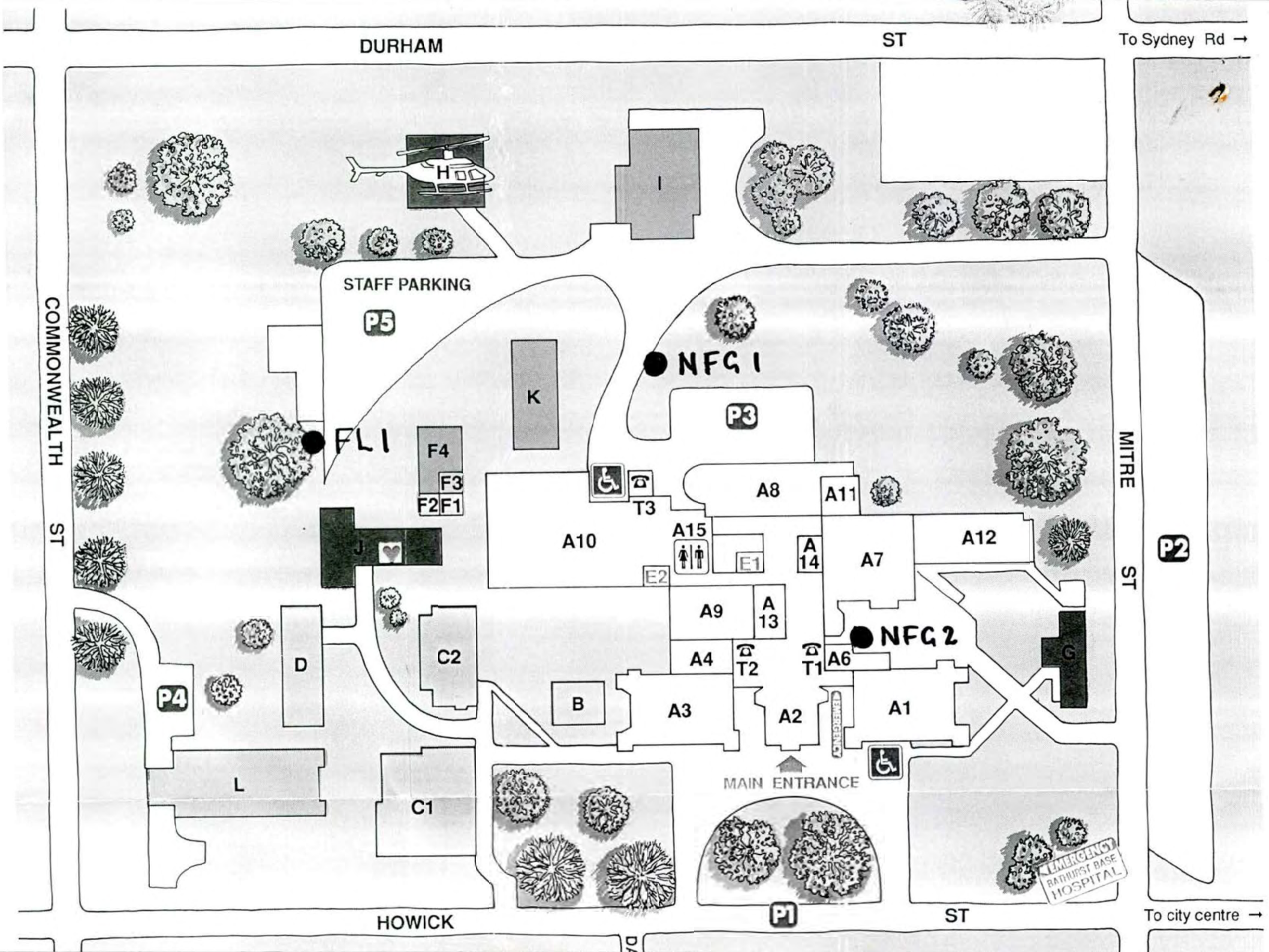
UN number	Shipping name	Pkg. Class	Pkg. Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1072	MEDICAL OXYGEN					81	M³
1070	NITROUS OXIDE					137	M³
1066	NITROGEN					6	M³
1070	ENTONOX					8	M³

Depot number	Type of depot	Class	Licensed maximum storage capacity
NFG2	ROOFED STORE	2.1	

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity
FL1	ROOFED STORE	3	

UN number	Shipping name	Pkg. Class	Pkg. Group	Pkg. EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1294	TOLUENE	3				120	L


DURHAM ST
To Sydney Rd →
COMMONWEALTH ST
MITRE ST
HOWICK
To city centre →
H
I
STAFF PARKING
P5
K
NFG 1
FL1
P3
F4
F3
F2
F1
T3
A8
A11
A10
A15
A12
A14
A7
E1
E2
J
A9
A13
NFG 2
C2
D
A4
T2
T1
A6
G
P4
B
A3
A2
A1
EMERGENCY
L
C1
MAIN ENTRANCE
P1
P2
EMERGENCY
BATHURST BASE HOSPITAL

Reference
35/022278

WorkCover Authority

SCIENTIFIC SERVICES BRANCH
Dangerous Goods Licensing
Ph (02) 370 5187 Fax (02) 370 6105

Attn: J Boist
BATHURST DISTRICT HOSPITAL
HOWICK ST
BATHURST 2795

15 September 1995

Dear Licensee

RE: NON RENEWAL OF LICENCE FOR THE KEEPING OF DANGEROUS GOODS

Our records indicate you previously held licence number 35/022278 for storage of dangerous goods at HOWICK ST , BATHURST 2795. This licence has expired.

If dangerous goods are still being kept at this site the licence will need to be renewed. **To renew the licence** to 1995/96, please fully complete and return the enclosed application form. If extra depots need to be added to your licence, please include a plan stamped by an accredited consultant for these depots.

If the licence is not to be renewed, please provide the Chief Inspector of Dangerous Goods, WorkCover Authority with a signed statement giving the reason why the licence is no longer required *eg site sold, lease ended or storage removed.*

- Where the site has been sold or the lease ended, please inform the WorkCover Authority, of the date you sold/vacated the premises and whether you removed the dangerous goods before leaving. Where possible, please supply the new owner's name and address.

- If the depot has been removed from the site or is no longer used for storing dangerous goods, please advise the date the goods/depots were removed and by whom *see specific information overleaf for underground tanks.*

Thank you for your assistance.

Yours faithfully

for Senior Licensing Clerk, Dangerous Goods
encs

FILE SCANNED
DATE
BY
DISK NAME

DANGEROUS GOODS BRANCH ADP CHANGES

Prepared by ..... __/__/__
Signature Date

Checked by ..... __/__/__
Signature Date

DANGEROUS GOODS ACT, 1975

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS OG 8112 - - - # - -

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot

Name of Applicant in full (see over)	Surname LYNCH Given Names JAMES CATON
Trading name or occupier's name (if any)	BATHURST DISTRICT HOSPITAL
Postal address	Postcode
Telephone number of applicant	STD Code 063 Number 31134
Address of the premises in or on which the depot or depots are situated (including street number, if any)	HOWICK & MITRE STREETS BATHURST Postcode 2795
Nature of premises (see over)	

~~PLEASE ATTACH SITE PLAN~~

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods Product being stored	C & C Office use only
			DG 003 060 0	
1	Aboveground tank	~~2272~~	3.2 L.O.x	1 040 23
2	Underground tank	5200	3.1 Petrol	2 020 53
3	Roofed Package Store	3000	3.1 3.2 3.3	6 020 33
4				
5				
6				
7				
8				
9				
10				
11				
12				

Name of company supplying flammable liquid (if any)

Have premises previously been licensed? YES

If known, state name of previous occupier BATHURST Hospital Licence No. 85-022278.6

Signature of applicant ..... Date 4.78

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

LICENCE No.

CERTIFICATE OF INSPECTION

I, GEORGE E BROOKS being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act,

1. (a) Construction of
(i) Walls (ii) Roof (iii) Shade roof (iv) Door(s) (v) Lock(s) (vi) Lining (vii) Lightning conductor

(b) Internal dimensions (mm)

2. Special attention is directed to the necessity for filling in accurately the distances from each of the undermentioned places, irrespective of the quantity of Explosives intended to be kept. If any of the "Protected Places or Protected Works" specified below, are not within a radius of 3 km of the Magazine, place the word NIL against such place or works.

[redacted]

PROTECTED PLACES or PROTECTED WORKS	Distance in metres from magazine to nearest works or place	
	Not occupied or used by applicant	Occupied or used by applicant
Public place		
Waterway used for navigation		
Reservoir (public or private)		
River or sea wall		
Bridge		
Dock, wharf, pier or jetty		
Any furnace, kiln, forge or fire for manufacturing purposes or for the use of any boiler, engine, or machine		
Aboveground water main or water supply channel		
Electrical power transmission line		
Radio or television transmitter		
Shop		
Store or warehouse		
Factory		
Other building or timber yard in which any person is employed or engaged in any trade, business or profession		
Magazine or premises licensed for the keeping of explosives		
Depot for other dangerous goods		
Railway, tramway or aerodrome		
Any dwelling house		
Any church, chapel, college, school or theatre		
Hospital		
Government or public building		
Any other building or structure in or about which persons are usually present or from time to time assemble		

FORM DG1

EXPLANATORY NOTES

1. Name of applicant in full: Full name(s) including given name(s) or holding company name (if any) must be supplied.
2. Nature of premises: State whether premises are a dwelling, service station, fuel storage depot, general store, farm, mine site, etc.
3. Type of depot: Describe depot as "aboveground tank", "underground tank", "magazine" "roofless package store", "roofed package store", "cylinder store" (or where not more than two LPG decanting cylinders each of a capacity not exceeding 50 kg are kept) "decanting cylinders". For safety cartridges describe as "in original packages".
4. If space is insufficient for depot particulars, attach a separate list.
5. For each magazine supply additional information above.
6. A site plan of the premises showing the position(s) of the depot(s) with distances from protected works and public places is to be attached.
7. The completed form and site plan accompanied by the prescribed fee ($10 per depot) should be forwarded to:

Chief Inspector,
Dangerous Goods Branch,
Box 846, P.O.,
Darlinghurst, N.S.W. 2010

ORIGINAL

NOTICE TO OCCUPIER

NEW SOUTH WALES

DANGEROUS GOODS ACT 1975

OCCUPIER Bathurst District Hospital

ADDRESS Howick & Mitre Sts Bathurst

LICENCE NO. 35.022278.6

TYPE OF PREMISES Hospital

DATE OF VISIT 30-6-82

TAKE NOTICE THAT THE FOLLOWING DIRECTIONS MUST BE CARRIED OUT TO COMPLY WITH THE **DANGEROUS GOODS** ACT. THIS NOTICE IS TO BE SIGNED AND RETURNED IMMEDIATELY AFTER THE DIRECTIONS HAVE BEEN CARRIED OUT.

TIME ALLOWED TO COMPLY 14 DAYS.

Complete the attached application form to amend dangerous goods licence under the above act, sign & return to address P.O Box 847 Darlinghurst 2010 with fee $16.00

The licence was previously only for oxygen the application now includes all trades depots

Nothing in this Notice shall be regarded as in any way relieving the occupier of any premises from full compliance with any of the provisions of the said Act and Regulations.

INSPECTOR D Blacks

*DISTRICT OFFICE Darlinghurst

*See reverse side for address

68567 D. WEST, GOVERNMENT PRINTER

THE ABOVE DIRECTIONS HAVE BEEN CARRIED OUT.

BATHURST DISTRICT HOSPITAL and "Macquarie Homes for the Aged"

SIGNED

DATE 6.7.82 Chief Executive Officer

METROPOLITAN

Sydney:	1 Oxford Street, Darlinghurst, 2010	238 8632
Parramatta:	Westfield Centre, Church Street, 2150	635 4188 635 4032

COUNTRY

Lismore:	Cnr. Woodlark & Keen Streets, 2480	(066) 21 1701 ext. 649
Newcastle:	741 Hunter Street, Newcastle West, 2302	(049) 69 4011
Wagga Wagga:	33 Fitzmaurice Street, 2650	(069) 23 0466
Wollongong:	C.M.L. Building 223 Crown Street, 2500	(042) 29 2199 29 2822

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

Application is hereby made for—*a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot

6780 15/12/78 038

Name of Applicant in full (see over)	Surname BATHURST DISTRICT HOSPITAL Given Names
Trading name or occupier's name (if any)	BATHURST DISTRICT HOSPITAL
Postal address	HOWICK STREET, BATHURST. Postcode 2795
Telephone number of applicant	STD Code 063 Number 311311
Address of the premises in or on which the depot or depots are situated (including street number, if any)	Postcode
Nature of premises (see over)	

PLEASE ATTACH SITE PLAN

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	Dangerous goods: C & C Office use only
1	Underground Tank	5,200 L	Petrol	
2	aboveground (brick building)	300 L	Paint Meths Turps	
3	" Gas Tank	~~2550 L~~ (2172 cum)	Oxygen	1.040.23
4				
5				
6			N.I.A.	
7			only the oxygen is	
8			being licenced now; please	
9			check out these other	
10			depots - (I can't find any	
11			record of them being previously	
12			licenced) P.C.D.	

Name of company supplying flammable liquid (if any) Caltex.

Have premises previously been licensed?

If known, state name of previous occupier Licence No.

Signature of applicant [signature] Date 6.11.78

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

RECEIVED

(b) Internal dimensions (mm)

2. Special attention is directed to the necessity for filling in accurately the distances from each of the undermentioned places, irrespective of the quantity of Explosives intended to be kept. If any of the "Protected Places or Protected Works" specified below, are not within a radius of 3 km of the Magazine, place the word NIL against such place or works.

[redacted]

PROTECTED PLACES or PROTECTED WORKS	Distance in metres from magazine to nearest works or place	
	Not occupied or used by applicant	Occupied or used by applicant
Public place		
Waterway used for navigation		
Reservoir (public or private)		
River or sea wall		
Bridge		
Dock, wharf, pier or jetty		
Any furnace, kiln, forge or fire for manufacturing purposes or for the use of any boiler, engine, or machine		
Aboveground water main or water supply channel		
Electrical power transmission line		
Radio or television transmitter		
Shop		
Store or warehouse		
Factory		
Other building or timber yard in which any person is employed or engaged in any trade, business or profession		
Magazine or premises licensed for the keeping of explosives		
Depot for other dangerous goods		
Railway, tramway or aerodrome		
Any dwelling house		
Any church, chapel, college, school or theatre		
Hospital		
Government or public building		
Any other building or structure in or about which persons are usually present or from time to time assemble		

FORM DG1

EXPLANATORY NOTES

1. Name of applicant in full: Full name(s) including given name(s) or holding company name (if any) must be supplied.
2. Nature of premises: State whether premises are a dwelling, service station, fuel storage depot, general store, farm, mine site, etc.
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4. If space is insufficient for depot particulars, attach a separate list.
5. For each magazine supply additional information above.
6. A site plan of the premises showing the position(s) of the depot(s) with distances from protected works and public places is to be attached.
7. The completed form and site plan accompanied by the prescribed fee ($10 per depot) should be forwarded to:

Chief Inspector,
Dangerous Goods Branch,
Box 846, P.O.,
Darlinghurst, N.S.W. 2010
(6th Floor, 1 Oxford Street).

FAILURE TO ANSWER ALL QUESTIONS WILL RESULT IN A DELAY IN THE ISSUE OF YOUR LICENCE

New South Wales Government

Dangerous Goods Branch

1 Oxford Street
Sydney
P.O. Box 846
Darlinghurst, N.S.W. 2010

The Secretary
Bathurst District Hospital
BATHURST NSW 2795

Our reference: 77/0257 EX ALB:DB

~~Your reference:~~

Telephone: 2388 632

Dear Sir

20 September 1978

DANGEROUS GOODS REGULATION, 1978

Dangerous Goods Class 2.3 (Oxygen)

Dangerous Goods Class . . 2.3 . . ., when kept otherwise than as specified in Division . . 3 . . . Clause 111 (1) (h) of the Regulation, are now required to be kept in or on licensed premises (Government Gazette N.S.W., No. 81, 11.7.78).

An application form is enclosed so that a licence/~~amendment to current licence~~, may be issued.

Please refer to the "Explanatory Notes" on the rear portion of the form D.G.1, complete the form, sign, and return to the above address with the fee of $. 10 (ten dollars).

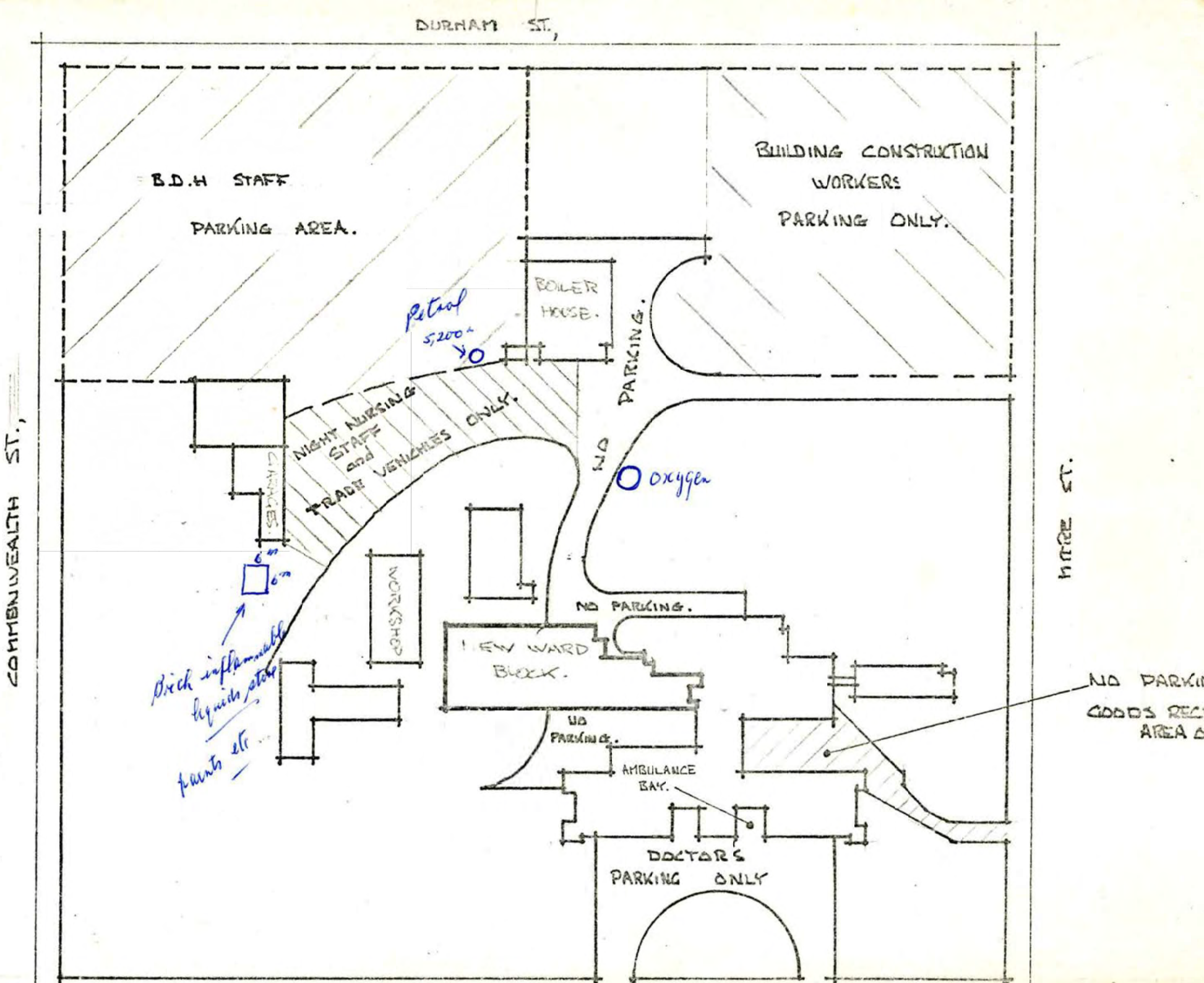
8

Yours faithfully

. . . . . .

(G. GAMBLE, Assistant Inspector)
Dangerous Goods Branch.

Encl.


DURHAM ST.
COMMONWEALTH ST.
HOPE ST.
B.D.H STAFF
PARKING AREA.
BUILDING CONSTRUCTION
WORKERS
PARKING ONLY.
BOILER HOUSE.
petrol
5,200 ltr
NIGHT NURSING STAFF and TRADE VEHICLES ONLY.
NO PARKING.
oxygen
GARAGES.
6m
6m
Brick inflammable liquids store
WORKSHOP
NEW WARD BLOCK.
NO PARKING.
NO PARKING.
AMBULANCE BAY.
DOCTORS
PARKING ONLY
NO PARKIN
GOODS REC
AREA

610/3655

Government Records Repository

N
1964

N
1973

N
1984

N
1989

N
1993

N
1998

N
2003

N
2014

N
2020

N
2022

Howick Street near intersection with Commonwealth Street, facing southeast.

January 2008

September 2008

February 2010

June 2015

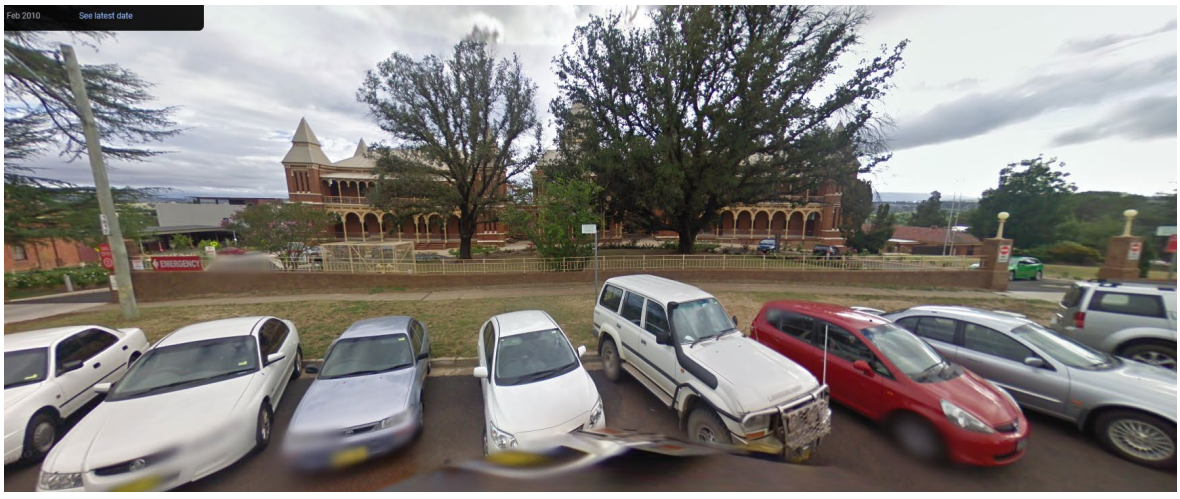
March 2018

June 2023

Howick Street facing northwest.

January 2008

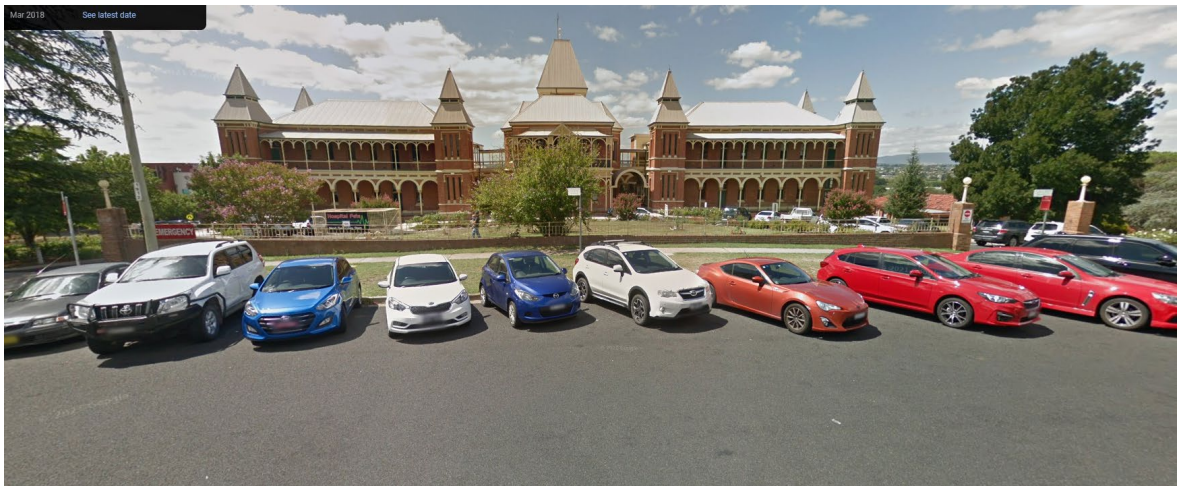
September 2008



February 2010

June 2015

May 2017



March 2018

June 2023

Mitre Street facing northwest.

January 2008

September 2008

February 2010

June 2015

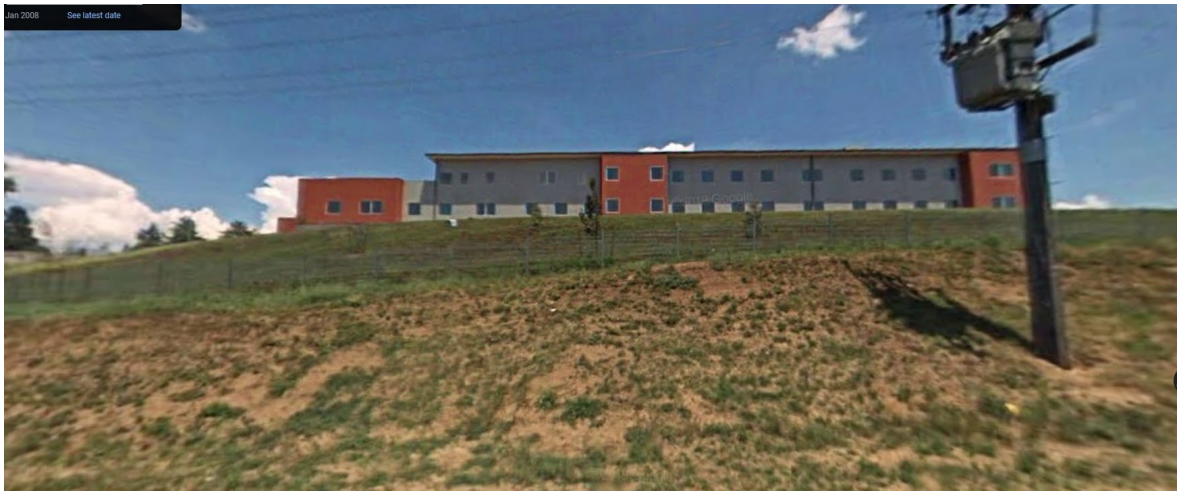
March 2018

August 2019

September 2022

June 2023

Durham Street face southwest



January 2008

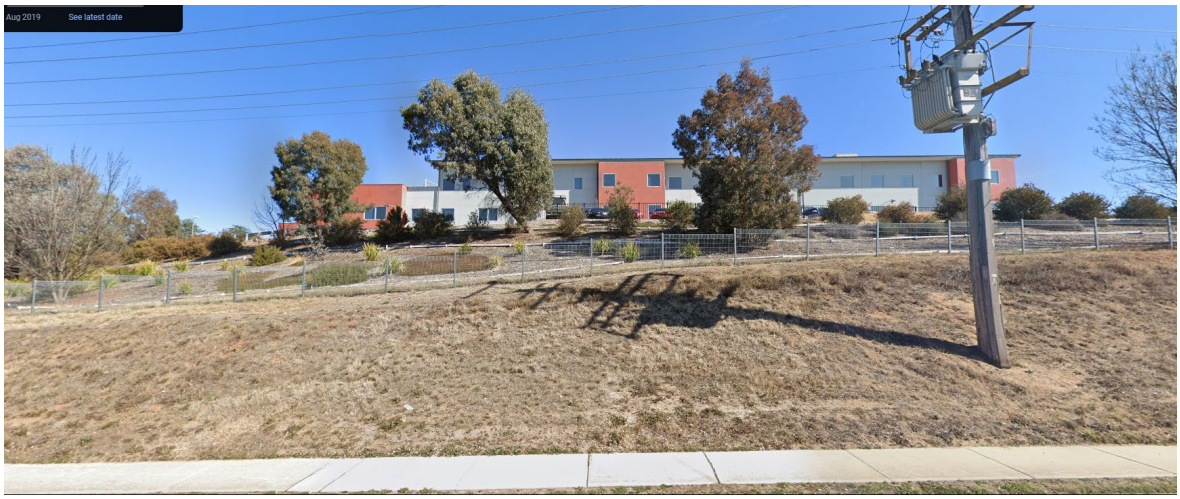
September 2008

February 2010

June 2015

May 2017

March 2018



August 2019

September 2022

June 2023

Commonwealth Street facing south.

January 2008

September 2008

February 2010

June 2015

May 2017

March 2018

June 2023

Environment Protection Licence

Licence - 18

Department of Environment & Climate Change NSW

Licence Details	
Number:	18
Anniversary Date:	01-July
Review Due Date:	12-Jun-2008

Licensee

GREATER WESTERN AREA HEALTH SERVICE
PO BOX 4061
DUBBO NSW 2830

Licence Type

Premises

Premises

BATHURST BASE HOSPITAL
HOWICK STREET
BATHURST NSW 2795

Scheduled Activity

Waste Activities

Fee Based Activity	Scale
Hazardous, Industrial or Group A Waste Generation or Storage (73)	> 10 - 100 T

Region

North West - Bathurst
219 Howick Street
BATHURST NSW 2795
Phone: 02 6332 7600
Fax: 02 6332 2387

PO Box 1388 BATHURST
NSW 2795

Environment Protection Licence

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

The EPA publication "A Guide to Licensing" contains information about how to calculate your licence fees.

The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

GREATER WESTERN AREA HEALTH SERVICE
PO BOX 4061
DUBBO NSW 2830

subject to the conditions which follow.

1 Administrative conditions

A1 What the licence authorises and regulates

A1.1 Not applicable.

A1.2 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity
Waste Activities

Fee Based Activity	Scale
Hazardous, Industrial or Group A Waste Generation or Storage (73)	> 10 - 100 T

A1.3 Not applicable.

A2 Premises to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
BATHURST BASE HOSPITAL
HOWICK STREET
BATHURST
NSW

Premises Details
2795
SEC.60 LOT1 DP125776; SEC.60 LOT1 DP724302

A3 Other activities

A3.1 Not applicable.

A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

2 Discharges to air and water and applications to land

P1 Location of monitoring/discharge points and areas

P1.1 Not applicable.

P1.2 Not applicable.

P1.3 Not applicable.

3 Limit conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 Not applicable.

L2.2 Not applicable.

L3 Concentration limits

L3.1 Not applicable.

L3.2 Not applicable.

L3.3 Not applicable.

L4 Volume and mass limits

L4.1 Not applicable.

L5 Waste

L5.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

L5.3 Except as provided by any other condition of this licence, only the hazardous and/or industrial and/or Group A waste listed below may be generated and/or stored at the premises.

(a) Clinical and related wastes.

L6 Noise Limits

L6.1 Not applicable.

4 Operating conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.

This includes:
(a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
(b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
(a) must be maintained in a proper and efficient condition; and
(b) must be operated in a proper and efficient manner.

O3 Emergency response

O3.1 Within 3 months of the date of the issue of this licence, the licensee must develop, or update, an emergency response plan which documents the procedures to deal with all types of incidents (e.g. spill, explosions or fire) that may occur at the premises or outside of the premises (e.g. during transfer) which are likely to cause harm to the environment.

O4 Processes and management

O4.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes, in force as at 1 July 1999.

O4.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

O5 Monitoring of waste movements within NSW

O5.1 Conditions O5.2 to O5.16 apply to the movement of the types of hazardous and/or industrial and/or Group A waste as listed in L5.3, within NSW.

Prerequisites for waste movements

O5.2 If the waste is transported from the premises, the licensee must ensure that the waste is transported:
(a) to a place which has been licensed by the EPA to issue consignment authorisation numbers; and
(b) to a place that can otherwise lawfully accept that class of waste.

O5.3 If the waste is transported from the premises, the licensee must;
(a) obtain a consignment authorisation number from the consignee;
(b) complete an approved waste data form in relation to the consigned waste in accordance with the instructions on the form and to the extent required, and give a copy of the form to the person transporting the waste;
(c) ensure that the waste data form:
(i) is completed accurately, and
(ii) is retained for a period of not less than 4 years from the time the form was completed, and
(iii) is made available for inspection by an authorised officer on request;
(d) ensure, if the waste is of such an amount as to require the person transporting it to be licensed, that the person transporting the waste is licensed.

Application for a consignment authorisation number

O5.4 To obtain a consignment authorisation number as required by 05.3 (a), the licensee must apply in writing to the consignee. An application must include the following information:
(a) a statement identifying the classification of the waste in accordance with the requirements of condition 04.1;
(b) copies of all information used to classify the waste;
(c) an estimate of the amount of waste to which the application applies;
(d) whether the consignment will consist a single load or multiple loads;
(e) an estimate of the total period required for transportation of the consignment;
(f) the date of dispatch of at least the first load in the consignment.

Note: The licensee may nominate the dates of dispatch of as many loads as is feasible. This should be discussed with the consignee and will depend on the predictability of the rate of generation of the waste and the likelihood of the need for amendments to the dates nominated. If the waste is predictable, a schedule may be able to be submitted for the entire consignment, however if it is unpredictable, the date of only one future load may be able to be determined at a time (see also 05.9 about amending notified dates).

Note: The requirement for a written application for a consignment authorisation number does not preclude preliminary contact to obtain quotes and/or advice. Such preliminary contact does not require the formal provision of the above information that need only be supplied in the formal application.

O5.5 Once an application for a consignment authorisation number, as set out in 05.4 has been submitted, the licensee must not submit an application for the same consignment to another consignee until notification is received concerning the outcome of the application.

Notification of dates of dispatch of the second and subsequent loads in a consignment.

O5.6 The licensee must provide the consignee with written notification of the date of dispatch of each load of waste.

O5.7 The notification referred to in 05.6 must be received by consignee no later than the date of arrival of the preceding load at the destination.

Notification of a final load in a consignment.

O5.8 Unless the movement of an entire consignment of waste occurs in a single load, by the time the final load in a consignment is accepted at the destination, the licensee must have informed the consignee in writing, that no further loads are to be dispatched under that consignment authorisation number.

Note: The notifications referred to in conditions 05.6 and 05.8 may be attached to the waste data form of the preceding load.

Amendments to the nominated date(s) of dispatch

O5.9 If the date of dispatch for a load of waste is changed, the licensee must give written notification of this to the consignee and nominate a revised date of dispatch.

O5.10 A notification referred to in 05.9 must occur on or before the date of delivery as previously nominated.

Note: More than one amendment to dates of dispatch may occur.

Cancellation of consignment authorisations

O5.11 If the licensee determines that the delivery of a consignment of waste is to be discontinued for any reason, the consignee must be notified in writing before the nominated date of dispatch of the next expected load.

Notification of delayed delivery by transporter

O5.12 If the licensee receives written notification from a transporter who removed waste from the premises specifying a revised date of delivery to the destination which is more than 7 days after the date of dispatch, the licensee must note and record that date.

Record keeping

O5.13 The licensee must record and retain all information related to each consignment of waste.

Note: This includes waste data forms and copies of other documents such as notifications of revised

delivery dates, regular and other reports, etc.

O5.14 The records referred to in 05.13 must be kept so that:
(a) all records relating to individual consignment authorisation numbers are kept physically together;
(b) consignments transported by each transporter can be readily identified and accessed; and
(c) consignments sent to each destination can readily be identified and accessed.

Note: The licensee must keep all information for at least 4 years.

Exception reporting

O5.15 The licensee must notify the EPA, in writing, within 48 hours of becoming aware of any suspected breaches of the Act, the Protection of the Environment Operations (Waste) Regulation 1996 or this licence.

O5.16 The licensee must notify the EPA in writing within 48 hours of becoming aware of any of the following:
(a) the refusal by a person to whom the licensee has applied for a consignment authorisation number in accordance with 05.4 to issue such a number;
(b) the refusal of a transporter to transport waste after arriving at the licensee's premises for the purposes of transporting that waste;
(c) a transporter who transports, or attempts to transport, waste without a waste data form completed to the extent required;
(d) the refusal of a consignee to accept waste from the licensee;
(e) the failure of the licensee to receive written confirmation of receipt of waste from a consignee within 21 days of dispatch, or where a transporter has provided written notification of a revised date of delivery as set out in 05.12 within 21 days of that date;
(f) the notification by a transporter of a revised date of delivery which is more than 90 days after the date of dispatch of the waste.

Note: The EPA should be notified of exception reports by sending a facsimile to:

Manager, Hazardous Waste Regulation

NSW Environment Protection Authority

O6 Monitoring of interstate movements of controlled wastes

O6.1 Conditions O6.2 to O6.11 apply to the movement of the types of hazardous and/or industrial and/or Group A waste as listed in L5.3, into and out of NSW.

Note: The requirements of the NEPM apply to the interstate movement of any of the wastes listed in Appendix 1 of this licence.

Classification of controlled waste

O6.2 The licensee must accurately identify the waste, in accordance with 04.1, and determine if the waste is a controlled waste within the meaning of the NEPM.

Note: The waste producer must check with the agency in the State or Territory of destination to determine whether waste is classified as a controlled waste under the NEPM. Unless advised otherwise by the agency of the State or Territory of destination, any waste included in Appendix 1 of this licence is a controlled waste for the purposes of the NEPM.

Application for a consignment authorisation

O6.3 If the waste is transported from the premises to another participating State or Territory, the licensee must comply with all conditions attached to the consignment authorisation issued by an agency or a facility delegated by an agency in the destination State or Territory.

Note: The waste producer is required by the Protection of the Environment Operations (Waste) Regulation 1996 to obtain, prior to the waste being dispatched, a consignment authorisation from an agency, or a facility delegated by an agency, in the destination State or territory to allow the movement of controlled waste.

Waste movements

O6.4 If the waste is transported from the premises to another participating State or Territory, the licensee must ensure that the waste is transported to a place that can lawfully be used as a waste facility for that waste.

O6.5 The licensee must ensure that the waste transporter is licensed as required by the agency of each participating State or Territory through which the waste is transported.

O6.6 The licensee must:
(a) retain a copy of the waste transport certificate for the waste for a period of not less than 4 years from the time the form was completed, and
(b) make the copy of the waste transport certificate available for inspection by an authorised officer on request.

Note: The waste producer is required by the Protection of the Environment Operations (Waste) Regulation 1996 to complete a waste transport certificate for the waste. This should be done in accordance with the instructions printed on the certificate and the required copy of the waste transport certificate should be forwarded to the agency in the State of destination.

Notification of delayed delivery by transporter

O6.7 If the licensee receives written notification from the transporter who removed waste from the licensee's premises specifying a revised date of delivery to the destination which is more than 7 days after the date of dispatch, the licensee must note and record that date.

Record keeping

O6.8 The licensee must record and retain all information related to each consignment of waste.

Note: This includes the waste transport certificates and copies of other documents such as consignment

authorisations issued by an agency in the destination State or Territory, notifications of revised delivery dates by transporters, regular and other reports, etc.

O6.9 The records referred to in 06.8 must be kept so that:
(a) all records relating to each consignment authorisation are kept physically together;
(b) consignments transported by each transporter can be readily identified and accessed, and
(c) consignments sent to each destination can readily be identified and accessed.

Note: The licensee must keep all information for at least 4 years.

Exception reporting

O6.10 The licensee must notify the EPA in writing within 48 hours of becoming aware of a suspected breach of the Act, the Protection of the Environment Operations (Waste) Regulation 1996 or this licence.

O6.11 The licensee must notify the EPA in writing within 48 hours of becoming aware of any of the following:
(a) the refusal by an agency, or facility delegated by an agency, in participating State or Territory to whom the licensee has applied for a consignment authorisation in accordance with 06.3, to issue such an authorisation;
(b) the refusal of a transporter to transport waste after arriving at the licensee's premises for the purposes of transporting that waste to another participating State or Territory to the extent required;
(c) a transporter who transports, or attempts to transport, waste to another participating State or Territory without a waste transport certificate completed to the extent required;
(d) the refusal of a destination in another participating State or Territory to accept from the licensee waste for which a consignment authorisation has been issued;
(e) the failure of the licensee to receive written confirmation of receipt of waste from a destination in another participating State or Territory within 28 days of dispatch.

Note: The EPA should be notified of exception reports by sending a facsimile to:

Manager, Hazardous Waste Regulation
NSW Environment Protection Authority

O7 Clinical and related wastes

O7.1 The licensee must ensure that the handling, labelling, containment and storage of clinical and related wastes is carried out in accordance with the Waste Management Guidelines for Health Care Facilities, 1998, issued by the NSW Department of Health.

O7.2 Without limiting to O7.1, the licensee must ensure that:

(a) clinical wastes are stored or contained in a weather proof secure location isolated from any other wastes, and that the storage area is maintained in a condition which presents no threat to the environment;

(b) the storage area for clinical wastes contains all necessary equipment required to clean and disinfect the area in case of spillage;

(c) no radioactive substance as defined by the Radiation Control Act, 1990 is mixed or stored with any of the clinical wastes;

(d) bagged clinical wastes are stored and transported in rigid containers which are leak proof, shatter proof, washable and have securely fitting lids to prevent spills at all times;

(e) bags and containers used for storage and transport of clinical wastes are colour coded and clearly marked with the wording 'Clinical Wastes' along with the biological hazard symbol in accordance with the requirements of the Waste Management Guidelines for Health Care Facilities, 1998, issued by the NSW Department of Health;

(f) containers used for clinical waste which are to be reused must be thoroughly cleansed and disinfected before being reused; and

(g) where second hand containers are used, all other irrelevant markings shall be obliterated.

O8 Sharps waste

O8.1 In addition to O7.1, the licensee must ensure that:

(a) sharps are segregated by the use of enclosed rigid impenetrable containers that comply with Australian Standards AS/NZS 4031-1992 (non-reusable containers) and 4261-1994 (reusable containers) before disposal in waste bags labelled 'Clinical Wastes' along with the appropriate biohazard symbol;

(b) sharps contaminated by any residual cytotoxic drug are segregated by the use of enclosed rigid impenetrable containers that comply with Australian Standards AS/NZS 4031-1992 (non-reusable containers) and 4261-1994 (reusable containers) before disposal in cytotoxic waste bags labelled 'Cytotoxic Wastes' along with the appropriate biohazard symbol; and

(c) sharps are transported in rigid impenetrable containers which are leakproof, shockproof and have securely fitting lids and that comply with Australian Standard AS/NZS 3816-1998, Management of Clinical and Related Wastes.

O9 Cytotoxic waste

O9.1 In addition to O7.1 and O7.2, the licensee must ensure that:

(a) cytotoxic wastes are disposed of at a high temperature incinerator approved by the EPA; or

(b) by a method approved by the EPA and by the NSW Department of Health.

5 Monitoring and recording conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
(a) in a legible form, or in a form that can readily be reduced to a legible form;
(b) kept for at least 4 years after the monitoring or event to which they relate took place; and
(c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
(a) the date(s) on which the sample was taken;
(b) the time(s) at which the sample was collected;
(c) the point at which the sample was taken; and
(d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 Not applicable.

M3 Testing methods - concentration limits

M3.1 Not applicable.

M3.2 Not applicable.

M4 Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
(a) the date and time of the complaint;
(b) the method by which the complaint was made;

(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 Conditions M5.1 and M5.2 do not apply until 3 months after:
(a) the date of the issue of this licence or
(b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

M6 Requirement to monitor volume or mass

M6.1 Not applicable.

6 Reporting conditions

R1 Annual return documents

What documents must an Annual Return contain?

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
(a) a Statement of Compliance; and
(b) a Monitoring and Complaints Summary.

A copy of the form in which the Annual Return must be supplied to the EPA accompanies this licence. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

Period covered by Annual Return

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
(a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
(b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
(a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
(b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

Deadline for Annual Return

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

Notification where actual load can not be calculated

R1.6 Not applicable.

Licensee must retain copy of Annual Return

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

Certifying of Statement of Compliance and signing of Monitoring and Complaints Summary

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
(a) the licence holder; or
(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

R2 Notification of environmental harm

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
(a) where this licence applies to premises, an event has occurred at the premises; or
(b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
(a) the cause, time and duration of the event;
(b) the type, volume and concentration of every pollutant discharged as a result of the event;
(c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
(d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
(e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
(f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
(g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

R4 Regular reporting of transportation of certain wastes within NSW

R4.1 Conditions R4.2 to R4.5 apply to the transport of hazardous and/or industrial and/or Group A waste within NSW.

Regular reporting

R4.2 The licensee must supply to the EPA, for each transporter that transported waste from the licensees premises, the information as set out in Appendix 2, table 1.

R4.3 The licensee must supply to the EPA, for each destination within NSW which received waste from the licensee, the information as set out in Appendix 2, table 2.

Reporting periods

R4.4 Reports to the EPA in accordance with R4.2 and R4.3 shall be supplied on or before:

(a) 30 April for the reporting of information relating to wastes transported from the premises between 1 January and 31 March of that year;
(b) 31 July for the reporting of information relating to wastes transported from the premises between 1 April and 30 June of that year;
(c) 31 October for the reporting of information relating to wastes transported from the premises between 1 July and 30 September of that year;
(d) 31 January for the reporting of information relating to wastes transported from the premises between 1 October and 31 December of the previous year.

Note: The EPA should be notified of exception reports by sending a facsimile to:
Manager, Hazardous Waste Regulation
NSW Environment Protection Authority

Nil reports

R4.5 If waste has not been transported from the premises in any reporting period as set out in R4.4 the EPA must be advised in writing by the licensee, by the dates referred to in R4.4 in lieu of reporting as required in R4.2 and R4.3.

R5 Regular reporting of interstate movements of controlled wastes

R5.1 Conditions R5.2 to R5.5 apply to the movement of hazardous and/or industrial and/or Group A waste as listed in L5.3, into and out of NSW.

Note: The requirements of the NEPM apply to the interstate movement of any of the wastes listed in Appendix 1 of this licence.

Regular reporting

R5.2 The licensee must supply to the EPA, for each transporter that transported waste from the premises to a destination in another participating State or Territory, the information as set out in Appendix 2, table 3.

Reporting periods

R5.3 Reports to the EPA in accordance with R5.2 shall be supplied on or before:
(a) 30 April for the reporting of information relating to wastes transported from the premises between 1 January and 31 March of that year;
(b) 31 July for the reporting of information relating to wastes transported from the premises between 1 April and 30 June of that year;
(c) 31 October for the reporting of information relating to wastes transported from the premises between 1 July and 30 September of that year;
(d) 31 January for the reporting of information relating to wastes transported from the premises between 1 October and 31 December of the previous year.

Nil reports

R5.4 If waste has not been transported from the premises in any reporting period as set out in R5.3, the EPA must be advised in writing by the licensee, by the dates referred to in R5.3 in lieu of reporting as defined in R5.2.

Interstate transport of controlled wastes

R5.5 The licensee must comply with the requirements of the NEPM.

General conditions

G1 Copy of licence kept at the premises

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

Pollution studies and reduction programs

U1.1 Not applicable.

Special conditions

E1.1 Not applicable.

Appendices

APPENDIX 1

WASTE DESCRIPTIONS AND CORRESPONDING WASTE CODES

The waste descriptions and waste codes shown below must be used to identify hazardous, industrial and Group A wastes on the waste data form for movements of those wastes within NSW, and to identify controlled wastes on the waste transport certificate for those wastes moved between NSW and other States and Territories. The waste codes must also be used to identify wastes when reporting the information required in the Tables in Appendix 2.

Description	Waste Code		Description	Waste Code
Acidic solutions or acids in solid form	B100		Organohalogen compounds - other than substances referred to in this list	M160
Animal effluent and residues (abattoir effluent, poultry and fish processing wastes)	K100		Perchlorates	D340
Antimony; antimony compounds	D170		Phenols, phenol compounds including chlorophenols	M150
Arsenic; arsenic compounds	D130		Phosphorus compounds excluding mineral phosphates	D360
Asbestos	N220		Polychlorinated dibenzo-furan (any congener)	M170
Barium compounds (excluding barium sulphate)	D290		Polychlorinated dibenzo-p-dioxin (any congener)	M180
Basic solutions or bases in solid form	C100		Residues from industrial waste treatment/disposal operations	T190
Beryllium; beryllium compounds	D160		Selenium; selenium compounds	D240
Boron compounds	D310		Sewage sludge and residues including nightsoil and septic tank sludge	K130
Cadmium; cadmium compounds	D150		Soils contaminated with a controlled waste	N120
Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos	N230		Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials	M250
Chlorates	D350		Tannery wastes (including leather dust, ash, sludges and flours)	K140
Chromium compounds (hexavalent and trivalent)	D140		Tellurium; tellurium compounds	D250
Clinical and related wastes	R100		Thallium; thallium compounds	D180
Cobalt compounds	D200		Triethylamine catalysts for setting foundry sands	M230
Containers and drums which are contaminated with residues of substances referred to in this list	N100		Tyres	T140
Copper compounds	D190		Vanadium compounds	D270
Cyanides (inorganic)	A130		Waste chemical substances arising from research and development or teaching activities including those which	T100

			are not identified and/or are new and whose effects on human health and/or the environment are not known	
Cyanides (organic)	M210		Waste containing peroxides other than hydrogen peroxide	E100
Encapsulated, chemically-fixed, solidified or polymerised wastes	N160		Waste from heat treatment and tempering operations containing cyanides	A110
Ethers	G100		Waste from manufacture, formulation and use of wood-preserving chemicals	H170
Filter cake	N190		Waste from the production, formulation and use of biocides and phytopharmaceuticals	H100
Fire debris and fire washwaters	N140		Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish	F100
Fly ash	N150		Waste from the production, formulation and use of organic solvents	G160
Grease trap waste	K110		Waste from the production, formulation and use of photographic chemicals and processing materials	T120
Halogenated organic solvents	G150		Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives	F110
Highly odorous organic chemicals (including mercaptans and acrylates)	M260		Waste from the production and preparation of pharmaceutical products	R140
Inorganic fluorine compounds excluding calcium fluoride	D110		Waste mineral oils unfit for their original intended use	J100
Inorganic sulfides	D330		Waste oil/water, hydrocarbons/water mixtures or emulsions	J120
Isocyanate compounds	M220		Waste pharmaceuticals, drugs and medicines	R120
Lead; lead compounds	D220		Waste resulting from surface treatment of metals and plastics	A100
Mercury; mercury compounds	D120		Waste tarry residues arising from refining, distillation, and any pyrolytic treatment	J160
Metal carbonyls Nickel compounds Non toxic salts Organic phosphorous compounds	D100 D210 D300 H110		Waste substances and articles containing or contaminated with polychlorinated biphenyls, polychlorinated napthalenes, polychlorinated terphenyls and/or polybrominated biphenyls	M100
Organic solvents excluding halogenated solvents	G110		Wool scouring wastes Zinc compounds	K190 D230

APPENDIX 2

Table 1

[Table 1 refers to the regular reporting requirements in R4.2. Its purpose is to provide information on the total amount of waste moved by each transporter from waste activities in NSW.]

1. The licensee must provide a copy of the information in the following table for each transporter used by the licensee in the reporting period.

Waste Activities Table 1: Waste Movements By Transporter and Waste Category		
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**
Reporting Period:		**ANZSIC Code for Waste Activity:**
Name of Transporter:		**Licence No. of Transporter**
Waste class	**Waste Code**	**Amount of Waste Transported in Reporting Period (tonnes)**
Hazardous Non-Liquid Waste	*Code for each waste of this class*	*Total Weight for waste of each code*
Hazardous Liquid Waste	*Code*	*Weight*
	Code	*Weight*
Industrial Non-Liquid Waste	*Code*	*Weight*
	Code	*Weight*
Group A Liquid Waste	*Code*	*Weight*

	Code	*Weight*

[NOTES: ***Waste code*** *refers to the codes listed in Appendix 1 of this licence and entered on the waste transport certificates.*
Waste class *refers to the classification of waste in accordance with Appendix 1 of the Protection of the Environment Operations Act 1997 and its regulations.*

ANZSIC code *means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.]*

Table 2:

[Table 2 refers to the reporting requirements in R4.3. Its purpose is to provide information on the total amount of waste sent to each destination within NSW. Cross referencing by ANZSIC code provides data on which types of industry are sending wastes to disposal and treatment facilities.]

1. The licensee must provide a copy of the information in the following table for each destination within NSW used by the licensee in the reporting period for the purposes of the receipt of controlled waste.

Waste Activities Table 2: Waste Movements By Destination (within NSW) and Waste Category			
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**	
Reporting Period:		**ANZSIC Code for Waste Activity**	
Destination:			

Waste class	**Waste Code**	**Amount of Waste Transported in Reporting Period (tonnes)**
Hazardous Non-Liquid Wastes	*Code for each waste of this class*	*Total Weight for waste of each code*
	Code	*Weight*
Industrial Non-Liquid Wastes	*Code*	*Weight*
	Code	*Weight*
Hazardous Liquid Wastes	*Code*	*Weight*
	Code	*Weight*
Group A Liquid Wastes	*Code*	*Weight*

NOTES:
***Waste code** refers to the codes listed in Appendix 1 of this licence and entered on waste data forms.*
***Waste class** refers to the classification of waste in accordance with Schedule 1 of the Protection of the Environment Operations Act 1997 and its regulations.*

***ANZSIC code** means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.*

Table 3:
[Table 3 refers to the regular reporting requirements in R5.2. Its purpose is to provide information on the total amounts of controlled wastes sent from NSW licensed waste activities to other States and Territories. Cross-referencing by ANZSIC code allows data on which types of industries are sending wastes interstate.]

1. The licensee must provide a copy of the information in the following table for each destination outside NSW used by the licensee in the reporting period for the purposes of the receipt of controlled waste.

Waste Activities Table 3: Controlled Waste Movements By Interstate Destination and Waste Category			
Name of Licensed Waste Activity:		**Waste Activity Licence No.:**	
Reporting Period:		**ANZSIC Code Waste Activity:**	
Destination State or Territory:		**Destination Facility**	
Waste class	**Waste Code**	**Amount of Waste Transported in Reporting Period (tonnes)**	
Hazardous Non-Liquid Waste	*Code for each waste of this type*	*Total Weight for waste of this code*	
	Code	*Weight*	
Industrial Non-Liquid Waste	*Code*	*Weight*	
	Code	*Weight*	
Hazardous Liquid Waste	*Code*	*Weight*	
	Code	*Weight*	
Group A Liquid Waste	*Code*	*Weight*	

Other Types of Waste (eg Group B and C Liquid Wastes, Used Tyres)	*Code*	*Weight*

*[NOTES: **Waste code** refers to the codes listed in Appendix 1 of this licence and entered on the waste transport certificates.*
***Waste class** refers to the classification of waste in accordance with Appendix 1 of the Protection of the Environment Operations Act 1997 and its regulations.*
***ANZSIC code** means the Australian and New Zealand Standard Industrial Classification code published by the Australian Bureau of Statistics.]*

Dictionary

General Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand

composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 1998.
flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
industrial waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
inert waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 1998
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997

regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 months. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
reprocessing of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
treatment of waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste code	Means the waste codes listed in Appendix 5 of the EPA document A Guide to Licensing Part B.
waste type	Means Group A, Group B, Group C, inert, solid, industrial or hazardous waste

Model Licence Dictionary

In this licence, unless the contrary is indicated, the terms below have the following meanings:

Agency	A body or bodies of a participating State or a participating Territory which that State or Territory has nominated for the purposes of the NEPM.
Chemical control order (CCO)	An order under sections 22 and 23 of the Environmentally Hazardous Chemicals Act 1985.
Consignee	The person to whom the waste is dispatched, and includes: (a) in the case of a waste facility that is licensed - the occupier; (b) in the case of a person carrying on mobile waste processing that is licensed - the person operating the mobile place; (c) in the case of a place that can be otherwise lawfully be used as a waste facility for that waste - the owner or occupier of that place.
Consignment	One or more shipments of a specified waste dispatched to a particular destination.

Consignment authorisation	An approval which includes a unique identifier granted by an agency, or a facility delegated by an agency, in the jurisdiction of destination to allow the movement of controlled waste.
Controlled waste	Any waste included in List 1 of Schedule A of the NEPM, provided that the waste possesses one or more of the characteristics in List 2, of Schedule A of the NEPM.
Date of dispatch	The date on which a load of waste is removed from the premises.
Destination	Where hazardous, industrial or Group A wastes are transported within NSW, the place described in the waste data form as the destination for the waste. Where controlled wastes are transported between NSW and another participating State or Territory, the place described in Part 3 of the waste transport certificate as the facility receiving the waste.
Facility	A place where controlled wastes are received.
Facility Operator	A person in charge of a facility.
Jurisdiction of destination	In relation to a particular consignment of waste means the State or Territory in which the facility is located to which the waste is intended to be transported.
Load	The amount of a consignment of waste placed on a vehicle for any single dispatch from the premises at which it was generated or stored.
Load number	A consecutive number identifying each load of waste within a consignment and starting with 1 for the first load of each consignment. One or more loads may make up a consignment.
NEPM	The National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998.
Non-liquid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997.
Participating State or Territory	A State or Territory that is (a) a party to the Intergovernmental Agreement on the Environment made on 1 May 1992 between the Commonwealth, the States, the Australian Capital Territory, the Northern Territory and the Australian Local Government Association, a copy of which is set out in the Schedule to the Commonwealth Act; and (b) in which an Act that corresponds to the National Environment Protection Council Act 1994 of the Commonwealth is in force in accordance with the Agreement.
Recycling of waste	The processing of waste into a similar non-waste product.
Regulation	The Protection of the Environment Operations (Waste) Regulation 1996.
Transporter	A person responsible for moving controlled wastes either from one participating State or Territory to another or through participating States or Territories.
Waste activity	An activity, whether required to be licensed or not, carried on for business or other commercial purposes, that involves the generating or storage of any of the following waste classes: (a) hazardous waste, (b) industrial waste,

	(c) Group A waste.
Waste class	Means either hazardous, industrial or Group A waste.
Waste data form	A certificate in the form approved by the EPA.
Waste guidelines	The document called *"Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes"* issued by the EPA and in force as at 1 July 1999.
Waste producer	Means the licensee.
Waste transport certificate	A certificate in the form approved by the EPA as fulfilling the requirements of Schedule B of the National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998.

Ms Nadia Kanhoush

Environment Protection Authority

(By Delegation)

Date of this edition - 27-Jun-2006

End Notes

1	Licence varied by Admin corrections to archived record, issued on 02-Dec-2002, which came into effect on 02-Dec-2002.
2	Licence varied by notice 1041315, issued on 06-Oct-2004, which came into effect on 31-Oct-2004.
3	Licence fee period changed by notice 1062031 on 27-Jun-2006.

MACQUARIE GEOTECH

Borehole No.
BH01
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Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	25/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	25/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information										Soil Description				Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20	Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T			Not Observed	B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 4,8,14 N=22 SPT 1.00-1.45 m 7,11,9 N=20 SPT 1.50-1.95 m 7,14,14 N=28 SPT 2.00-2.45 m 8,8,4 N=12 SPT 2.50-2.95 m 3,4,3 N=7 SPT 3.00-3.45 m 6,7,14 N=21 PP <400 kPa SPT 3.50-3.86 m 8,29,30/60mm N=R SPT 4.00-4.21 m 27,30/60mm N=R			1 2 3 4 5 6			CLAYEY SAND: fine to coarse grained sand, grey brown, low-plasticity clay, with roots and rootlets (<2mm). CLAYEY SAND: fine to coarse grained sand, grey brown, low-plasticity clay, trace fine, sub-rounded gravel, with roots and rootlets (<2mm). Fill consists of tile, brick, granite and plastic pipe SAND: fine to coarse grained sand, brown and grey, with low plasticity clay, trace fine, sub-angular gravel, fill consists of brick and granite 0.80m: 1no. clinker fragment (<20mm). 1.40-2.00m: brown with gravel. Locally clayey. SANDY CLAY: low plasticity, brown and grey brown mottled red brown, fine to coarse sand, trace fine, sub-angular gravel, fill consists of brick and siliceous material 3.00-3.70m: locally with gravel. SAND: fine to coarse grained sand, poorly graded, brown mottled grey and orange brown, with low plasticity clay, trace fine, sub-angular gravel Hole Terminated at 4.40 m Refusal	D M (<PL) D	MD St F VSt H VD	×	TOPSOIL FILL RESIDUAL SOIL

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Plastic Limit
< PL
= PL
< PL

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MACQUARIE GEOTECH

Borehole No.
BH02
Page 1 of 1

Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	25/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	25/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information									Soil Description			Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20	Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T			Not Observed	B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 10,17,18 N=35 SPT 1.00-1.45 m 9,13,12 N=25 PP >600 kPa SPT 1.50-1.95 m 6,16,15 N=31 SPT 2.00-2.45 m 12,12,16 N=28 SPT 2.50-2.95 m 6,9,17 N=26 SPT 3.00-3.45 m 12,24,26 N=50 SPT 3.50-3.76 m 14,30/110mm N=R SPT 4.00-4.24 m 29,30/90mm N=R SPT 4.50-4.63 m 15/130mm SPT 5.00-5.35 m 22,25,12/50mm N=R SPT 5.50-5.70 m 17,15/50mm N=R SPT 6.00-6.21 m 27,25/60mm N=R SPT 6.50-6.73 m 12,30/80mm N=R			1 2 3 4 5 6		CLAYEY SAND: fine to coarse grained sand, brown and grey brown, low-plasticity clay, with roots and rootlets (<2mm). CLAYEY SAND: fine to coarse grained sand, brown and grey brown, low-plasticity clay, trace fine, sub-angular gravel, with roots and rootlets (<2mm). Fill consists of brick and siliceous material. SAND: fine to coarse grained sand, grey and grey brown, with low plasticity clay, with fine to medium, sub-angular gravel SANDY CLAY: low plasticity, grey and grey brown, fine to coarse sand, trace fine to medium, sub-angular gravel 1.70m: 1no. black geotech plastic layer (<1mm) CLAYEY SAND: fine to coarse grained sand, dark grey and black mottled red brown, low plasticity clay, with fine to medium, sub-rounded to sub-angular gravel, fill consists of brick, ash, clinker and siliceous material. SC SAND: fine to coarse grained sand, poorly graded, brown and grey brown, with low plasticity clay, trace fine to medium, sub-angular gravel	D M (<PL) D to M D	D VSt H MD VD			TOPSOIL FILL RESIDUAL SOIL

Hole Terminated at 7.00m Target depth

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Plastic Limit
< PL
= PL
< PL

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MACQUARIE GEOTECH

Borehole No.
BH03
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Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	28/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	28/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information										Soil Description			Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20 / Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T			Not Observed	B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 7,10,6 N=16 SPT 1.00-1.45 m 7,12,21 N=33 SPT 1.50-1.95 m 7,13,12 N=25 SPT 2.00-2.45 m 16,26,23 N=49 SPT 2.50-2.95 m 11,15,12 N=27 SPT 3.00-3.36 m 6,20,30/60mm N=R SPT 3.50-3.77 m 10,30/115mm N=R SPT 4.00-4.24 m 20,30/90mm N=R SPT 4.50-4.70 m 26,30/50mm N=R SPT 5.00-5.38 m 2,25,30/80mm N=R SPT 5.50-5.75 m 10,30/100mm N=R SPT 6.00-6.23 m 13,30/80mm N=R SPT 6.50-6.77 m 20,30/120mm N=R			1 2 3 4 5 6		CLAYEY SAND: fine to coarse grained sand, brown, low-plasticity clay, with roots and rootlets (<2mm). CLAYEY SAND: fine to coarse grained sand, brown, low-plasticity clay, trace fine to coarse, sub-angular to angular gravel, with roots and rootlets (<2mm). Fill consists of brick, concrete and crushed granite CLAYEY SAND: fine to coarse grained sand, brown, low plasticity clay, trace fine to medium, sub-angular to angular gravel, fill consists of brick and crushed granite SANDY CLAY: low to medium plasticity, brown mottled green grey, fine to coarse sand, trace fine, sub-angular gravel, fill consists of brick and crushed granite 1.50-1.85m: black and red brown CLAYEY SAND: fine to coarse grained sand, dark grey and dark grey brown mottled black and red brown, low plasticity clay, with fine to medium, sub-angular to angular gravel, fill consists of brick, ash, partially decomposed organic material and concrete.	D D to M M (<PL)	MD D VSt to H VSt VD MD VD		TOPSOIL FILL
									SC	SAND: fine to coarse grained sand, brown and grey, with low plasticity clay, trace fine to medium, sub-angular gravel 3.50-4.00m: with pockets of clay (<20mm). 4.00-7.00m: Locally clayey.	D	VD		RESIDUAL SOIL

Hole Terminated at 7.00m Target depth

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Plastic Limit
< PL
= PL
< PL

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

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MACQUARIE GEOTECH

Borehole No.
BH04
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Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	28/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	28/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information										Soil Description			Observations	
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20	Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T			Not Observed	B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 8,10,9 N=19 PP >600 kPa SPT 1.00-1.45 m 6,8,10 N=18 PP >500 kPa SPT 1.50-1.95 m 15,15,16 N=31 SPT 2.00-2.45 m 10,19,16 N=35 SPT 2.50-2.90 m 10,14,30/100mm N=R SPT 3.00-3.14 m 30/140mm N=R SPT 3.50-3.72 m 20,20/70mm HB N=R SPT 4.00-4.15 m 30/145mm N=R SPT 4.50-4.65 m 30/150mm N=R SPT 5.00-5.17 m 25,20/20mm HB N=R			1 2 3 4 5 6			CLAYEY SAND: fine to coarse grained sand, brown, low-plasticity clay, with roots and rootlets (<2mm). CLAYEY SAND: fine to coarse grained sand, brown, low-plasticity clay, trace fine to medium, sub-rounded to angular gravel, with roots and rootlets (<2mm). Fill consists of brick, concrete and crushed granite. Locally tending to clayey sand. CLAY: medium plasticity, brown, dark brown and dark grey, with fine to coarse sand, trace fine, sub-angular gravel, fill consists of crushed granite SAND: fine to coarse grained sand, grey and dark grey mottled red brown, with low plasticity clay, with fine to coarse, sub-angular to angular gravel, fill consists of brick and crushed granite 1.63-1.74m: green grey CLAYEY SAND: fine to coarse grained sand, brown and grey, low plasticity clay, trace fine to medium, sub-angular to angular gravel, fill consists of crushed granite and red brick 2.40-2.78m: with pockets of clay (<20mm)	D M (<PL) D D to M	VSt VSt D D VD			TOPSOIL FILL RESIDUAL SOIL
									SC	SAND: fine to coarse grained sand, brown and grey brown, with low plasticity clay, trace fine, sub-angular to angular gravel	D	VD			
										Hole Terminated at 5.25 m Refusal					

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Plastic Limit
< PL
= PL
< PL

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MACQUARIE GEOTECH

Borehole No.
BH05
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Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	28/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	29/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information										Soil Description			Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20 / Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T		Not Observed		B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 9,12,11 N=23 SPT 1.00-1.45 m 9,7,5 N=12 SPT 1.50-1.95 m 3,5,9 N=14 PP =300 kPa SPT 2.00-2.45 m 7,6,10 N=16 SPT 2.50-2.92 m 8,17,30/120mm N=R PP >550 kPa SPT 3.00-3.22 m 20,30/70mm N=R SPT 3.50-3.65 m 30/145mm N=R SPT 4.00-4.08 m 30/75mm N=R SPT 4.50-4.64 m 30/140mm N=R SPT 5.00-5.08 m 30/80mm N=R SPT 5.50-5.55 m 15/50mm HB N=R SPT 6.00-6.06 m 30/60mm N=R			1 2 3 4 5 6		CLAYEY SAND: fine to coarse grained sand, brown, low plasticity clay, with roots and rootlets (<2mm). CLAYEY SAND: fine to coarse grained sand, brown, low plasticity clay, with fine to coarse, sub-rounded to sub-angular gravel, with roots and rootlets (<2mm). Fill consists of brick, concrete and crushed granite SAND: fine to coarse grained sand, brown and grey brown, with low plasticity clay, with fine to medium, sub-angular gravel, fill consists of brick and crushed granite 1.00-1.40m: limited recovery. Recovered as 1no. concrete fragment (<30mm) SANDY CLAY: low to medium plasticity, brown and green grey, fine to coarse sand, trace fine to coarse, sub-angular to angular gravel, fill consists of brick, glass. siliceous material, concrete and crushed granite 2.10-2.15m: recovered as light grey concrete gravel	D M (<PL)	MD St St to VSt H		TOPSOIL FILL
									SC	SAND: fine to coarse grained sand, brown and grey brown, with low plasticity clay, trace fine, sub-angular gravel	D	VD		RESIDUAL SOIL
										Hole Terminated at 6.10 m Refusal				

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Plastic Limit
< PL
= PL
< PL

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MACQUARIE GEOTECH

Borehole No. **BH06**

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Engineering Log - Borehole

Project No.: B17406

Client:	GHD	Commenced:	29/08/2017
Project Name:	Bathurst Base Hospital - Pavement Investigation	Completed:	29/08/2017
Hole Location:	Bathurst	Logged By:	DP
Hole Position:	Refer to Plan	Checked By:	JB

Drill Model and Mounting:	E50	Inclination:	-90°	RL Surface:	No survey		
Hole Diameter:	115 - 300 mm	Bearing:		Datum:		Operator:	Chris Dwyer

Drilling Information										Soil Description			Observations		
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	DCP Blows/100mm 5 10 15 20	Pocket Penetrometer UCS (kPa) 100 200 300 400 500	Structure and Additional Observations
AD/T			Not Observed	B 0.00-0.50 m D 0.00-0.50 m SPT 0.50-0.95 m 5,4,2 N=6 SPT 1.00-1.45 m 2,1,2 N=3 SPT 1.50-1.95 m 4,6,6 N=12 SPT 2.00-2.45 m 4,5,17 N=22 SPT 2.50-2.95 m 10,10,8 N=18 SPT 3.00-3.45 m 4,7,4 N=11 SPT 3.50-3.95 m 3,6,6 N=12 PP >400 kPa SPT 4.00-4.45 m 4,4,14 N=18 SPT 4.50-4.65 m 30/145mm N=R SPT 5.00-5.15 m 30/145mm N=R SPT 5.50-5.57 m 30/70mm N=R SPT 6.00-6.13 m 30/130mm N=R			1 2 3 4 5 6			CLAYEY SAND: fine to coarse grained sand, brown mottled grey and red brown, low plasticity clay, with fine to coarse, sub-angular to angular gravel, with roots and rootlets (<2mm).		L			TOPSOIL
										CLAYEY SAND: fine to coarse grained sand, brown mottled grey and red brown, low plasticity clay, with fine to coarse, sub-angular to angular gravel, with roots and rootlets (<2mm). Fill consists of brick, concrete, wood and glass 0.50-1.50m: with clay	D	VL MD			FILL
										SANDY CLAY: medium plasticity, brown and orange brown, fine to coarse sand, trace fine, sub-angular gravel, fill consists of brick and crushed granite 2.50-2.95m: with red brick fragments (<20mm)	M (<PL)	VSt St			
										SAND: fine to coarse grained sand, black and grey, with low plasticity clay, with fine to medium, sub-angular gravel, fill consists of brick and charcoal	SM	MD		×	
										SANDY CLAY: medium plasticity, brown, fine to coarse sand 4.00-4.20m: locally grey	M (<PL)	St VSt			
									SC	SAND: fine to coarse grained sand, brown mottled grey, with low plasticity clay, trace fine to medium, sub-angular gravel 4.50-6.23m: trace clay	SM D	VD			RESIDUAL SOIL
										Hole Terminated at 6.23 m Refusal					

Method
AS - Auger Screwing
RR - Rock Roller
WB - Washbore

Penetration
No resistance ranging to refusal

Water
Level (Date)
Inflow
Partial Loss
Complete Loss

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test

Moisture Condition
D - Dry
M - Moist
W - Wet

Consistency/Relative Density
VS - Very Soft
S - Soft
F - Firm
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Support
C - Casing

Graphic Log/Core Loss
Core recovered (hatching indicates material)
Core loss

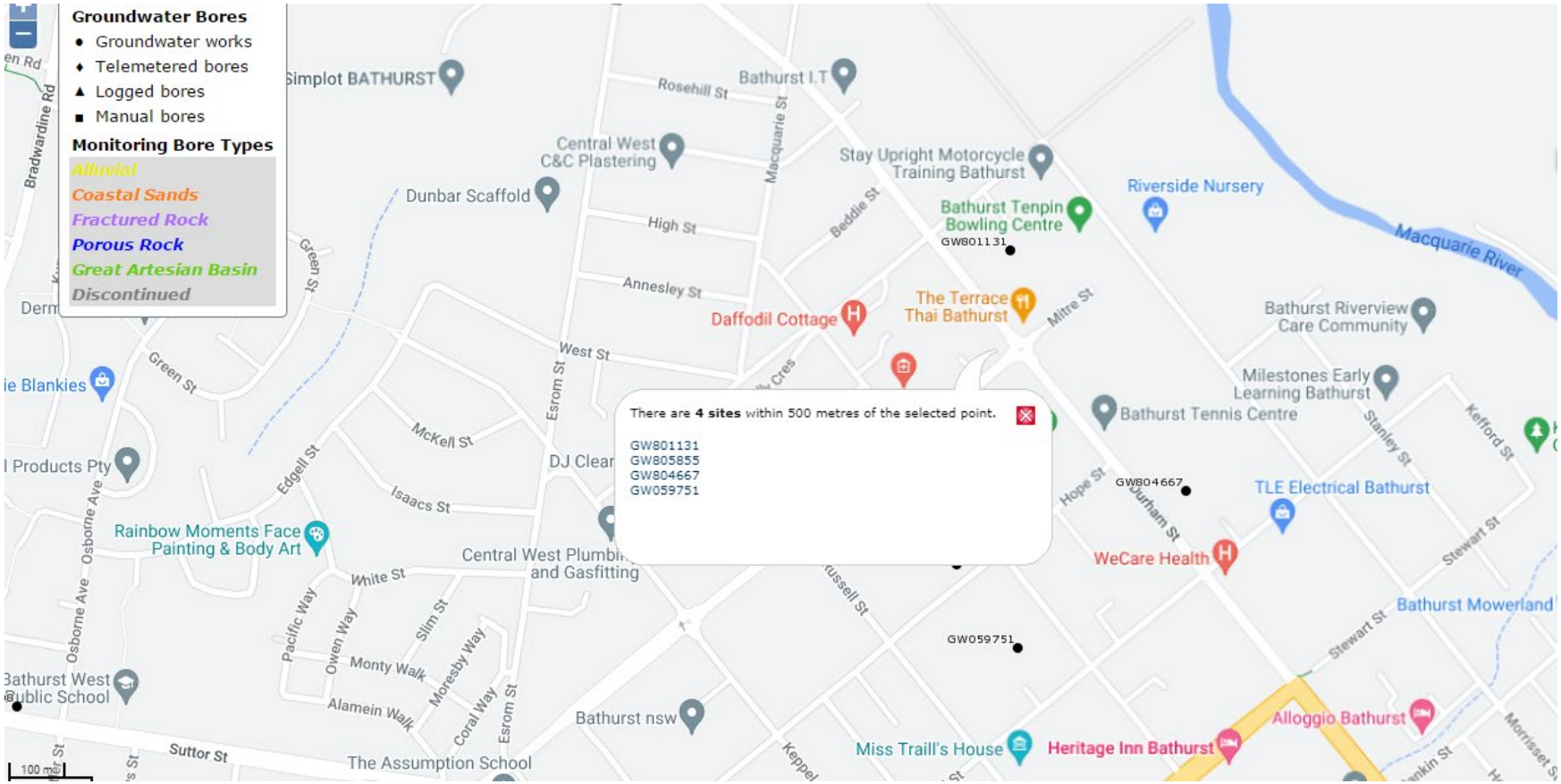
Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Plastic Limit
< PL
= PL
< PL

MG LIB 3.06 DRAFT 15082017.GLB Log MG BOREHOLE MG LOGS 3.05.GPJ <<DrawingFile>> 22/09/2017 16:34 10.0.000 Datgel Photo Tool

Appendix C

Registered Groundwater Well Information



Groundwater bore ID	Authorised purpose	Completion date	Drilled depth (m)	Final depth (m)	Standing water level (m)	Salinity	Yield (L/s)	Distance (m)	Direction
GW801131	Domestic	03/06/2000	22	22	5	Fresh	0.375	100	Northeast
GW805855	Domestic	18/03/2018	Not recorded	84	22	Not recorded	0.51	250	South
GW804667	Monitoring bore	06/07/2011	Not recorded	6	3.48	Not recorded	1	400	Southeast
GW059751	Domestic	01/09/1983	45.70	45.70	Not recorded	Not recorded	Not recorded	450	South

WaterNSW
Work Summary

GW801131

Licence:		**Licence Status:**	
		Authorised Purpose(s):	
		Intended Purpose(s):	DOMESTIC
Work Type:	Bore		
Work Status:	Supply Obtained		
Construct.Method:	Down Hole Hammer		
Owner Type:	Private		
Commenced Date:		**Final Depth:**	22.00 m
Completion Date:	06/03/2000	**Drilled Depth:**	22.00 m
Contractor Name:	MT MCKECHNIE DRILLING & PUMPING		
Driller:	Malcolm Dexter Mckechnie		
Assistant Driller:			
Property:		**Standing Water Level (m):**	5.000
GWMA:		**Salinity Description:**	Fresh
GW Zone:		**Yield (L/s):**	0.375

Site Details

Site Chosen By:					
			County	**Parish**	**Cadastre**
		Form A:	BATHURST	BATHURST	LOT 8 DP517932
		Licensed:			
Region:	80 - Macquarie-Western	**CMA Map:**	8831-3S		
River Basin:	421 - MACQUARIE RIVER	**Grid Zone:**		**Scale:**	
Area/District:					
Elevation:	0.00 m (A.H.D.)	**Northing:**	6300858.000	**Latitude:**	33°24'17.8"S
Elevation Source:	Unknown	**Easting:**	739363.000	**Longitude:**	149°34'25.7"E
GS Map:	-	**MGA Zone:**	55	**Coordinate Source:**	Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	22.00	200			Down Hole Hammer
1		Annulus	Waterworn/Rounded	0.00	22.00				Graded, Q:0.400m3
1	1	Casing	P.V.C.	0.50	22.00	160			Seated on Bottom, Glued
1	1	Opening	Slots - Vertical	5.00	22.00	150		0	PVC Class 9, A: 1.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.00	18.00	13.00	Unknown	5.00		0.38	22.00	01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil	Topsoil	
1.00	18.00	17.00	Granite, decomposed, weathered	Granite	
18.00	22.00	4.00	Granite, dense, black	Granite	

Remarks

06/03/2000: Form A Remarks:
Set pump at 18m with cut-out probe at 17m, and cut-in probe at ~10m, subject to drawdown ; recommend rate of pumping 250 GPH

***** End of GW801131 *****

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WaterNSW
Work Summary

GW805855

Licence: 80WA724751
Licence Status: CURRENT
Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC
Work Type: Bore
Work Status: Supply Obtained
Construct.Method:
Owner Type: Private
Commenced Date:
Completion Date: 18/03/2018
Final Depth: 84.00 m
Drilled Depth:

Contractor Name: Central West Water Drillers
Driller: Michael Patrick O'neill
Assistant Driller: Brett Jones
Property: Yarras 101 Hope St Bathurst 2795
GWMA: -
GW Zone: -
Standing Water Level (m): 22.000
Salinity Description:
Yield (L/s): 0.510

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	BATHURST	BATHURST	1//741263
Licensed:	BATHURST	BATHURST	Whole Lot 1//741263

Region: - (Not set)
CMA Map:
River Basin: - Unknown
Grid Zone:
Scale:
Area/District:
Elevation: 0.00 m (A.H.D.)
Northing: 6300359.000
Latitude: 33°24'34.1"S
Elevation Source: Unknown
Easting: 739265.000
Longitude: 149°34'22.4"E
GS Map: -
MGA Zone: 55
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	59.00	200			Rotary - Percussion (Down Hole Hammer)
1		Hole	Hole	59.00	84.00	125			Rotary - Percussion (Down Hole Hammer)
1		Annulus	Waterworn/Rounded	25.00	59.00				Graded, PL:Poured/Shovelled
1		Annulus	(Not Set)	59.00	0.00				PL:Poured/Shovelled
1	0			47.00	54.00			0	
1	1			-1.00	59.00	160	148	0	
1	1			35.00	41.00	160	148	0	
1	1			59.00	0.00			0	

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
47.00	48.00	1.00	Unknown	22.00		22.00			
53.00	54.00	1.00	Unknown						

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	topsoil	Topsoil	
1.00	6.00	5.00	clay orange	Topsoil	
6.00	28.00	22.00	granite decomposed	Granite	
28.00	84.00	56.00	granite	Granite	

Remarks

18/03/2018: Entered by Connie Venables 28/3/2018

***** End of GW805855 *****

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WaterNSW
Work Summary

GW804667

Licence:		**Licence Status:**	
		Authorised Purpose(s):	
		Intended Purpose(s):	MONITORING BORE
Work Type:	Bore - Nested (3)		
Work Status:	Equipped		
Construct.Method:	Auger - Solid Flight		
Owner Type:	Local Govt		
Commenced Date:		**Final Depth:**	
Completion Date:	06/07/2011	**Drilled Depth:**	
Contractor Name:	ENVIROWEST CONSULTING		
Driller:	Terrence Royce Beasley		
Assistant Driller:	Greg Madafiglio		
Property:		**Standing Water Level (m):**	
GWMA:		**Salinity Description:**	
GW Zone:		**Yield (L/s):**	

Site Details

Site Chosen By:

			County	Parish	Cadastre
		Form A:	BATHURST	BATHURST	10//1157553
		Licensed:			
Region:	80 - Macquarie-Western	**CMA Map:**	8831-3S		
River Basin:	421 - MACQUARIE RIVER	**Grid Zone:**		**Scale:**	
Area/District:					
Elevation:	0.00 m (A.H.D.)	**Northing:**	6300468.000	**Latitude:**	33°24'30.2"S
Elevation Source:	Unknown	**Easting:**	739635.000	**Longitude:**	149°34'36.6"E
GS Map:	-	**MGA Zone:**	55	**Coordinate Source:**	GPS - Global

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	90			Auger - Solid Flight
1		Annulus	Bentonite	0.10	1.00	90	61		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	1.00	6.00	90	61		Graded, PL:Poured/Shovelled
1	1	Casing	Pvc Class 18	0.00	3.00	61	51		Seated on Bottom, Screwed, S: 5.80-6.00m
1	1	Opening	Slots - Horizontal	3.00	6.00	61		0	Mechanically Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.50mm
2		Hole	Hole	0.00	6.00	90			Auger - Solid Flight
2		Annulus	Bentonite	0.10	1.00	90	61		PL:Poured/Shovelled
2		Annulus	Waterworn/Rounded	1.00	6.00	90	61		Graded, PL:Poured/Shovelled
2	2	Casing	Pvc Class 18	0.00	3.00	61	51		Seated on Bottom, Screwed, S: 5.80-6.00m
2	2	Opening	Slots - Horizontal	3.00	6.00	61		0	Mechanically Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.50mm
3		Hole	Hole	0.00	5.80	90			Auger - Solid Flight
3		Annulus	Bentonite	0.10	1.00	90	61		PL:Poured/Shovelled
3		Annulus	Waterworn/Rounded	1.00	5.80	90	61		Graded, PL:Poured/Shovelled
3	3	Casing	Pvc Class 18	0.00	2.80	61	51		Seated on Bottom, Screwed, S: 5.60-5.80m
3	3	Opening	Slots - Horizontal	2.80	5.60	61		0	Mechanically Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.50mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.50	6.00	2.50	Unknown	3.48	5.90	1.00		00:20:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.10	1.10	Fill; sand, brown	Fill	
1.10	2.00	0.90	Clayey Sand, dark grey	Clayey Sand	
2.00	4.00	2.00	Sandy Clay, dark grey	Sandy Clay	
4.00	6.00	2.00	Clay, heavy, black	Clay	

Remarks

06/07/2011: Form A Remarks:
Nat Carling, 31-Jan-2012; GPS provided with the Form-A, required adjustment, based on location map also provided with Form-A. Drillers log/lithology taken from MW1.

***** End of GW804667 *****

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WaterNSW
Work Summary

GW059751

Licence: 80WA711305
Licence Status: CURRENT
Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC
Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type: Private
Commenced Date:
Completion Date: 01/09/1983
Final Depth: 45.70 m
Drilled Depth: 45.70 m
Contractor Name: (None)
Driller:
Assistant Driller:
Property: N/A NSW
Standing Water Level (m):
GWMA: -
Salinity Description:
GW Zone: -
Yield (L/s):

Site Details

Site Chosen By:

		County	Parish	Cadastre
	Form A:	BATHURST	BATHURST	L17 DP586952 (SEC 4#
	Licensed:	BATHURST	BATHURST	Whole Lot //
Region:	80 - Macquarie-Western	**CMA Map:**	8831-3S	
River Basin:	421 - MACQUARIE RIVER	**Grid Zone:**		**Scale:**
Area/District:				
Elevation:	0.00 m (A.H.D.)	**Northing:**	6300224.000	**Latitude:** 33°24'38.4"S
Elevation Source:	(Unknown)	**Easting:**	739360.000	**Longitude:** 149°34'26.2"E
GS Map:	-	**MGA Zone:**	55	**Coordinate Source:** GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Welded Steel	-0.30	27.10	160			Driven into Hole
1	1	Opening	Slots	23.20	26.80	160		1	Oxy-Acetylene Slotted

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.20	26.80	0.60	Fractured	18.30		1.25			
36.60	36.90	0.30	Fractured	18.30		1.00			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Topsoil	Topsoil	
0.60	12.80	12.20	Clay	Clay	
12.80	13.10	0.30	Gravel	Gravel	
13.10	26.80	13.70	Granite Decomposed Water Supply	Granite	
26.80	45.70	18.90	Granite Water Supply	Granite	

Remarks

09/03/1987: ALLOTMENT 9 SECTION 45 BATHURST

***** End of GW059751 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Appendix D

Screening Levels and Guidelines

NATIONAL ENVIRONMENT PROTECTION (ASSESSMENT OF SITE CONTAMINATION) MEASURE 1999 AS AMENDED 2013

Soil

The investigation and screening levels (ISL) utilised for the assessment of the soil on site were sourced from the National Environment Protection Measure for the Assessment of Site Contamination (ASC NEPM, Ref [3]). These ISL are not derived as acceptance criteria for contamination at a site, but as levels above which specific consideration of risk, based on the site use and potential exposure, is required. If a risk is determined as present, then remediation and/or management must be undertaken.

Assessment ISL are based on:

- Human Health.

  Intentionally conservative health investigation levels (HIL) have been derived for four (4) generic land use settings.

  - HIL 'A' - Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry). This category includes children's day care centres, preschools and primary schools.
  - HIL 'B' - Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
  - HIL 'C' - Public open space such as parks, playgrounds, playing fields (e.g., ovals) secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves).
  - HIL 'D' - Commercial/industrial such as shops, offices, factories and industrial sites.

  The exposure scenario(s) for the derivation of the relevant land use setting is set out in the table below.

  Health screening levels (HSL) have been determined for risks associated from vapour intrusion from petroleum[13] compound contamination for the same land use settings. These HSL are additionally based on the fraction of compound, the soil texture and the depth of the encountered soil.

  Direct hydrocarbon contact criteria are not provided in the ASC NEPM (Ref [3]), however these are provided in CRC Care Technical Report 10 (Ref [9]) which is the source document for the HSL.

- Ecological Health

  These levels are considered to apply to soil within two (2) metres of the surface, the root zone and habitation zone of many species.

  Ecological investigation levels (EIL) have been determined for arsenic, copper, chromium III, DDT, naphthalene, nickel, lead and zinc in soil based on species sensitivity model and for three (3) generic land use settings:

[13] Laboratory analysis of hydrocarbons is being reported as total recoverable hydrocarbons (TRH). This testing method includes all forms of hydrocarbons, not just petroleum hydrocarbons and therefore can be considered a conservative measure against the chosen TPH criteria. Further laboratory analysis using a silica gel clean up (TRH_{sg}) is considered to enable a better identification of the extent of petroleum-based contamination.

- Areas of ecological significance – for areas where the primary intention is for the conservation and protection of the natural environment. Protection level of 99%.
- Urban residential areas and public open space – broadly equivalent to the HIL A, HIL B and HIL C land use settings. Protection level of 80%.
- Commercial and industrial land uses – considered to be broadly equivalent to HIL D land use setting. Protection level of 60%.

Methodology for the derivation of EIL for other contaminants is available in the ASC NEPM (Ref [3]) and requires additional soil character data which has not been undertaken for this project.

Ecological screening levels (ESL) have been determined for petroleum compound contamination. Due to limitations in the data only moderate reliability ESL have been determined for fractions $<C_{16}$, applied generically in fine and coarse grained soils. ESL for petroleum fractions $> C_{16}$, BTEXN and naphthalene are considered low reliability.

- Aesthetics

Aesthetic considerations operate separately to the HIL/HSL and EIL/ESL assessment. Issues to be considered include:

- Highly malodorous soils or extracted groundwater (e.g., strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds).
- Hydrocarbon sheen on surface water.
- Discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature.
- Large monolithic deposits of otherwise low-risk material, e.g., gypsum as powder or plasterboard, cement kiln dust.
- Presence of 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.
- Soils containing residue from animal burial (e.g., former abattoir sites).

Site assessment requires consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.

Tier 1 assessment comprises the comparison of the soil data with the HIL/HSL and EIL/ESL. In the event that some concentrations are in excess of the relevant criteria, the summary statistics of the data set may be utilised for assessment purpose. Consideration of a range of statistics is recommended; at a minimum the 95%UCL_{ave}[14] should be compared to the relevant criteria as long as:

- No single value exceeds 250% of the relevant criterion.

[14] A statistical calculation – 95% Upper Confidence Limit of the arithmetic mean of the data set.

- The standard deviation of the results for each analyte is less than 50% of the relevant criterion.

In addition to appropriate consideration and application of the HSL and ESL, 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.
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services by hydrocarbons.

The ASC NEPM (Ref [3]) has therefore provided management limits, the application of which will require consideration of site-specific factors such as the depth of building basements and services and depth to groundwater, to determine the maximum depth to which the limits should apply. The 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. When the management limits are exceeded, further site-specific assessment and management may enable any identified risk to be addressed.

The presence of site hydrocarbon 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.

The following figure has been taken from the ASC NEPM (Ref [3]) to illustrate the assessment methodology in regards to petroleum contamination.

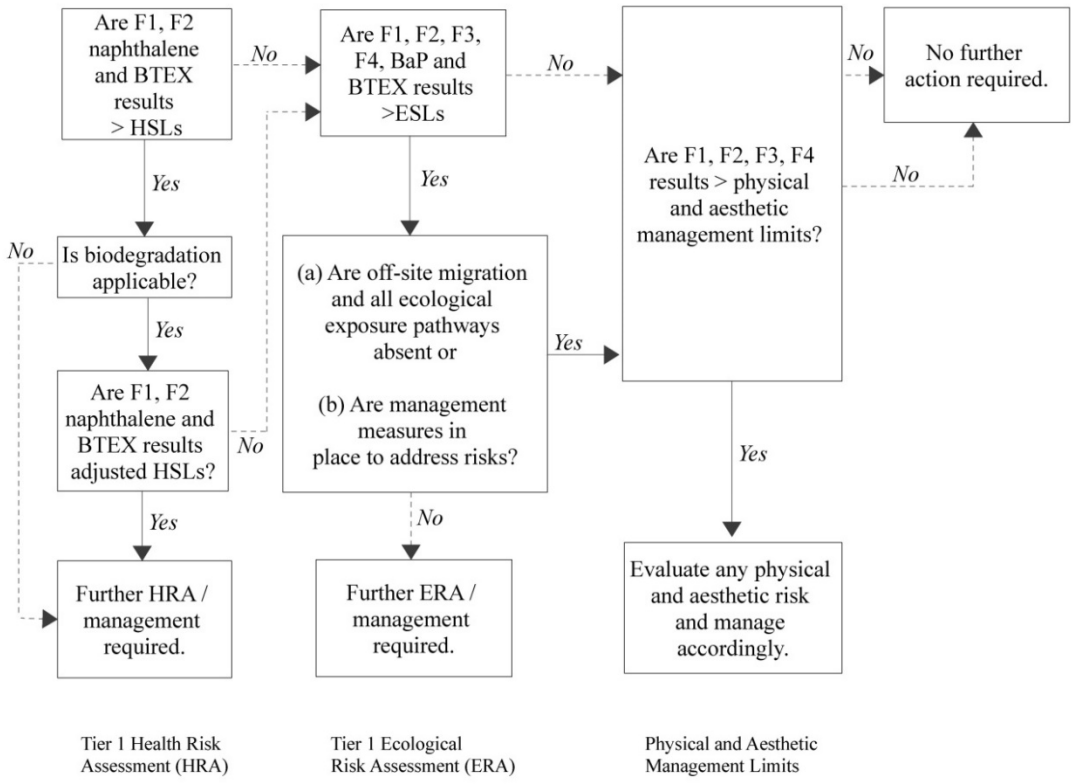

Figure 13 *Flowchart for the Tier 1 human and ecological risk assessment of petroleum hydrocarbon contamination – application of HSL and ESL and consideration of management limits*

Commercial/Industrial Premises

Summary of Exposure Pathways	Abbreviations	Units	Parameters
			Adult
Body weight	BW_A or BW_C	kg	70
Exposure duration	ED_A or ED_C	years	30
Exposure frequency	EF	days	240
Soil/dust ingestion rate[1]	IR_{SA} or IR_{SC}	mg/day	25 [5]
Soil/dust to skin adherence factor	AF	$mg/cm^2/day$	0.5
Skin surface area	SA_A or SA_C	cm^2	20 000
Fraction of skin exposed	F_s	%	19
Dermal absorption factor	DAF	%	Chemical specific values applied
Time spent indoors on site each day	ET_i	hours	8
Time spent outdoors on site each day	ET_o	hours	1
Home-grown fraction of vegetables consumed	F_{HG}	%	0
Vegetable & fruit consumption rate	C_y (veg and fruit)	g/day	-
Averaging time for carcinogens ('lifetime')	AT_{NT}	years	70
Dust lung retention factor	RF	%	37.5

Soil ingestion rates for the HIL D scenario are based on the default soil/dust ingestion rates, corrected for an 8 hr/day daily exposure duration (50% of total waking hours)

RESOURCE RECOVERY ORDERS AND EXEMPTIONS

Resource recovery orders (orders) and resource recovery exemptions (exemptions) allow some wastes to be beneficially and safely re-used independent of the usual NSW laws that control applying waste to land, using waste as a fuel, or using waste in connection with a process of thermal treatment.

Existing Orders and Exemptions (Ref [4]) can be used without NSW EPA approval as long as all the conditions of the Order and Exemption being utilised are met in regards to the material and the proposed use. Record keeping requirements apply.

A specific Order/Exemption can be sought from the NSW EPA where there is none available for the material. If granted, the specific Order/Exemption will identify what the material is and how it can be used: the specific Order/Exemption cannot be applied to other material.

NSW EPA 2014, WASTE CLASSIFICATION GUIDELINES

The waste classification guidelines (Ref [5]) are designed to ensure waste streams are managed appropriately and in accordance with the Protection of the Environment Operations Act 1997 (the POEO Act) and its associated regulations. The guidelines classify waste into groups which pose similar risks to the environment and human health; and facilitate their management and appropriate disposal.

Six waste classes are used:

- Special waste:
  - Clinical or related waste, asbestos waste, waste tyres.
- Liquid waste:
  - As defined by angle of repose, temperature at which it is free flowing and physical composition.
- Hazardous waste.
- Restricted solid waste.
- General solid waste (putrescible).
- General solid waste (non-putrescible).

Classification begins with determination of whether the waste is ‘special waste.’ If not determination of whether material is classified as liquid waste is then required. Material which is not liquid waste, or is special waste due to asbestos content, must be compared to pre-classification definitions. Without pre-classification, the potential for hazardous characteristics (such as explosives, gases, flammable materials, oxidising, toxic and corrosive substances) must be established. If material cannot be classified as hazardous, assessment by chemical analysis must be undertaken. Without assessment, material must be managed as if hazardous waste.

Chemical classification is two tiered. The first set of criteria is based on total contaminant concentrations, whereas the second set of criteria is based on a leachable (TCLP) concentration and a total contaminant concentration. The total concentrations criteria are generally higher in conjunction with TCLP testing than if it was not undertaken.

Appendix E

Site Photographs

1. Adjacent southern face of Main Hospital Building facing southwest to Early Hospital Building. Sampling location BH4 in footpath near steps.

2. Adjacent southeastern corner of Main Hospital Building facing northwest. Sampling location BH7 near point of photograph and sampling location BH5 adjacent wall in centre of photograph.

3. Eastern extent of carpark looking at sampling location BH6 adjacent wall of Main Hospital Building.

4. Main Hospital Building to left and background looking southwest.

5. Main Hospital Building to right looking southeast.

6. Main Hospital Building and sampling location BH2 adjacent far wall.

7. Fill embankment between Main Hospital Building and Commonwealth Street. Sampling location BH10 and Daffodil Cottage at rear.

8. Fill embankment between Main Hospital Building and Commonwealth Street.

9. Southwestern face of Daffodil Cottage looking southeast.

10. One of the former wells.

11. Embankment along Durham Street looking northwest.

12. Embankment (to left) adjacent Doctor's Residence (to right) looking northwest.

13. Poole House (to left) and Early Hospital Building (to right) looking northeast.

14. Northern end of Early Hospital Building looking northeast.

15. Southeastern boundary, Mitre St to right, looking northeast.

16. Portion of Main Hospital Building, facing northwest. BH9 in area of carparking.

17. Portion of Main Hospital Building, facing northeast. BH3 adjacent far wall. Inset approximately 20m closer.

18. Poole House from Main Hospital Building, facing southeast. BH1 near witch's hat.

Appendix F

Bore Logs

GEOTECHNICAL BOREHOLE LOG

BH1

SHEET 1 OF 4

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 09/06/2023
DATE COMPLETED: 09/06/2023
SURFACE RL: 674.80 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)		BH1 0.10m	674.5	0.5		SM	FILL, Silty SAND, fine to medium grained, brown, trace of gravel	M		FILL Grass on surface **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
		0.50m	0.50m 0.60m		0.60		CL-CI	CLAY, low to medium plasticity, brown, with sand	w<PL	H	RESIDUAL
		SPT 3, 6, 11 N=17 PP>600kPa 0.95m	BH1a 0.70m D 0.95m 1.00m	674.0	1.0						
			BH1b 1.20m	673.5	1.5						**NOTE: All PID results <0.1ppm**
		1.50m	1.50m								
		SPT 4, 9, 15 N=24 PP>600kPa 1.95m	D 1.80m BH1c 1.95m 2.00m	673.0	2.0			becoming with extremely weathered granite lenses/zones at 2.2m			
				672.5	2.5						
		3.00m	3.00m	672.0	3.00						
WS		3.04m SPT 5/40mm N=R	D 3.04m					Extremely Weathered Granite, properties of Silty Clayey SAND,, orange-brown	XW	VD	EXTREMELY WEATHERED MATERIAL
				671.5	3.5			CONTINUED AS CORED BOREHOLE			
				671.0	4.0						
				670.5	4.5						
				670.0							

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GEOTECHNICAL BOREHOLE LOG

BH2

SHEET 1 OF 3

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 05/06/2023
DATE COMPLETED: 05/06/2023
SURFACE RL: 668.80 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0.20m		0.18 0.20			CONCRETE, 180mm thick			LOADING DOCK/CAR PARKING SURFACE
AD/T	(Not Encountered)	0.50m 0.54m SPT 5/40mm N=R	BH2 0.50m D 0.54m	668.5	0.5		GP SM	FILL, GRAVEL, medium, dark grey, sub-angular Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	XW	VD	FILL EXTREMELY WEATHERED MATERIAL **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)** **NOTE: All PID results <0.1ppm**
			0.90m BH2a 1.20m	668.0 667.5	1.0						
		1.48m 1.50m SPT 5/20mm N=R	1.48m D 1.50m		1.5			CONTINUED AS CORED BOREHOLE			
				667.0	2.0						
				666.5	2.5						
				666.0	3.0						
				665.5	3.5						
				665.0	4.0						
				664.5	4.5						
				664.0							

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GEOTECHNICAL BOREHOLE LOG

BH3

SHEET 1 OF 3

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 08/06/2023
DATE COMPLETED: 08/06/2023
SURFACE RL: 674.10 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT		0.55m	0.55m	674.0	0.10			CONCRETE, 100mm thick CONCRETE, 440mm			AMBULANCE BAY PAVEMENT **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
AD/T	(Not Encountered)	SPT 4, 14, 6 N=20 1.00m 1.50m SPT 3, 3, 5 N=8 PP330 - 380kPa 1.95m 2.90m SPT 10/100mm N=R 3.00m	BH3 (0.55-0.75m) D (0.55-1.0m) BH3a (0.9-1.1m) 1.10m 1.30m BH3b **1.50m** D 1.80m BH3c 1.95m 2.00m 3.00m	673.5 673.0 672.5 672.0 671.5 671.0 670.5 670.0 669.5	0.55 1.0 1.50 2.0 2.5 3.0 3.5 4.0 4.5		CI-CH CI	FILL, Gravelly Sandy CLAY, medium plasticity, dark grey-brown, trace of brick fragments Sandy CLAY, medium plasticity, orange-brown, fine to coarse grained sand, trace of fine gravel	w>PL	VSt - H	FILL **NOTE: All PID results <0.1ppm** RESIDUAL
								CONTINUED AS CORED BOREHOLE			

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GEOTECHNICAL BOREHOLE LOG

BH4

SHEET 1 OF 3

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 07/06/2023
DATE COMPLETED: 07/06/2023
SURFACE RL: 670.50 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT					0.13			CONCRETE, 130mm thick			CONCRETE FOOTPATH
			0.20m		0.20		GM	FILL, Silty Sandy GRAVEL, fine to medium, dark grey, sub-angular	M		FILL
			BH4				SM	FILL, Silty SAND, fine to coarse grained, brown			**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
			0.40m								
		0.50m	0.50m		0.50						
AD/T	(Not Encountered)	0.55m SPT 10/50mm N=R	D 0.55m	670.0				GRANITE, pale grey, dark grey and orange	XW	EL	BEDROCK
			0.90m								
			BH4a 1.10m	669.5	1.0						**NOTE: All PID results <0.1ppm**
											TC Bit refusal at 1.3m
								CONTINUED AS CORED BOREHOLE			
				669.0	1.5						
				668.5	2.0						
				668.0	2.5						
				667.5	3.0						
				667.0	3.5						
				666.5	4.0						
				666.0	4.5						

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GEOTECHNICAL BOREHOLE LOG

BH5

SHEET 1 OF 5

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 07/06/2023
DATE COMPLETED: 07/06/2023
SURFACE RL: 669.70 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)			669.5	0.12			ASPHALTIC CONCRETE, 120mm thick	M		CAR PARK SURFACE
			0.30m		0.27			FILL, Silty Sandy GRAVEL			CAR PARK BASE MATERIAL
		0.50m	BH5 0.50m		0.5			FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel			FILL
		SPT 4, 6, 9 N=15 0.95m	D 0.5-0.95 BH5a (0.8-1.0m) 1.00m	669.0	1.0						**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)** **NOTE: All PID results <0.1ppm**
			1.30m	668.5							
		1.50m	BH5b 1.50m		1.5						
		SPT 9, 18/150mm N=R 1.80m	D 1.95m	668.0	1.60			GRANITE, grey, dark grey and orange	XW	EL	BEDROCK
				667.5	2.0						
				667.0	2.5						TC Bit refusal at 2.8m
								CONTINUED AS CORED BOREHOLE			
				666.5	3.0						
				666.0	3.5						
				665.5	4.0						
				665.0	4.5						

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GEOTECHNICAL BOREHOLE LOG

BH6

SHEET 1 OF 5

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 08/06/2023
DATE COMPLETED: 08/06/2023
SURFACE RL: 669.90 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT								CONCRETE, 110mm thick			FOOTPATH PAVEMENT
			0.15m		0.11		SM	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	M		FILL
			BH6 0.30m								
				669.5							
		0.50m	0.50m		0.5						
		SPT 2, 3, 5 N=8	D (0.5-0.95m) BH6a/DUP1 (0.8-1.0m)								**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
		0.95m		669.0							
			1.00m		1.0						**NOTE: All PID results <0.1ppm**
				668.5							
		1.50m	1.50m		1.5						
		SPT 6, 6, 5 N=11	D (1.5-1.95m) BH6b/QA1 (1.8-2.0m)								
		1.95m		668.0							
			2.00m		2.0						
				667.5							
					2.5						
			2.80m								
			BH6c	667.0							
		3.00m	**3.00m**		3.0						Coarse, sub-rounded gravel fragment in SPT at 3.0m
		SPT 2, 3, 3 N=6	D								
		3.45m	3.45m	666.5	3.5						
			3.80m								
			BH6d/QA2	666.0							
			4.00m		4.0						
				665.5							
		4.50m	4.50m		4.5						
		SPT 4, 4, 4 N=8	D								
		4.95m	4.95m	665.0							

AD/T — (Not Encountered)

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GEOTECHNICAL BOREHOLE LOG
BH6

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 08/06/2023
DATE COMPLETED: 08/06/2023
SURFACE RL: 669.90 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)		5.80m BH6e	664.5	5.5		SM	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	M		FILL
		6.00m	**6.00m**	664.0	6.0						
		SPT 3, 2, 3 N=5	D								
		6.45m	6.45m	663.5	6.5						
				663.0	7.0						
				662.5							
		7.50m	7.50m D		7.50		SM	GRANITE, coarse grained, white, dark grey and brown, crystallite texture, indistinct fabric	HW	VL	BEDROCK
		7.53m SPT 8/30mm N=R	7.53m					CONTINUED AS CORED BOREHOLE			
				662.0	8.0						
				661.5	8.5						
				661.0	9.0						
				660.5	9.5						
				660.0							

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GEOTECHNICAL BOREHOLE LOG

BH7

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 06/06/2023
DATE COMPLETED: 06/06/2023
SURFACE RL: 669.80 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)				0.10			ASPHALTIC CONCRETE, 100mm thick			CAR PARK PAVEMENT
			0.30m BH7a (0.3-0.5m)	669.5	0.30		SM	FILL, Silty Sandy GRAVEL, fine to medium, grey-brown, sub-angular	M		CAR PARK BASE MATERIAL
		0.50m	0.50m		0.5		SM	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel			FILL
		SPT 6, 6, 6 N=12	D (0.5-0.95m) BH7b (0.8-1.0m)	669.0							**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
		0.95m	1.00m		1.0						**NOTE: All PID results <0.1ppm**
		1.20m	1.20m								
		SPT 4, 6, 6 N=12	D (1.2-1.65m) BH7c (1.6-1.8m)	668.5	1.5						TC Bit refusal at 1.8m (on inferred very high strength granite boulder) Wash bore/install casing
		1.65m									
			1.80m	668.0				granite boulder in residual soil matrix at 1.8m			
					2.0			CONTINUED AS CORED BOREHOLE			
				667.5	2.5						
				667.0	3.0						
				666.5	3.5						
				666.0	4.0						
				665.5	4.5						
				665.0							

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GEOTECHNICAL BOREHOLE LOG

BH8

SHEET 1 OF 5

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 06/06/2023
DATE COMPLETED: 06/06/2023
SURFACE RL: 668.60 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)		0.10m	668.5	0.10			WOOD CHIPS/MULCH			LANDSCAPED AREA
			BH8 0.30m					FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	M		FILL
			0.40m								
		0.50m			0.5						
		SPT 4, 6, 9 N=15	BH8a (0.4-0.6m)	668.0							**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
			D (0.5-0.95m)								
		0.95m	BH8b (0.9-1.1m)								
			1.10m	667.5	1.0						**NOTE: All PID results <0.1ppm**
		1.50m	1.50m		1.5						
				667.0							
		SPT 7, 6, 7 N=13	D-BH8c (1.8-2.0m)								
		1.95m	2.00m		2.0						
				666.5							
					2.5						
				666.0							
		3.00m	3.00m		3.0						
			D (3.0-3.45m)	665.5							
		SPT 3, 5, 7 N=12	BH8d (3.1-3.3m)								
		3.45m	3.45m		3.5						
				665.0							
					4.0						
				664.5							
		4.50m	4.50m		4.5						
			BH8e (4.5-4.7m)	664.0							
		SPT 2, 3, 5 N=8	D (4.5-4.95m)								
		4.95m	4.95m								

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GEOTECHNICAL BOREHOLE LOG

BH8

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 06/06/2023
DATE COMPLETED: 06/06/2023
SURFACE RL: 668.60 m AHD
COORDS:
DRILL MODEL: Hanjin D&B 8-D

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	(Not Encountered)			663.5	5.5			FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	M		FILL
			5.80m BH8f	663.0							
		6.00m SPT 12/100mm N=R	**6.00m** 6.01m D	662.5	6.0			CONTINUED AS CORED BOREHOLE			
				662.0	6.5						
				661.5	7.0						
				661.0	7.5						
				660.5	8.0						
				660.0	8.5						
				659.5	9.0						
				659.0	9.5						

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GEOTECHNICAL BOREHOLE LOG

BH9

SHEET 1 OF 1

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE COMMENCED: 09/06/2023
DATE COMPLETED: 09/06/2023
SURFACE RL: 674.00 m AHD
COORDS:
DRILL MODEL:

Borehole Information						Field Material Information					
METHOD	WATER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME;plasticity/grain size, particle shape, colour, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD 300mm	Not Encountered		0.30m BH9 0.50m	673.5	0.04 0.5			ASPHALTIC CONCRETE, 40mm thick FILL, Silty Sandy GRAVEL, fine to medium, grey, sub-angular	M		CAR PARK PAVEMENT CAR PARK BASE MATERIAL **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
			0.70m BH9a (0.8-1.0m) B (0.7-1.1r	673.0	0.70 1.0			Clayey Gravelly SAND, fine to coarse grained, orange-brown		MD	RESIDUAL
			1.10m		1.10			Silty SAND, fine to coarse grained, brown, trace of clay and gravel		D - VD	**NOTE: All PID results <0.1ppm**
			1.30m BH9b 1.50m	672.5	1.50			BOREHOLE BH9 TERMINATED AT 1.50 m			
				672.0	2.0						
				671.5	2.5						
				671.0	3.0						
				670.5	3.5						
				670.0	4.0						
				669.5	4.5						

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GEOTECHNICAL BOREHOLE LOG

BH9

SHEET 1 OF 1

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE: 09/06/2023
SURFACE RL: 674.00 m AHD
COORDS:
EXCAVATION METHOD: 5t Excavator with 300mm Auger

Borehole Information						Field Material Information					
WATER	DYNAMIC PENETROMETER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
					0.04			ASPHALTIC CONCRETE, 40mm thick	M		CAR PARK PAVEMENT
			0.30m					FILL, Silty Sandy GRAVEL, fine to medium, grey, sub-angular			CAR PARK BASE MATERIAL
			BH9 0.50m	673.5	0.5						**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
	6		0.70m		0.70						
Not Encountered	4		BH9a (0.8-1.0m)					Clayey Gravelly SAND, fine to coarse grained, orange-brown		MD	RESIDUAL
	5		B (0.7-1.1r								
	6			673.0	1.0					D - VD	**NOTE: All PID results <0.1ppm**
	15		1.10m		1.10						
	19							Silty SAND, fine to coarse grained, brown, trace of clay and gravel			
			1.30m								
			BH9b 1.50m	672.5	1.50			BOREHOLE BH9 TERMINATED AT 1.50 m			
				672.0	2.0						
				671.5	2.5						
				671.0	3.0						
				670.5	3.5						
				670.0	4.0						
				669.5	4.5						

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GEOTECHNICAL BOREHOLE LOG

BH10

SHEET 1 OF 1

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE: 09/06/2023
SURFACE RL: 673.00 m AHD
COORDS:
EXCAVATION METHOD: Hand Auger

Borehole Information						Field Material Information					
WATER	DYNAMIC PENETROMETER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
	3		0.10m		0.10		ML	FILL/TOPSOIL, Clayey SILT, low plasticity, brown	M		FILL / TOPSOIL
	6		BH10				CI	FILL, CLAY, medium plasticity, brown, with sand and gravel	w~PL		FILL
	8		0.30m								
	5										**NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
	3			672.5	0.5						
	2										
	3										
	2		0.80m								
	2		BH10a								**NOTE: All PID results <0.1ppm**
	11		1.00m								
	6		1.10m	672.0	1.0						
	6		BH10b		1.10		ML	TOPSOIL, SILT, low plasticity, brown	M		TOPSOIL
	10		**1.30m**								
	11		BH10c		1.30			Clayey SAND, fine to coarse grained, brown	M	D	RESIDUAL
	11		1.50m					becoming pale brown at 1.4m			
	19			671.5	1.5						
	19				1.60			BOREHOLE BH10 TERMINATED AT 1.60 m			
	23										
	25										
	19			671.0	2.0						
	19										
	33										
				670.5	2.5						
				670.0	3.0						
				669.5	3.5						
				669.0	4.0						
				668.5	4.5						

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GEOTECHNICAL TEST PIT LOG

TP1

SHEET 1 OF 1

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE: 09/06/2023
SURFACE RL: 669.30 m AHD
COORDS:
EXCAVATION METHOD: 5t Excavator with 400mm Bucket

Test Pit Information						Field Material Information					
WATER	DYNAMIC PENETROMETER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
Not Encountered			TP1/DUP3/ QA3 0.20m	669.0	0.5		ML	TOPSOIL, SILT, low plasticity, orange-brown	M		TOPSOIL **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
			0.60m TP1a B (0.6-0.8m) 0.80m	668.5	0.60 1.0			Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay		D - VD	EXTREMELY WEATHERED MATERIAL **NOTE: All PID results <0.1ppm**
			1.00m TP1b 1.20m		1.25						
				668.0	1.5			TEST PIT TP1 TERMINATED AT 1.25 m			
				667.5	2.0						
				667.0	2.5						
				666.5	3.0						
				666.0	3.5						
				665.5	4.0						
				665.0	4.5						
				664.5							

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GEOTECHNICAL TEST PIT LOG
TP2

SHEET 1 OF 1

RCA AUSTRALIA
GEOTECHNICAL • ENVIRONMENTAL

PROJECT No: 16547
CLIENT: Health Infrastructure
PROJECT: Geotechnical and Contamination Investigation
LOCATION: Bathurst Hospital

DATE: 09/06/2023
SURFACE RL: 665.80 m AHD
COORDS:
EXCAVATION METHOD: 5t Excavator with 400mm Bucket

Test Pit Information						Field Material Information					
WATER	DYNAMIC PENETROMETER	FIELD TEST	SAMPLE	RL (m AHD)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
Not Encountered			TP2 0.10m	665.5	0.5			FILL, Silty SAND, fine to coarse grained, brown	M		FILL **NOTE: Borehole surface RL estimated based on supplied survey plan (borehole not surveyed)**
			0.40m TP2a 0.50m								
			0.70m TP2b 0.80m 0.85m	665.0	0.65		ML	TOPSOIL, SILT, low plasticity, brown			TOPSOIL
			B 1.10m		0.85 1.0			Silty SAND, fine to coarse grained, brown, with clay and lenses of extremely weathered material		D - VD	RESIDUAL **NOTE: All PID results <0.1ppm**
				664.5	1.40						
				664.0	1.5 1.90			Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay			EXTREMELY WEATHERED MATERIAL
				663.5	2.0 2.5			TEST PIT TP2 TERMINATED AT 1.90 m			
				663.0	3.0						
				662.5	3.5						
				662.0	4.0						
				661.5	4.5						
				661.0							

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Appendix G

Quality Assurance Review and Laboratory Report Sheets

A total of five (5) soil duplicate samples were submitted blind to the laboratory for analysis with the samples, comprising two (2) interlaboratory and three (3) intralaboratory duplicates. This represents a percentage of slightly more than 10%, in accordance with the frequency recommended by the Australian Standard AS4482.1 (Ref [10]) and RCA protocol.

One trip blank and one trip spike were submitted with the batch of samples. This submission is in accordance with the than the frequency recommended by the Australian Standard AS4482.1 (Ref [10]) and RCA protocol.

RCA omitted the field blank due to the low potential for cross contamination during the sampling process and the equipment wash due to the low potential for cross contamination from the sampling equipment.

Results, as shown further in this **Appendix**, indicate a total of two (2) soil analyses for which the calculated RPD in excess of the acceptance criteria:

- BH6b / QA1 had an elevated RPD for arsenic. This sample is described as fill, silty sand with a trace of clay and it is therefore considered that sample heterogeneity is the likely cause of the high RPD. The duplicate has the higher result and since the concentration is more than half the ENM (Ref [4]) criterion, RCA has used the duplicate result for the purpose of characterisation.
- TP1 / Dup3 had an elevated RPD for electrical conductivity. This sample is described as topsoil /silt and it is therefore considered that sample heterogeneity is not the likely cause of the high RPD, rather it is considered likely associated with the distribution of organic material in the sampled material. There is some uncertainty associated with this sample, however, while the duplicate had the higher concentration the result is less than 5% the ENM criterion (Ref [4]) and as such the uncertainty is not considered significant.

It is noted that the differing practical quantification limit (PQL) between the analysing laboratories have resulted in high RPD however the results are not considered to imply any uncertainty.

Results show the results of the trip blank are non-detectable and therefore considered acceptable.

ALS was chosen as the primary laboratory and EnviroLab was chosen as the secondary laboratory. These laboratories are NATA accredited and are experienced in the analytical requirements for potentially contaminated soil. ALS and EnviroLab undertook internal quality assurance testing. Results are contained within the laboratory report sheets, included in this **Appendix**. **Table 11** presents a summary of their review.

Table 11 *Internal Quality Assurance Review*

	Number Samples (including QA)	Laboratory Duplicates	Spikes	Laboratory Control Samples	Laboratory Blanks
Requirement		**10%**	**5%**	**One every batch**	**One every batch**
Soil					
pH	49	5 (5)	0 (0)	6	0
Electrical Conductivity	49	5 (5)	0 (0)	6	6
Metals (As, Cd, Cr, Cu, Ni, Pb, Zn)	49	4 (0)	3 (0)	4	4
Mercury	49	6 (0)	3 (0)	3	3
OCP	7	2 (0)	1 (0)	2	2
OPP	7	2 (0)	1 (0)	2	2
PAH	49	6 (1)	3 (1)	5	5
TRH C_6-C_{10}	3	6 (1)	3 (0)	5	5
TRH C_{10}-C_{40}	49	6 (1)	4 (0)	5	5
BTEXN	52	6 (1)	3 (0)	5	5
Phenoxyacid Herbicides	7	0 (2)	0 (1)	2	2

Numbers in brackets refer the tests undertaken on samples not from this project but within the same laboratory batch.

Examination of the above table reveals that laboratory quality assurance testing has been undertaken in accordance with the ASC NEPM (Ref [3]) with the exception of a shortfall in duplicates for metals. This slight shortfall is considered significant.

With regards to the results:

- Recoveries of Surrogates were within acceptance criteria of 70-130% with the exception of:
  - OPP surrogate for BH5 which had a recovery of 55.3%.
  - OPP surrogate for BH8a which had a recovery of 53.4%.
  - Phenoxyacid herbicide surrogate for BH9 (E300A) which had a recovery of 63.4%.
  - OPP surrogate for TP1 which had a recovery of 64.2%.
  - BTEXN surrogate for Dup 3 which had a recovery of 66%.

  The OCP results are considered to indicate some potential uncertainty with the results however as none were detected and the detection limits are a maximum of 0.1% of the criteria, the uncertainty is not considered significant.

  The phenoxyacid herbicides and BTEXN results are considered a minor noncompliance only and not significant.

It is noted that phenolic surrogates are reported (due to the concurrent PAH analytical method) and indicate numerous results below 70%. However, as no phenols analysis was undertaken these results are not considered relevant to the site characterisation.

- Relative Percentage Differences for duplicates were within acceptance criteria as defined for intralaboratory duplicates further in this **Appendix** with the exception of:
    - Arsenic and nickel in BH1 had RPD of 85.4% and 78.3% respectively. This sample is described as silty sand with a trace of gravel, and it is therefore considered that sample heterogeneity is the likely cause of the high RPD. There is some uncertainty associated with these results:
        - The primary sample had the highest arsenic concentration and therefore the uncertainty is considered to be conservative.
        - The duplicate had the higher nickel concentration and as it was more than 50% the most stringent (ENM) criterion, the duplicate result has been used for the characterisation of the site.
- Recoveries of laboratory control samples were within the acceptance criteria of 70-130% with the exception of four (4) phenoxyacid herbicides with recoveries of between 61.9% and 68.5%. These are considered a minor non-compliance and therefore the uncertainty is not considered significant.
- No Laboratory Blank result was detected above the practical quantification limit (PQL).
- Recoveries of Spikes were within acceptance criteria of 70-130% with the exception of:
    - Fenitrothion in the EnviroLab report which had a recovery of 67%. All other OPP compounds, of those tested, had acceptable recoveries and therefore RCA considers the uncertainty not significant.

  It is noted a phenoxyacid herbicide compound in an ‘anonymous’ (non-project) sample had a poor recovery. RCA cannot provide further comment as to the cause however note that a poor recovery does not necessarily reflect uncertainty on the remainder of the samples in the laboratory batch.
- Holding Times were within laboratory specified time frames with the exception of:
    - pH and electrical conductivity which ranged from six (6) to eight (8) days out of holding times. While there is some uncertainty in the results, it is not considered significant.
    - The trip spike and trip blank were analysed out of holding times by between three (3) and seven (7) days. While there is some uncertainty in the results, it is not considered significant:
        - The trip spike which was utilised in the field showed good correlation with the control which was retained in refrigerated conditions at ALS such that degradation of hydrocarbons is not considered significant.
        - The trip blank is prepared to be without contaminant concentrations. Any potential for contamination would have only been associated during storage and transport with the samples which occurred within the holding time.

It is noted that due to a typographical error for the sampling date for QA3 that multiple holding time non-compliances have been identified by ALS. These are not applicable, except for pH and electrical conductivity, when the correct date is considered.

Quality Assurance Type	Primary PQL	Secondary PQL	Interlaboratory Duplicate		RPD %	Intralaboratory Duplicate		RPD %	Intralaboratory Duplicate		RPD %
Sample Identification			BH6a	Dup1		BH6b	QA1		BH6d	QA2	
Sample Depth (m)			0.8			1.8			3.8		
Date			8/6/23			8/6/23			8/6/23		
Sample Profile			FILL, Silty SAND, fine to coarse grained, brown, trace of clay			FILL, Silty SAND, fine to coarse grained, brown, trace of clay			FILL, Silty SAND, fine to coarse grained, brown, trace of clay		
Sample Purpose			Characterisation			Characterisation			Characterisation		
Sample collected by			RCA - RC			RCA - RC			RCA - RC		
Soil Chemistry											
Electrical Conductivity	0.001	0.001	0.014	0.022	*44.4*	0.1	0.088	*12.8*	0.038	0.046	*19.0*
pH	0.1	not stated	7.9	8.2	*3.7*	8.5	8.2	*3.6*	7.7	7.6	*1.3*
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)											
Benzene	0.2	0.2	0.1	0.1	*0.0*	0.1	0.1	*0.0*	0.1	0.1	*0.0*
Toluene	0.5	0.5	0.25	0.25	*0.0*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Ethylbenzene	0.5	1	0.25	0.5	*66.7*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
meta- and para-Xylene	0.5	2	0.25	1	*120.0*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
ortho-Xylene	0.5	1	0.25	0.5	*66.7*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Polycyclic Aromatic Hydrocarbons (PAH)											
Naphthalene	1	1	0.5	0.5	*0.0*	0.5	0.5	*0.0*	0.5	0.5	*0.0*
Total Recoverable Hydrocarbons (TRH)											
TRH C_6-C_{10}	--	25	--	12.5	--	--	--	--	--	--	--
TRH >C_{10}-C_{16}	50	50	25	25	*0.0*	25	25	*0.0*	25	25	*0.0*
TRH >C_{16}-C_{34}	100	100	50	50	*0.0*	50	50	*0.0*	50	50	*0.0*
TRH >C_{34}-C_{40}	100	100	50	50	*0.0*	50	50	*0.0*	50	50	*0.0*
Polycyclic Aromatic Hydrocarbons (PAH)											
Naphthalene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Acenaphthylene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Acenaphthene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Fluorene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Phenanthrene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Anthracene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Fluoranthene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Pyrene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Benz(a)anthracene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Chrysene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Benzo(b)&(j)fluoranthene	0.5	0.2	0.25	0.1	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Benzo(k)fluoranthene	0.5		0.25			0.25	0.25	*0.0*	0.25	0.25	*0.0*
Benzo(a) pyrene	0.5	0.05	0.25	0.025	**163.6**	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Indeno(1,2,3-c,d)pyrene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Dibenz(a,h)anthracene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Benzo(g,h,i)perylene	0.5	0.1	0.25	0.05	*133.3*	0.25	0.25	*0.0*	0.25	0.25	*0.0*
Metals											
Arsenic	5	4	2.5	2	*22.2*	2.5	12	**131.0**	2.5	2.5	*0.0*
Cadmium	0.4	0.4	0.2	0.2	*0.0*	0.2	0.2	*0.0*	0.2	0.2	*0.0*
Chromium	2	1	16	15	*6.5*	18	15	*18.2*	16	11	*37.0*
Copper	5	1	5	4	*22.2*	6	8	*28.6*	8	2.5	*104.8*
Mercury	0.1	0.1	0.05	0.05	*0.0*	0.05	0.05	*0.0*	0.05	0.05	*0.0*
Lead	5	1	6	4	*40.0*	21	32	*41.5*	7	6	*15.4*
Nickel	2	1	11	8	*31.6*	11	10	*9.5*	9	7	*25.0*
Zinc	5	1	40	27	*38.8*	57	58	*1.7*	38	32	*17.1*
Organochlorine Pesticides (OCP)											
alpha-BHC	0.05	0.1	--	0.05	--	--	--	--	--	--	--
HCB	0.05	0.1	--	0.05	--	--	--	--	--	--	--
b-BHC	0.05	0.1	--	0.05	--	--	--	--	--	--	--
g-BHC (Lindane)	0.05	0.1	--	0.05	--	--	--	--	--	--	--
d-BHC	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Heptachlor	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Aldrin	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Heptachlor epoxide	0.05	0.1	--	0.05	--	--	--	--	--	--	--
trans-Chlordane	0.05	0.1	--	0.05	--	--	--	--	--	--	--
alpha-Endosulfan	0.05	0.1	--	0.05	--	--	--	--	--	--	--
cis-Chlordane	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Dieldrin	0.05	0.1	--	0.05	--	--	--	--	--	--	--
DDE	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Endrin	0.05	0.1	--	0.05	--	--	--	--	--	--	--
beta-Endosulfan	0.05	0.1	--	0.05	--	--	--	--	--	--	--
DDD	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Endrin Aldehyde	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Endosulfan sulfate	0.05	0.1	--	0.05	--	--	--	--	--	--	--
DDT	0.2	0.1	--	0.05	--	--	--	--	--	--	--
Endrin Ketone	0.05	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	0.1	--	0.05	--	--	--	--	--	--	--
Organophosphorous Pesticides (OPP)											
Chlorpyrifos	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Dichlorvos	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Demeton-S-methyl	0.05	--	--	--	--	--	--	--	--	--	--
Monocrotophos	0.2	--	--	--	--	--	--	--	--	--	--
Dimethoate	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Diazinon	0.05	0.1	--	0.05	--	--	--	--	--	--	--

Quality Assurance Type	Primary PQL	Secondary PQL	Intralaboratory Duplicate		RPD %	Interlaboratory Duplicate		RPD %	Trip Spike		RPD %	Trip Blank
Sample Identification			TP1	QA3		TP1	Dup3		TS	TSC		TB
Sample Depth (m)			0			0			NA			NA
Date			9/6/23			9/6/23			29/5/23			
Sample Profile			TOPSOIL, SILT, low plasticity, orange-brown			TOPSOIL, SILT, low plasticity, orange-brown			Sand			Sand
Sample Purpose			Characterisation			Characterisation			Quality Assurance			Quality Assurance
Sample collected by			RCA - RC			RCA - RC			Laboratory			
Soil Chemistry												
Electrical Conductivity	0.001	0.001	0.022	0.029	*27.5*	0.022	0.048	***74.3***	--	--	--	--
pH	0.1	not stated	6.8	6.5	*4.5*	6.8	6.5	*4.5*	--	--	--	--
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)												
Benzene	0.2	0.2	0.1	0.1	*0.0*	0.1	0.1	*0.0*	0.1	0.1	*0.0*	<0.2
Toluene	0.5	0.5	0.25	0.25	*0.0*	0.25	0.25	*0.0*	0.8	0.9	*11.8*	<0.5
Ethylbenzene	0.5	1	0.25	0.25	*0.0*	0.25	0.5	*66.7*	1.5	1.6	*6.5*	<0.5
meta- and para-Xylene	0.5	2	0.25	0.25	*0.0*	0.25	1	*120.0*	1.6	1.7	*6.1*	<0.5
ortho-Xylene	0.5	1	0.25	0.25	*0.0*	0.25	0.5	*66.7*	0.9	0.9	*0.0*	<0.5
Polycyclic Aromatic Hydrocarbons (PAH)												
Naphthalene	1	1	0.5	0.5	*0.0*	0.5	0.5	*0.0*	0.5	0.5	*0.0*	<1
Total Recoverable Hydrocarbons (TRH)												
TRH C_6-C_{10}	--	25	--	--	--	--	12.5	--	--	--	--	<10
TRH >C_{10}-C_{16}	50	50	25	25	*0.0*	25	25	*0.0*	--	--	--	--
TRH >C_{16}-C_{34}	100	100	50	50	*0.0*	50	50	*0.0*	--	--	--	--
TRH >C_{34}-C_{40}	100	100	50	50	*0.0*	50	50	*0.0*	--	--	--	--
Polycyclic Aromatic Hydrocarbons (PAH)												
Naphthalene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Acenaphthylene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Acenaphthene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Fluorene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Phenanthrene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Anthracene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Fluoranthene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Pyrene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Benz(a)anthracene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Chrysene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Benzo(b)&(j)fluoranthene	0.5	0.2	0.25	0.25	*0.0*	0.25	0.1	*133.3*	--	--	--	--
Benzo(k)fluoranthene	0.5		0.25	0.25	*0.0*	0.25			--	--	--	--
Benzo(a) pyrene	0.5	0.05	0.25	0.25	*0.0*	0.25	0.025	**163.6**	--	--	--	--
Indeno(1,2,3-c,d)pyrene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Dibenz(a,h)anthracene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Benzo(g,h,i)perylene	0.5	0.1	0.25	0.25	*0.0*	0.25	0.05	*133.3*	--	--	--	--
Metals												
Arsenic	5	4	2.5	2.5	*0.0*	2.5	2	*22.2*	--	--	--	--
Cadmium	0.4	0.4	0.2	0.2	*0.0*	0.2	0.2	*0.0*	--	--	--	--
Chromium	2	1	19	16	*17.1*	19	19	*0.0*	--	--	--	--
Copper	5	1	6	8	*28.6*	6	5	*18.2*	--	--	--	--
Mercury	0.1	0.1	0.05	0.05	*0.0*	0.05	0.05	*0.0*	--	--	--	--
Lead	5	1	11	10	*9.5*	11	9	*20.0*	--	--	--	--
Nickel	2	1	6	5	*18.2*	6	6	*0.0*	--	--	--	--
Zinc	5	1	18	22	*20.0*	18	16	*11.8*	--	--	--	--
Organochlorine Pesticides (OCP)												
alpha-BHC	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
HCB	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
b-BHC	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
g-BHC (Lindane)	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
d-BHC	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Heptachlor	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Aldrin	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Heptachlor epoxide	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
trans-Chlordane	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
alpha-Endosulfan	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
cis-Chlordane	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Dieldrin	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
DDE	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Endrin	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
beta-Endosulfan	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
DDD	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Endrin Aldehyde	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Endosulfan sulfate	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
DDT	0.2	0.1	--	--	--	0.1	0.05	*66.7*	--	--	--	--
Endrin Ketone	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Methoxychlor	0.2	0.1	--	--	--	0.1	0.05	*66.7*	--	--	--	--
Organophosphorous Pesticides (OPP)												
Chlorpyrifos	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Dichlorvos	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Demeton-S-methyl	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Monocrotophos	0.2	--	--	--	--	0.1	--	--	--	--	--	--
Dimethoate	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Diazinon	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--

Quality Assurance Type	Primary PQL	Secondary PQL	Interlaboratory Duplicate		RPD %	Intralaboratory Duplicate		RPD %	Intralaboratory Duplicate		RPD %
Sample Identification			BH6a	Dup1		BH6b	QA1		BH6d	QA2	
Sample Depth (m)			0.8			1.8			3.8		
Date			8/6/23			8/6/23			8/6/23		
Sample Profile			FILL, Silty SAND, fine to coarse grained, brown, trace of clay			FILL, Silty SAND, fine to coarse grained, brown, trace of clay			FILL, Silty SAND, fine to coarse grained, brown, trace of clay		
Sample Purpose			Characterisation			Characterisation			Characterisation		
Sample collected by			RCA - RC			RCA - RC			RCA - RC		
Chlorpyrifos-methyl	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Parathion-methyl	0.2	0.1	--	0.05	--	--	--	--	--	--	--
Malathion	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Fenthion	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Parathion	0.2	0.1	--	0.05	--	--	--	--	--	--	--
Pirimphos-ethyl	0.05	--	--	--	--	--	--	--	--	--	--
Chlorfenvinphos	0.05	--	--	--	--	--	--	--	--	--	--
Bromophos-ethyl	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Fenamiphos	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Prothiofos	0.05	--	--	--	--	--	--	--	--	--	--
Ethion	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Carbophenothion	0.05	--	--	--	--	--	--	--	--	--	--
Azinphos Methyl	0.05	0.1	--	0.05	--	--	--	--	--	--	--
Herbicides											
4-Chlorophenoxy acetic ac	0.02	0.5	--	0.25	--	--	--	--	--	--	--
2.4-DB	0.02	0.5	--	0.25	--	--	--	--	--	--	--
Dicamba	0.02	0.5	--	0.25	--	--	--	--	--	--	--
Mecoprop	0.02	0.5	--	0.25	--	--	--	--	--	--	--
MCPA	0.02	0.5	--	0.25	--	--	--	--	--	--	--
2.4-DP	0.02	0.5	--	0.25	--	--	--	--	--	--	--
2.4-D	0.02	0.5	--	0.25	--	--	--	--	--	--	--
Triclopyr	0.02	0.5	--	0.25	--	--	--	--	--	--	--
2.4.5-TP (Silvex)	0.02	0.5	--	0.25	--	--	--	--	--	--	--
2.4.5-T	0.02	0.5	--	0.25	--	--	--	--	--	--	--
MCPB	0.02	0.5	--	0.25	--	--	--	--	--	--	--
Picloram	0.02	1	--	0.5	--	--	--	--	--	--	--
Clopyralid	0.02	0.5	--	0.25	--	--	--	--	--	--	--
Fluroxypyr	0.02	1	--	0.5	--	--	--	--	--	--	--

All units in mg/kg except for EC in dS/m and pH in pH units

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

Results underlined were not detected and are reported as half the detection limit for statistical purpose.

***BOLD identifies** where RPD results*

intralaboratory	*interlaboratory*	
>50	*>60*	*where sample results are >10 x PQL*
>75	*>85*	*where sample results are > 5 to ≤10 x PQL*
>100	*>100*	*where sample results are >2 to ≤5 x PQL*
*AD>2.5 * PQL*		*where sample results are ≤2 x PQL*

Where results are within two of the above ranges the most conservative criteria have been used to assess duplicate performance

Quality Assurance Type			Intralaboratory Duplicate			Interlaboratory Duplicate			Trip Spike			Trip Blank
Sample Identification	**Primary PQL**	**Secondary PQL**	TP1	QA3		TP1	Dup3		TS	TSC		TB
Sample Depth (m)			0			0			NA			NA
Date			9/6/23			9/6/23			29/5/23			
Sample Profile			TOPSOIL, SILT, low plasticity, orange-brown		RPD %	TOPSOIL, SILT, low plasticity, orange-brown		RPD %	Sand		RPD %	Sand
Sample Purpose			Characterisation			Characterisation			Quality Assurance			Quality Assurance
Sample collected by			RCA - RC			RCA - RC			Laboratory			
Chlorpyrifos-methyl	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Parathion-methyl	0.2	0.1	--	--	--	0.1	0.05	*66.7*	--	--	--	--
Malathion	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Fenthion	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Parathion	0.2	0.1	--	--	--	0.1	0.05	*66.7*	--	--	--	--
Pirimphos-ethyl	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Chlorfenvinphos	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Bromophos-ethyl	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Fenamiphos	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Prothiofos	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Ethion	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Carbophenothion	0.05	--	--	--	--	0.025	--	--	--	--	--	--
Azinphos Methyl	0.05	0.1	--	--	--	0.025	0.05	*66.7*	--	--	--	--
Herbicides												
4-Chlorophenoxy acetic ac	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
2.4-DB	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
Dicamba	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
Mecoprop	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
MCPA	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
2.4-DP	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
2.4-D	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
Triclopyr	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
2.4.5-TP (Silvex)	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
2.4.5-T	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
MCPB	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
Picloram	0.02	1	--	--	--	0.01	0.5	*192.2*	--	--	--	--
Clopyralid	0.02	0.5	--	--	--	0.01	0.25	*184.6*	--	--	--	--
Fluroxypyr	0.02	1	--	--	--	0.01	0.5	*192.2*	--	--	--	--

All units in mg/kg except for EC in dS/m and pH in pH units

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

Results underlined were not detected and are reported as half the detection limit for statistical purpose.

***BOLD identifies** where RPD results*

intralaboratory	*interlaboratory*	
>50	*>60*	*where sample results are >10 x PQL*
>75	*>85*	*where sample results are > 5 to ≤10 x PQL*
>100	*>100*	*where sample results are >2 to ≤5 x PQL*
*AD>2.5 * PQL*		*where sample results are ≤2 x PQL*

Where results are within two of the above ranges the most conservative criteria have been used to assess duplicate performance

***BOLD identifies** where blanks >PQL*

CERTIFICATE OF ANALYSIS

Work Order	: **ES2319667**	Page	: 1 of 34
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 16547	Date Samples Received	: 14-Jun-2023 11:35
Order number	: ----	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: ----	Issue Date	: 20-Jun-2023 17:33
Sampler	: Kenny Yan		
Site	: ----		
Quote number	: SYBQ/400/21		
No. of samples received	: 51		
No. of samples analysed	: 50		

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 Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	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.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above 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.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH1	BH1a	BH1b	BH1c	BH2
			Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	05-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-001	ES2319667-002	ES2319667-003	ES2319667-004	ES2319667-005
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**7.3**	**7.3**	**7.4**	**7.4**	**8.4**
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	**44**	**60**	**52**	**61**	**23**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**9.6**	**11.2**	**13.6**	**11.4**	**16.8**
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**12**	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	**20**	**19**	**22**	**30**	**21**
Copper	7440-50-8	5	mg/kg	**7**	**9**	**9**	**7**	<5
Lead	7439-92-1	5	mg/kg	**18**	**16**	**8**	**12**	<5
Nickel	7440-02-0	2	mg/kg	**7**	**11**	**6**	**11**	**12**
Zinc	7440-66-6	5	mg/kg	**19**	**13**	**15**	**16**	**44**
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1	BH1a	BH1b	BH1c	BH2
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	05-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-001	ES2319667-002	ES2319667-003	ES2319667-004	ES2319667-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1	BH1a	BH1b	BH1c	BH2
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	05-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-001	ES2319667-002	ES2319667-003	ES2319667-004	ES2319667-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1	BH1a	BH1b	BH1c	BH2
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	05-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-001	ES2319667-002	ES2319667-003	ES2319667-004	ES2319667-005
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	----	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**90.1**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**80.8**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**88.1**	**87.1**	**87.8**	**89.0**	**92.0**
2-Chlorophenol-D4	93951-73-6	0.5	%		**83.9**	**82.4**	**83.1**	**83.9**	**91.6**
2.4.6-Tribromophenol	118-79-6	0.5	%		**60.6**	**61.1**	**56.5**	**61.6**	**86.3**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**95.1**	**93.1**	**95.8**	**94.6**	**99.3**
Anthracene-d10	1719-06-8	0.5	%		**93.0**	**91.5**	**94.6**	**92.8**	**98.6**
4-Terphenyl-d14	1718-51-0	0.5	%		**110**	**107**	**110**	**110**	**89.1**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**103**	**109**	**91.0**	**91.7**	**97.9**
Toluene-D8	2037-26-5	0.2	%		**90.8**	**96.3**	**88.9**	**86.5**	**83.0**
4-Bromofluorobenzene	460-00-4	0.2	%		**93.2**	**96.7**	**96.3**	**91.1**	**89.4**
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		**90.3**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH2a	BH3	BH3a	BH3b	BH3c
			Sampling date / time	05-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-006	ES2319667-007	ES2319667-008	ES2319667-009	ES2319667-010
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**8.5**	**8.3**	**9.8**	**9.9**	**7.8**
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	**32**	**170**	**165**	**158**	**61**
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**14.7**	**21.5**	**20.1**	**20.4**	**22.4**
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	**18**	**9**	**13**	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	**26**	**19**	**13**	**18**	**35**
Copper	7440-50-8	5	mg/kg	<5	**17**	**9**	**12**	**14**
Lead	7439-92-1	5	mg/kg	<5	**75**	**28**	**34**	**8**
Nickel	7440-02-0	2	mg/kg	**10**	**8**	**9**	**9**	**13**
Zinc	7440-66-6	5	mg/kg	**39**	**66**	**37**	**47**	**33**
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	**0.1**	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2a	BH3	BH3a	BH3b	BH3c
				Sampling date / time	05-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-006	ES2319667-007	ES2319667-008	ES2319667-009	ES2319667-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**120**	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**120**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**160**	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**160**	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**95.1**	**89.0**	**90.7**	**89.2**	**87.6**
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.7**	**84.8**	**85.2**	**83.9**	**81.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**89.7**	**67.5**	**52.0**	**47.2**	**62.9**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**97.9**	**92.7**	**93.5**	**92.6**	**93.3**
Anthracene-d10	1719-06-8	0.5	%		**96.4**	**96.0**	**93.3**	**93.7**	**94.0**
4-Terphenyl-d14	1718-51-0	0.5	%		**94.8**	**106**	**108**	**108**	**108**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**80.9**	**90.6**	**100**	**90.7**	**87.4**
Toluene-D8	2037-26-5	0.2	%		**83.0**	**93.9**	**82.1**	**77.5**	**89.8**
4-Bromofluorobenzene	460-00-4	0.2	%		**87.2**	**92.0**	**86.8**	**82.6**	**90.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH4	BH4a	BH5	BH5a	BH5b
			Sampling date / time	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-011	ES2319667-012	ES2319667-013	ES2319667-014	ES2319667-015
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.4	7.3	7.9	6.9	7.3
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	32	34	61	82	55
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.7	4.2	6.2	8.6	5.5
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	12	11	14	15	15
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	<5
Lead	7439-92-1	5	mg/kg	<5	<5	9	17	5
Nickel	7440-02-0	2	mg/kg	10	9	9	9	8
Zinc	7440-66-6	5	mg/kg	37	34	38	45	33
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH4	BH4a	BH5	BH5a	BH5b
				Sampling date / time	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-011	ES2319667-012	ES2319667-013	ES2319667-014	ES2319667-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH4	BH4a	BH5	BH5a	BH5b
				Sampling date / time	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-011	ES2319667-012	ES2319667-013	ES2319667-014	ES2319667-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH4	BH4a	BH5	BH5a	BH5b
				Sampling date / time	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00	07-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-011	ES2319667-012	ES2319667-013	ES2319667-014	ES2319667-015
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	----	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	----	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	----	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg		----	----	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	----	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg		----	----	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	----	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	----	<0.02	----	----
MCPB	94-81-5	0.02	mg/kg		----	----	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		----	----	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	----	<0.02	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	101	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	55.3	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.7	86.2	85.6	85.9	89.6
2-Chlorophenol-D4	93951-73-6	0.5	%		84.6	81.8	82.1	82.0	84.5
2.4.6-Tribromophenol	118-79-6	0.5	%		64.4	59.5	58.6	57.0	62.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.0	91.7	91.2	92.8	94.7
Anthracene-d10	1719-06-8	0.5	%		94.3	92.6	89.7	92.1	94.5
4-Terphenyl-d14	1718-51-0	0.5	%		112	108	106	110	111
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		108	79.8	94.4	103	95.3
Toluene-D8	2037-26-5	0.2	%		92.0	83.7	90.1	84.7	86.9
4-Bromofluorobenzene	460-00-4	0.2	%		93.9	82.2	91.6	88.5	89.5
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	75.6	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH6	BH6a	BH6b	BH6c	BH6d
			Sampling date / time	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-016	ES2319667-017	ES2319667-018	ES2319667-019	ES2319667-020
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.3	7.9	8.5	8.6	7.7
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	45	14	100	125	38
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.5	10.0	12.1	11.5	10.9
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	22	16	18	22	16
Copper	7440-50-8	5	mg/kg	8	5	6	8	8
Lead	7439-92-1	5	mg/kg	7	6	21	35	7
Nickel	7440-02-0	2	mg/kg	12	11	11	9	9
Zinc	7440-66-6	5	mg/kg	43	40	57	52	38
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	1.2	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	2.0	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	2.2	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	1.2	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	1.3	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	1.2	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	1.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	0.8	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	12.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	1.9	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6	BH6a	BH6b	BH6c	BH6d
				Sampling date / time	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00	08-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-016	ES2319667-017	ES2319667-018	ES2319667-019	ES2319667-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**2.1**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**2.4**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**92.4**	**86.9**	**89.0**	**90.7**	**89.2**
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.6**	**81.7**	**84.4**	**85.3**	**85.5**
2.4.6-Tribromophenol	118-79-6	0.5	%		**63.5**	**58.0**	**62.1**	**62.4**	**83.7**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**95.9**	**92.0**	**94.5**	**93.7**	**103**
Anthracene-d10	1719-06-8	0.5	%		**94.5**	**92.6**	**93.7**	**93.6**	**111**
4-Terphenyl-d14	1718-51-0	0.5	%		**112**	**108**	**110**	**107**	**91.1**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**115**	**89.0**	**102**	**90.8**	**112**
Toluene-D8	2037-26-5	0.2	%		**108**	**85.5**	**94.8**	**88.0**	**83.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**105**	**86.0**	**94.8**	**89.2**	**84.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH6e	BH7a	BH7b	BH7c	BH8
			Sampling date / time	08-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-021	ES2319667-022	ES2319667-023	ES2319667-024	ES2319667-025
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	7.5	7.8	8.2	8.2	9.3
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	23	74	102	51	96
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.8	7.3	7.0	11.8	8.8
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	10	20	20	21	21
Copper	7440-50-8	5	mg/kg	<5	6	6	8	7
Lead	7439-92-1	5	mg/kg	<5	13	32	13	8
Nickel	7440-02-0	2	mg/kg	7	12	8	10	12
Zinc	7440-66-6	5	mg/kg	34	42	48	37	40
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	5.4	6.6	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	1.8	2.1	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	7.0	10.2	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	6.3	9.3	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	2.0	3.1	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	2.0	3.1	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	2.2	4.2	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	0.9	1.7	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	2.6	4.4	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.4	2.4	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.7	3.0	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	33.3	50.1	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	3.3	5.6	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH6e	BH7a	BH7b	BH7c	BH8
				Sampling date / time	08-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-021	ES2319667-022	ES2319667-023	ES2319667-024	ES2319667-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**3.5**	**5.8**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**3.8**	**6.1**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**130**	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	**130**	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**89.2**	**87.8**	**96.5**	**88.8**	**93.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		**87.9**	**85.5**	**95.0**	**83.8**	**91.8**
2.4.6-Tribromophenol	118-79-6	0.5	%		**83.3**	**80.0**	**86.7**	**87.5**	**84.4**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**102**	**101**	**102**	**99.0**	**99.5**
Anthracene-d10	1719-06-8	0.5	%		**108**	**103**	**104**	**111**	**112**
4-Terphenyl-d14	1718-51-0	0.5	%		**91.4**	**91.0**	**91.9**	**93.1**	**93.4**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**85.4**	**72.8**	**85.6**	**84.4**	**104**
Toluene-D8	2037-26-5	0.2	%		**104**	**80.7**	**104**	**106**	**115**
4-Bromofluorobenzene	460-00-4	0.2	%		**129**	**123**	**128**	**127**	**113**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH8a	BH8b	BH8c	BH8e	BH8f
			Sampling date / time	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-026	ES2319667-027	ES2319667-028	ES2319667-029	ES2319667-030
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	8.1	9.2	8.8	8.6	8.4
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	59	88	114	135	49
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.2	7.2	8.7	10.6	9.1
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	25	20	18	26	12
Copper	7440-50-8	5	mg/kg	11	7	6	6	<5
Lead	7439-92-1	5	mg/kg	14	7	7	8	<5
Nickel	7440-02-0	2	mg/kg	12	11	10	9	6
Zinc	7440-66-6	5	mg/kg	45	41	38	35	30
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8a	BH8b	BH8c	BH8e	BH8f
				Sampling date / time	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-026	ES2319667-027	ES2319667-028	ES2319667-029	ES2319667-030
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8a	BH8b	BH8c	BH8e	BH8f
				Sampling date / time	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-026	ES2319667-027	ES2319667-028	ES2319667-029	ES2319667-030
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		**0.6**	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		**0.5**	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**1.1**	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH8a	BH8b	BH8c	BH8e	BH8f
				Sampling date / time	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00	06-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-026	ES2319667-027	ES2319667-028	ES2319667-029	ES2319667-030
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	----	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		85.9	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		53.4	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		85.6	89.7	91.8	87.2	90.0
2-Chlorophenol-D4	93951-73-6	0.5	%		81.4	89.9	89.9	90.4	88.0
2.4.6-Tribromophenol	118-79-6	0.5	%		61.2	80.0	83.4	85.5	84.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		90.8	102	102	103	104
Anthracene-d10	1719-06-8	0.5	%		92.2	108	109	99.1	97.9
4-Terphenyl-d14	1718-51-0	0.5	%		105	90.2	91.5	90.7	94.3
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		86.6	102	103	83.5	86.9
Toluene-D8	2037-26-5	0.2	%		108	115	113	104	106
4-Bromofluorobenzene	460-00-4	0.2	%		130	113	112	125	126
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		72.8	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)
			Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-031	ES2319667-032	ES2319667-033	ES2319667-034	ES2319667-035
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	7.9	7.3	7.6	7.9	7.5
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	32	55	28	112	47
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.9	18.4	9.6	9.9	17.0
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	8	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	12	47	24	18	39
Copper	7440-50-8	5	mg/kg	14	10	5	6	8
Lead	7439-92-1	5	mg/kg	<5	9	6	17	9
Nickel	7440-02-0	2	mg/kg	20	16	15	7	16
Zinc	7440-66-6	5	mg/kg	50	49	45	37	39
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-031	ES2319667-032	ES2319667-033	ES2319667-034	ES2319667-035
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-031	ES2319667-032	ES2319667-033	ES2319667-034	ES2319667-035
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		**160**	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**160**	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		**300**	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**300**	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-031	ES2319667-032	ES2319667-033	ES2319667-034	ES2319667-035
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		<0.02	----	----	----	----
2.4-DB	94-82-6	0.02	mg/kg		<0.02	----	----	----	----
Dicamba	1918-00-9	0.02	mg/kg		<0.02	----	----	----	----
Mecoprop	93-65-2	0.02	mg/kg		<0.02	----	----	----	----
MCPA	94-74-6	0.02	mg/kg		<0.02	----	----	----	----
2.4-DP	120-36-5	0.02	mg/kg		<0.02	----	----	----	----
2.4-D	94-75-7	0.02	mg/kg		<0.02	----	----	----	----
Triclopyr	55335-06-3	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		<0.02	----	----	----	----
2.4.5-T	93-76-5	0.02	mg/kg		<0.02	----	----	----	----
MCPB	94-81-5	0.02	mg/kg		<0.02	----	----	----	----
Picloram	1918-02-1	0.02	mg/kg		<0.02	----	----	----	----
Clopyralid	1702-17-6	0.02	mg/kg		<0.02	----	----	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		<0.02	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		103	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		91.1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		89.6	87.2	90.1	97.3	86.7
2-Chlorophenol-D4	93951-73-6	0.5	%		84.2	86.6	85.4	93.9	87.5
2.4.6-Tribromophenol	118-79-6	0.5	%		65.5	80.6	78.3	84.8	78.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		92.3	103	100	96.9	100
Anthracene-d10	1719-06-8	0.5	%		93.7	95.5	110	95.4	110
4-Terphenyl-d14	1718-51-0	0.5	%		107	94.5	90.5	94.8	91.0
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		101	83.9	101	104	105
Toluene-D8	2037-26-5	0.2	%		105	105	114	119	119
4-Bromofluorobenzene	460-00-4	0.2	%		107	125	112	117	114
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		63.4	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH10b(HA)	BH10c(HA)	TP1	TP1a	TP1b
			Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-036	ES2319667-037	ES2319667-038	ES2319667-039	ES2319667-040
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	7.6	7.3	6.8	6.8	6.8
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	56	51	22	67	55
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	15.7	9.7	5.1	7.1	6.1
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	31	39	19	19	24
Copper	7440-50-8	5	mg/kg	7	7	6	5	6
Lead	7439-92-1	5	mg/kg	11	8	11	10	10
Nickel	7440-02-0	2	mg/kg	12	14	6	8	10
Zinc	7440-66-6	5	mg/kg	33	32	18	24	26
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH10b(HA)	BH10c(HA)	TP1	TP1a	TP1b
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-036	ES2319667-037	ES2319667-038	ES2319667-039	ES2319667-040
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH10b(HA)	BH10c(HA)	TP1	TP1a	TP1b
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-036	ES2319667-037	ES2319667-038	ES2319667-039	ES2319667-040
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH10b(HA)	BH10c(HA)	TP1	TP1a	TP1b
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-036	ES2319667-037	ES2319667-038	ES2319667-039	ES2319667-040
					Result	Result	Result	Result	Result
EP202A: Phenoxyacetic Acid Herbicides by LCMS									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg		----	----	<0.02	----	----
2.4-DB	94-82-6	0.02	mg/kg		----	----	<0.02	----	----
Dicamba	1918-00-9	0.02	mg/kg		----	----	<0.02	----	----
Mecoprop	93-65-2	0.02	mg/kg		----	----	<0.02	----	----
MCPA	94-74-6	0.02	mg/kg		----	----	<0.02	----	----
2.4-DP	120-36-5	0.02	mg/kg		----	----	<0.02	----	----
2.4-D	94-75-7	0.02	mg/kg		----	----	<0.02	----	----
Triclopyr	55335-06-3	0.02	mg/kg		----	----	<0.02	----	----
2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg		----	----	<0.02	----	----
2.4.5-T	93-76-5	0.02	mg/kg		----	----	<0.02	----	----
MCPB	94-81-5	0.02	mg/kg		----	----	<0.02	----	----
Picloram	1918-02-1	0.02	mg/kg		----	----	<0.02	----	----
Clopyralid	1702-17-6	0.02	mg/kg		----	----	<0.02	----	----
Fluroxypyr	69377-81-7	0.02	mg/kg		----	----	<0.02	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	100	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	64.2	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		90.8	94.4	87.8	81.4	90.4
2-Chlorophenol-D4	93951-73-6	0.5	%		86.8	89.9	82.5	84.3	88.5
2.4.6-Tribromophenol	118-79-6	0.5	%		81.9	77.6	62.4	69.2	79.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.7	103	92.0	104	101
Anthracene-d10	1719-06-8	0.5	%		95.4	112	93.0	112	97.5
4-Terphenyl-d14	1718-51-0	0.5	%		94.9	92.1	105	94.7	91.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		84.5	104	102	106	98.8
Toluene-D8	2037-26-5	0.2	%		91.1	115	117	121	103
4-Bromofluorobenzene	460-00-4	0.2	%		99.6	112	112	115	107
EP202S: Phenoxyacetic Acid Herbicide Surrogate									
2.4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%		----	----	87.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP2	TP2a	TP2b	TP2c	QA1
			Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit	ES2319667-041	ES2319667-042	ES2319667-043	ES2319667-044	ES2319667-045
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	6.8	6.8	7.0	6.1	8.2
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	20	16	25	53	88
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	6.1	5.7	8.6	6.2	10.5
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	12
Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	7440-47-3	2	mg/kg	12	15	10	13	15
Copper	7440-50-8	5	mg/kg	<5	<5	<5	<5	8
Lead	7439-92-1	5	mg/kg	11	14	8	8	32
Nickel	7440-02-0	2	mg/kg	9	10	4	8	10
Zinc	7440-66-6	5	mg/kg	43	45	17	24	58
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.9
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	0.8
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	2.3
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP2	TP2a	TP2b	TP2c	QA1
				Sampling date / time	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00	09-Jun-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-041	ES2319667-042	ES2319667-043	ES2319667-044	ES2319667-045
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**86.4**	**90.6**	**93.2**	**87.4**	**88.4**
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.1**	**85.7**	**91.4**	**83.3**	**89.3**
2.4.6-Tribromophenol	118-79-6	0.5	%		**73.4**	**69.7**	**74.4**	**51.9**	**77.7**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**95.9**	**97.7**	**95.5**	**98.7**	**100**
Anthracene-d10	1719-06-8	0.5	%		**104**	**105**	**84.1**	**106**	**106**
4-Terphenyl-d14	1718-51-0	0.5	%		**86.3**	**87.4**	**93.0**	**89.4**	**89.6**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**101**	**112**	**103**	**110**	**101**
Toluene-D8	2037-26-5	0.2	%		**93.4**	**107**	**90.3**	**97.8**	**93.1**
4-Bromofluorobenzene	460-00-4	0.2	%		**123**	**128**	**120**	**124**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA3	QA2 extra	TS extra	TB extra	TSC
				Sampling date / time	23-Feb-2023 00:00	06-Jun-2023 00:00	29-May-2023 00:00	29-May-2023 00:00	29-May-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-046	ES2319667-048	ES2319667-049	ES2319667-050	ES2319667-051
					Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		**6.5**	**7.6**	----	----	----
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		**29**	**46**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**5.3**	**8.4**	----	----	----
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	----	----	----
Cadmium	7440-43-9	0.4	mg/kg		<0.4	<0.4	----	----	----
Chromium	7440-47-3	2	mg/kg		**16**	**11**	----	----	----
Copper	7440-50-8	5	mg/kg		**8**	<5	----	----	----
Lead	7439-92-1	5	mg/kg		**10**	**6**	----	----	----
Nickel	7440-02-0	2	mg/kg		**5**	**7**	----	----	----
Zinc	7440-66-6	5	mg/kg		**22**	**32**	----	----	----
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA3	QA2 extra	TS extra	TB extra	TSC
				Sampling date / time	23-Feb-2023 00:00	06-Jun-2023 00:00	29-May-2023 00:00	29-May-2023 00:00	29-May-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-046	ES2319667-048	ES2319667-049	ES2319667-050	ES2319667-051
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<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	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	**0.9**
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	**1.5**	<0.5	**1.6**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	**1.6**	<0.5	**1.7**
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	**0.9**	<0.5	**0.9**
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	**4.8**	<0.2	**5.1**
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	**2.5**	<0.5	**2.6**
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**92.3**	**90.4**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.6**	**85.6**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**80.9**	**74.3**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**102**	**95.6**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**109**	**107**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**90.2**	**89.5**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	QA3	QA2 extra	TS extra	TB extra	TSC
				Sampling date / time	23-Feb-2023 00:00	06-Jun-2023 00:00	29-May-2023 00:00	29-May-2023 00:00	29-May-2023 00:00
Compound	CAS Number	LOR	Unit		ES2319667-046	ES2319667-048	ES2319667-049	ES2319667-050	ES2319667-051
					Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued									
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**109**	**94.0**	**90.3**	**89.6**	**89.2**
Toluene-D8	2037-26-5	0.2	%		**98.8**	**86.6**	**105**	**79.0**	**105**
4-Bromofluorobenzene	460-00-4	0.2	%		**115**	**83.7**	**108**	**100**	**106**

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131
EP202S: Phenoxyacetic Acid Herbicide Surrogate			
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139

QUALITY CONTROL REPORT

Work Order	: **ES2319667**	Page	: 1 of 24
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Project	: 16547	Date Samples Received	: 14-Jun-2023
Order number	: ----	Date Analysis Commenced	: 15-Jun-2023
C-O-C number	: ----	Issue Date	: 20-Jun-2023
Sampler	: Kenny Yan		
Site	: ----		
Quote number	: SYBQ/400/21		
No. of samples received	: 51		
No. of samples analysed	: 50		

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 Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	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-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QC Lot: 5115154)									
ES2319667-001	BH1	EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
		EG005T-MW: Chromium	7440-47-3	2	mg/kg	20	24	16.2	0% - 50%
		EG005T-MW: Nickel	7440-02-0	2	mg/kg	7	16	78.3	No Limit
		EG005T-MW: Arsenic	7440-38-2	5	mg/kg	12	<5	85.4	No Limit
		EG005T-MW: Copper	7440-50-8	5	mg/kg	7	9	24.6	No Limit
		EG005T-MW: Lead	7439-92-1	5	mg/kg	18	13	30.8	No Limit
		EG005T-MW: Zinc	7440-66-6	5	mg/kg	19	21	11.9	No Limit
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QC Lot: 5115156)									
ES2319667-021	BH6e	EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
		EG005T-MW: Chromium	7440-47-3	2	mg/kg	10	8	16.1	No Limit
		EG005T-MW: Nickel	7440-02-0	2	mg/kg	7	6	0.0	No Limit
		EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	8	44.6	No Limit
		EG005T-MW: Lead	7439-92-1	5	mg/kg	<5	<5	0.0	No Limit
		EG005T-MW: Zinc	7440-66-6	5	mg/kg	34	33	3.4	No Limit
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QC Lot: 5118357)									
ES2319667-044	TP2c	EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	<0.4	0.0	No Limit
		EG005T-MW: Chromium	7440-47-3	2	mg/kg	13	12	8.3	No Limit
		EG005T-MW: Nickel	7440-02-0	2	mg/kg	8	7	0.0	No Limit
		EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T-MW: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T-MW: Zinc	7440-66-6	5	mg/kg	24	23	8.2	No Limit

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 (%)*
EA002: pH 1:5 (Soils) (QC Lot: 5111852)									
ES2319296-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.6	8.5	0.0	0% - 20%
ES2319667-009	BH3b	EA002: pH Value	----	0.1	pH Unit	9.9	9.9	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5113084)									
ES2319521-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.0	6.3	5.2	0% - 20%
ES2319570-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.3	6.4	1.6	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5113088)									
ES2319667-002	BH1a	EA002: pH Value	----	0.1	pH Unit	7.3	7.4	1.5	0% - 20%
ES2319667-038	TP1	EA002: pH Value	----	0.1	pH Unit	6.8	6.7	1.5	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5118517)									
ES2319667-015	BH5b	EA002: pH Value	----	0.1	pH Unit	7.3	7.3	0.0	0% - 20%
ES2319602-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.2	6.9	3.5	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5118520)									
ES2319667-046	QA3	EA002: pH Value	----	0.1	pH Unit	6.5	6.2	4.7	0% - 20%
ES2319697-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.9	8.7	1.9	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5111853)									
ES2319296-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	64	69	7.2	0% - 20%
ES2319667-009	BH3b	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	158	166	5.1	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5113086)									
ES2319521-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	709	711	0.3	0% - 20%
ES2319570-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	31	33	6.9	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5113089)									
ES2319667-002	BH1a	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	60	61	0.0	0% - 20%
ES2319667-038	TP1	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	22	24	6.2	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5118518)									
ES2319667-015	BH5b	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	55	48	13.5	0% - 20%
ES2319602-001	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	42	48	13.5	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5118519)									
ES2319667-046	QA3	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	29	34	15.4	0% - 20%
ES2319697-006	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	42	36	16.3	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5111854)									
ES2319272-003	Anonymous	EA055: Moisture Content	----	0.1	%	11.2	7.9	34.3	0% - 50%
ES2319296-005	Anonymous	EA055: Moisture Content	----	0.1	%	5.2	4.7	9.9	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5111855)									
ES2319667-018	BH6b	EA055: Moisture Content	----	0.1	%	12.1	11.4	5.9	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5113092)									
ES2319521-003	Anonymous	EA055: Moisture Content	----	0.1	%	17.0	17.6	3.5	0% - 20%
ES2319571-001	Anonymous	EA055: Moisture Content	----	0.1	%	11.5	11.5	0.0	0% - 50%

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 (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5113093)									
ES2319667-004	BH1c	EA055: Moisture Content	----	0.1	%	11.4	10.0	12.3	0% - 50%
ES2319667-041	TP2	EA055: Moisture Content	----	0.1	%	6.1	5.9	3.3	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5118378)									
ES2319455-059	Anonymous	EA055: Moisture Content	----	0.1	%	11.6	11.8	1.9	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5118527)									
ES2319602-003	Anonymous	EA055: Moisture Content	----	0.1	%	5.5	5.2	5.8	0% - 20%
ES2319667-025	BH8	EA055: Moisture Content	----	0.1	%	8.8	9.0	2.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5118528)									
ES2319695-002	Anonymous	EA055: Moisture Content	----	0.1	%	14.4	13.0	10.0	0% - 20%
ES2319697-010	Anonymous	EA055: Moisture Content	----	0.1	%	12.4	12.9	4.3	0% - 20%
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QC Lot: 5115153)									
ES2319667-011	BH4	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2319667-001	BH1	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QC Lot: 5115155)									
ES2319667-031	BH9(E300A)	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2319667-021	BH6e	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QC Lot: 5118356)									
ES2319667-048	QA2 extra	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2319667-044	TP2c	EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5112671)									
ES2319667-001	BH1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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 (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5112671) - continued									
ES2319667-001	BH1	EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 5112671)									
ES2319667-001	BH1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5112670)									
ES2319667-013	BH5	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	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	<0.5	<0.5	0.0	No Limit

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 (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5112670) - continued									
ES2319667-013	BH5	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2319667-001	BH1	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5112885)									
ES2319667-005	BH2	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	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

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 (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5112885) - continued									
ES2319667-005	BH2	EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2319667-029	BH8e	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5113180)									
ES2319667-041	TP2	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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 (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5113180) - continued									
ES2319667-041	TP2	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5113381)									
ES2319833-001	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	<0.5	<0.5	0.0	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	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	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5112669)									
ES2319667-013	BH5	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
ES2319667-001	BH1	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: 5112694)									
ES2319667-001	BH1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2319667-011	BH4	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5112695)									
ES2319667-021	BH6e	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2319667-031	BH9(E300A)	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit

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 (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5112886)									
ES2319667-005	BH2	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
ES2319667-029	BH8e	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: 5113181)									
ES2319667-041	TP2	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: 5113382)									
ES2319833-001	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: 5113704)									
ES2319667-041	TP2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2319833-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5112669)									
ES2319667-013	BH5	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
ES2319667-001	BH1	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: 5112694)									
ES2319667-001	BH1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2319667-011	BH4	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5112695)									
ES2319667-021	BH6e	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2319667-031	BH9(E300A)	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5112886)									
ES2319667-005	BH2	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
ES2319667-029	BH8e	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: 5113181)									

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 (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5113181) - continued									
ES2319667-041	TP2	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: 5113382)									
ES2319833-001	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: 5113704)									
ES2319667-041	TP2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2319833-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5112694)									
ES2319667-001	BH1	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
ES2319667-011	BH4	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
EP080: BTEXN (QC Lot: 5112695)									
ES2319667-021	BH6e	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
ES2319667-031	BH9(E300A)	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

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 (%)*
EP080: BTEXN (QC Lot: 5113704)									
ES2319667-041	TP2	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
ES2319833-001	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
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 5112208)									
EM2310374-001	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP2307668-004	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

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 (%)*
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 5112208) - continued									
EP2307668-004	Anonymous	EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	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-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5115154)								
EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	118 mg/kg	92.0	85.0	115
EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	1 mg/kg	96.6	90.0	110
EG005T-MW: Chromium	7440-47-3	2	mg/kg	<2	21 mg/kg	101	65.0	135
EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	102	93.0	107
EG005T-MW: Lead	7439-92-1	5	mg/kg	<5	56 mg/kg	99.5	84.0	116
EG005T-MW: Nickel	7440-02-0	2	mg/kg	<2	15.2 mg/kg	101	87.0	112
EG005T-MW: Zinc	7440-66-6	5	mg/kg	<5	142.1 mg/kg	104	93.0	107
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5115156)								
EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	118 mg/kg	85.7	85.0	115
EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	1 mg/kg	97.3	90.0	110
EG005T-MW: Chromium	7440-47-3	2	mg/kg	<2	21 mg/kg	93.9	65.0	135
EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	102	93.0	107
EG005T-MW: Lead	7439-92-1	5	mg/kg	<5	56 mg/kg	93.5	84.0	116
EG005T-MW: Nickel	7440-02-0	2	mg/kg	<2	15.2 mg/kg	94.7	87.0	112
EG005T-MW: Zinc	7440-66-6	5	mg/kg	<5	142.1 mg/kg	96.5	93.0	107
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5118357)								
EG005T-MW: Arsenic	7440-38-2	5	mg/kg	<5	118 mg/kg	92.8	85.0	115
EG005T-MW: Cadmium	7440-43-9	0.4	mg/kg	<0.4	1 mg/kg	106	90.0	110
EG005T-MW: Chromium	7440-47-3	2	mg/kg	<2	21 mg/kg	99.0	65.0	135
EG005T-MW: Copper	7440-50-8	5	mg/kg	<5	54.7 mg/kg	103	93.0	107
EG005T-MW: Lead	7439-92-1	5	mg/kg	<5	56 mg/kg	100	84.0	116
EG005T-MW: Nickel	7440-02-0	2	mg/kg	<2	15.2 mg/kg	99.0	87.0	112
EG005T-MW: Zinc	7440-66-6	5	mg/kg	<5	142.1 mg/kg	101	93.0	107
EA002: pH 1:5 (Soils) (QCLot: 5111852)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.8	101
				----	7 pH Unit	100	98.8	101
EA002: pH 1:5 (Soils) (QCLot: 5113084)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.5	98.8	101
				----	7 pH Unit	99.0	98.8	101
EA002: pH 1:5 (Soils) (QCLot: 5113088)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EA002: pH 1:5 (Soils) (QCLot: 5113088) - continued								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.5	98.8	101
				----	7 pH Unit	98.8	98.8	101
EA002: pH 1:5 (Soils) (QCLot: 5118517)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	98.8	98.8	101
				----	7 pH Unit	99.6	98.8	101
EA002: pH 1:5 (Soils) (QCLot: 5118520)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	99.0	98.8	101
				----	7 pH Unit	99.3	98.8	101
EA010: Conductivity (1:5) (QCLot: 5111853)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.1	92.0	108
EA010: Conductivity (1:5) (QCLot: 5113086)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	97.7	92.0	108
EA010: Conductivity (1:5) (QCLot: 5113089)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	102	92.0	108
EA010: Conductivity (1:5) (QCLot: 5118518)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.7	92.0	108
EA010: Conductivity (1:5) (QCLot: 5118519)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	97.7	92.0	108
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5115153)								
EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.075 mg/kg	119	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5115155)								
EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.075 mg/kg	117	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5118356)								
EG035T-MW: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.075 mg/kg	101	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5112671)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	100	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.0	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.0	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	63.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Acceptable Limits (%)
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5112671) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	93.2	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	97.5	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5112671)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.9	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	80.4	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.8	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	94.1	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	90.5	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	96.3	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5112670)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.0	77.0	125

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5112670) - continued								
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	82.9	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	95.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.3	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	90.2	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	89.6	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	80.7	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	101	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	76.7	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	80.4	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	77.5	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	77.4	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	74.8	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	71.9	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5112885)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.6	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.0	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	99.8	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	100	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.9	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	92.7	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	93.1	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.4	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.6	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.5	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.9	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.8	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.9	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	88.5	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	87.9	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5113180)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5113180) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.3	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	92.6	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	94.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	96.8	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	98.4	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	98.5	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	91.4	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	97.2	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	92.3	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	93.2	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	85.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	82.5	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	82.7	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5113381)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	98.0	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	99.0	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	98.5	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	94.8	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.2	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.3	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	93.2	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.1	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	95.7	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	95.6	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	91.8	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	73.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	75.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	72.4	63.0	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112669)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	98.2	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	98.3	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	111	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112694)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	85.2	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112695)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.3	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112886)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.4	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	106	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	104	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5113181)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	99.0	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	106	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5113382)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	102	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	114	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5113704)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	104	72.2	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5120208)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	91.3	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112669)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.0	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.8	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	95.7	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112694)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	84.2	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112695)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	90.1	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112886)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	107	74.0	138

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112886) - continued								
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	110	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113181)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	103	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	108	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	116	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113382)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	102	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	110	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	84.7	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113704)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	102	72.4	133
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5120208)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.8	72.4	133
EP080: BTEXN (QCLot: 5112694)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.2	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.8	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	89.5	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.5	78.8	122
EP080: BTEXN (QCLot: 5112695)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.3	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.3	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	87.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.4	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.9	78.8	122
EP080: BTEXN (QCLot: 5113704)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.1	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	101	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	102	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	104	78.2	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5113704) - continued								
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	105	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	106	78.8	122
EP080: BTEXN (QCLot: 5120208)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.6	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.2	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	101	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.7	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.4	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	108	78.8	122
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 5112208)								
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	68.5	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	72.6	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	68.3	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	74.2	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	76.2	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	73.6	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	75.3	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	67.1	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	71.1	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	70.8	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	61.9	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	77.6	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	71.8	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	72.2	53.2	128

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-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5115154)							
ES2319667-001	BH1	EG005T-MW: Arsenic	7440-38-2	50 mg/kg	75.1	70.0	130
		EG005T-MW: Cadmium	7440-43-9	50 mg/kg	129	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5115154) - continued							
ES2319667-001	BH1	EG005T-MW: Chromium	7440-47-3	50 mg/kg	128	70.0	130
		EG005T-MW: Copper	7440-50-8	250 mg/kg	117	70.0	130
		EG005T-MW: Lead	7439-92-1	250 mg/kg	114	70.0	130
		EG005T-MW: Nickel	7440-02-0	50 mg/kg	127	70.0	130
		EG005T-MW: Zinc	7440-66-6	250 mg/kg	123	70.0	130
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5115156)							
ES2319667-021	BH6e	EG005T-MW: Arsenic	7440-38-2	50 mg/kg	90.4	70.0	130
		EG005T-MW: Cadmium	7440-43-9	50 mg/kg	111	70.0	130
		EG005T-MW: Chromium	7440-47-3	50 mg/kg	104	70.0	130
		EG005T-MW: Copper	7440-50-8	250 mg/kg	102	70.0	130
		EG005T-MW: Lead	7439-92-1	250 mg/kg	98.9	70.0	130
		EG005T-MW: Nickel	7440-02-0	50 mg/kg	100	70.0	130
		EG005T-MW: Zinc	7440-66-6	250 mg/kg	105	70.0	130
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES (QCLot: 5118357)							
ES2319667-044	TP2c	EG005T-MW: Arsenic	7440-38-2	50 mg/kg	99.1	70.0	130
		EG005T-MW: Cadmium	7440-43-9	50 mg/kg	124	70.0	130
		EG005T-MW: Chromium	7440-47-3	50 mg/kg	114	70.0	130
		EG005T-MW: Copper	7440-50-8	250 mg/kg	114	70.0	130
		EG005T-MW: Lead	7439-92-1	250 mg/kg	111	70.0	130
		EG005T-MW: Nickel	7440-02-0	50 mg/kg	112	70.0	130
		EG005T-MW: Zinc	7440-66-6	250 mg/kg	118	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5115153)							
ES2319667-001	BH1	EG035T-MW: Mercury	7439-97-6	5 mg/kg	101	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5115155)							
ES2319667-021	BH6e	EG035T-MW: Mercury	7439-97-6	5 mg/kg	103	70.0	130
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS (QCLot: 5118356)							
ES2319667-044	TP2c	EG035T-MW: Mercury	7439-97-6	5 mg/kg	96.9	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5112671)							
ES2319667-001	BH1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	106	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	95.2	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	100	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.1	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	71.2	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	76.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5112671)							
ES2319667-001	BH1	EP068: Diazinon	333-41-5	0.5 mg/kg	82.3	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	75.6	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5112671) - continued							
ES2319667-001	BH1	EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.1	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	88.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	78.1	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5112670)							
ES2319667-001	BH1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.0	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	95.2	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5112885)							
ES2319667-005	BH2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	99.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.1	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5113180)							
ES2319667-041	TP2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.9	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.4	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5113381)							
ES2319833-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	91.2	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	88.3	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112669)							
ES2319667-001	BH1	EP071: C10 - C14 Fraction	----	480 mg/kg	109	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	124	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	128	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112694)							
ES2319667-001	BH1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	94.8	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112695)							
ES2319667-021	BH6e	EP080: C6 - C9 Fraction	----	32.5 mg/kg	132	60.4	142
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5112886)							
ES2319667-005	BH2	EP071: C10 - C14 Fraction	----	480 mg/kg	111	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	110	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	116	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5113181)							
ES2319667-041	TP2	EP071: C10 - C14 Fraction	----	480 mg/kg	113	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	105	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	111	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5113382)							
ES2319833-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	110	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	118	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	120	52.0	132

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: 5113704)							
ES2319667-041	TP2	EP080: C6 - C9 Fraction	----	32.5 mg/kg	102	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112669)							
ES2319667-001	BH1	EP071: >C10 - C16 Fraction	----	860 mg/kg	109	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	129	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	119	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112694)							
ES2319667-001	BH1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	96.6	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112695)							
ES2319667-021	BH6e	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	133	61.1	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5112886)							
ES2319667-005	BH2	EP071: >C10 - C16 Fraction	----	860 mg/kg	114	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	112	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113181)							
ES2319667-041	TP2	EP071: >C10 - C16 Fraction	----	860 mg/kg	111	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	106	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	109	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113382)							
ES2319833-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	107	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	122	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	114	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5113704)							
ES2319667-041	TP2	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	104	61.1	142
EP080: BTEXN (QCLot: 5112694)							
ES2319667-001	BH1	EP080: Benzene	71-43-2	2.5 mg/kg	91.6	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	91.6	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.1	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	93.3	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.3	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	83.2	61.1	115
EP080: BTEXN (QCLot: 5112695)							
ES2319667-021	BH6e	EP080: Benzene	71-43-2	2.5 mg/kg	100	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	103	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	102	67.4	123

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: BTEXN (QCLot: 5112695) - continued							
ES2319667-021	BH6e	EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	102	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	101	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	91.2	61.1	115
EP080: BTEXN (QCLot: 5113704)							
ES2319667-041	TP2	EP080: Benzene	71-43-2	2.5 mg/kg	83.0	62.1	122
		EP080: Toluene	108-88-3	2.5 mg/kg	86.3	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.9	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	90.1	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	94.0	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	92.3	61.1	115
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 5112208)							
EM2310374-001	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	72.7	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	82.7	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	77.8	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	70.9	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	67.5	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	79.9	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	77.8	49.0	149

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2319667**	Page	: 1 of 18
Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Telephone	: +61-2-8784 8555
Project	: 16547	Date Samples Received	: 14-Jun-2023
Site	: ----	Issue Date	: 20-Jun-2023
Sampler	: Kenny Yan	No. of samples received	: 51
Order number	: ----	No. of samples analysed	: 50

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

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

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

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA002: pH 1:5 (Soils)						
Soil Glass Jar - Unpreserved						
BH2, BH2a	20-Jun-2023	12-Jun-2023	**8**	----	----	----
Soil Glass Jar - Unpreserved						
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	20-Jun-2023	13-Jun-2023	**7**	----	----	----
Soil Glass Jar - Unpreserved						
BH4, BH4a, BH5, BH5a, BH5b	20-Jun-2023	14-Jun-2023	**6**	----	----	----
Soil Glass Jar - Unpreserved						
QA3	20-Jun-2023	02-Mar-2023	**110**	----	----	----
EA010: Conductivity (1:5)						
Soil Glass Jar - Unpreserved						
BH2, BH2a	20-Jun-2023	12-Jun-2023	**8**	----	----	----
Soil Glass Jar - Unpreserved						
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	20-Jun-2023	13-Jun-2023	**7**	----	----	----
Soil Glass Jar - Unpreserved						
BH4, BH4a, BH5, BH5a, BH5b	20-Jun-2023	14-Jun-2023	**6**	----	----	----
Soil Glass Jar - Unpreserved						
QA3	20-Jun-2023	02-Mar-2023	**110**	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved						
QA3	----	----	----	19-Jun-2023	09-Mar-2023	**102**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved						
QA3	15-Jun-2023	09-Mar-2023	**98**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved						
QA3	15-Jun-2023	09-Mar-2023	**98**	----	----	----

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Petroleum Hydrocarbons - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved						
TB - extra	15-Jun-2023	12-Jun-2023	**3**	17-Jun-2023	12-Jun-2023	**5**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						
Soil Glass Jar - Unpreserved						
QA3	15-Jun-2023	09-Mar-2023	**98**	----	----	----
Soil Glass Jar - Unpreserved						
TB - extra	15-Jun-2023	12-Jun-2023	**3**	17-Jun-2023	12-Jun-2023	**5**
EP080: BTEXN						
Soil Glass Jar - Unpreserved						
QA3	15-Jun-2023	09-Mar-2023	**98**	17-Jun-2023	09-Mar-2023	**100**
Soil Glass Jar - Unpreserved						
TB - extra	15-Jun-2023	12-Jun-2023	**3**	17-Jun-2023	12-Jun-2023	**5**
Soil Glass Jar - Unpreserved						
TS - extra	15-Jun-2023	12-Jun-2023	**3**	19-Jun-2023	12-Jun-2023	**7**
Soil Glass Jar - Unpreserved						
TSC	19-Jun-2023	12-Jun-2023	**7**	20-Jun-2023	12-Jun-2023	**8**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation

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
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
BH2, BH2a	**05-Jun-2023**	**20-Jun-2023**	12-Jun-2023	×	**20-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA002)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	**06-Jun-2023**	**20-Jun-2023**	13-Jun-2023	×	**20-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA002)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**20-Jun-2023**	14-Jun-2023	×	**20-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA002)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**15-Jun-2023**	15-Jun-2023	✓	**15-Jun-2023**	15-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA002)							
BH1, BH1a, BH1b, BH1c, BH9(E300A), BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b, TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**16-Jun-2023**	16-Jun-2023	✓	**16-Jun-2023**	16-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA002)							
QA3	**23-Feb-2023**	**20-Jun-2023**	02-Mar-2023	×	**20-Jun-2023**	20-Jun-2023	✓

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
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010)							
BH2, BH2a	**05-Jun-2023**	**20-Jun-2023**	12-Jun-2023	×	**20-Jun-2023**	18-Jul-2023	✓
Soil Glass Jar - Unpreserved (EA010)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	**06-Jun-2023**	**20-Jun-2023**	13-Jun-2023	×	**20-Jun-2023**	18-Jul-2023	✓
Soil Glass Jar - Unpreserved (EA010)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**20-Jun-2023**	14-Jun-2023	×	**20-Jun-2023**	18-Jul-2023	✓
Soil Glass Jar - Unpreserved (EA010)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**15-Jun-2023**	15-Jun-2023	✓	**15-Jun-2023**	13-Jul-2023	✓
Soil Glass Jar - Unpreserved (EA010)							
BH1, BH1a, BH1b, BH1c, BH9(E300A), BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b, TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**16-Jun-2023**	16-Jun-2023	✓	**16-Jun-2023**	14-Jul-2023	✓
Soil Glass Jar - Unpreserved (EA010)							
QA3	**23-Feb-2023**	**20-Jun-2023**	02-Mar-2023	×	**20-Jun-2023**	18-Jul-2023	✓

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)							
BH2, BH2a	**05-Jun-2023**	**----**	----	----	**19-Jun-2023**	19-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	**06-Jun-2023**	**----**	----	----	**19-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**----**	----	----	**19-Jun-2023**	21-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**----**	----	----	**15-Jun-2023**	22-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH1, BH1a, BH1b, BH1c, BH9(E300A), BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b, TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**----**	----	----	**15-Jun-2023**	23-Jun-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
QA3	**23-Feb-2023**	**----**	----	----	**19-Jun-2023**	09-Mar-2023	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T-MW: Total Metals by nitric acid microwave digestion / ICP-AES							
Soil Glass Jar - Unpreserved (EG005T-MW)							
BH2, BH2a	**05-Jun-2023**	**16-Jun-2023**	02-Dec-2023	✓	**16-Jun-2023**	02-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f	**06-Jun-2023**	**16-Jun-2023**	03-Dec-2023	✓	**16-Jun-2023**	03-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
QA2 - extra	**06-Jun-2023**	**19-Jun-2023**	03-Dec-2023	✓	**19-Jun-2023**	03-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**16-Jun-2023**	04-Dec-2023	✓	**16-Jun-2023**	04-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**16-Jun-2023**	05-Dec-2023	✓	**16-Jun-2023**	05-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
BH1, BH1a, BH1b, BH1c, BH9(E300A), BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**16-Jun-2023**	06-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**19-Jun-2023**	06-Dec-2023	✓	**19-Jun-2023**	06-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG005T-MW)							
QA3	**23-Feb-2023**	**19-Jun-2023**	22-Aug-2023	✓	**19-Jun-2023**	22-Aug-2023	✓

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
EG035T-MW: Total Recoverable Mercury by nitric acid microwave digestion / FIMS							
Soil Glass Jar - Unpreserved (EG035T-MW)							
BH2, BH2a	**05-Jun-2023**	**16-Jun-2023**	02-Dec-2023	✓	**20-Jun-2023**	02-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f	**06-Jun-2023**	**16-Jun-2023**	03-Dec-2023	✓	**20-Jun-2023**	03-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
QA2 - extra	**06-Jun-2023**	**19-Jun-2023**	03-Dec-2023	✓	**20-Jun-2023**	03-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**16-Jun-2023**	04-Dec-2023	✓	**20-Jun-2023**	04-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**16-Jun-2023**	05-Dec-2023	✓	**20-Jun-2023**	05-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
BH1, BH1a, BH1b, BH1c, BH9(E300A), BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b	**09-Jun-2023**	**16-Jun-2023**	06-Dec-2023	✓	**20-Jun-2023**	06-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**19-Jun-2023**	06-Dec-2023	✓	**20-Jun-2023**	06-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T-MW)							
QA3	**23-Feb-2023**	**19-Jun-2023**	22-Aug-2023	✓	**20-Jun-2023**	22-Aug-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH8a	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068)							
BH5	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068)							
BH1	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068)							
BH9(E300A), TP1	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068) BH8a	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068) BH5	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068) BH1	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP068) BH9(E300A), TP1	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓

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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH2, BH2a	**05-Jun-2023**	**19-Jun-2023**	19-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH7a, BH7b, BH7c, BH8, BH8b, BH8c, BH8e, BH8f	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH8a, QA2 - extra	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH4	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH3, BH3a, BH3b, BH3c, BH6d, BH6e	**08-Jun-2023**	**19-Jun-2023**	22-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH6, BH6a, BH6b, BH6c	**08-Jun-2023**	**19-Jun-2023**	22-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	25-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH1, BH1a, BH1b, BH1c, BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1a, TP1b	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH9(E300A), TP1	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
QA3	**23-Feb-2023**	**15-Jun-2023**	09-Mar-2023	×	**19-Jun-2023**	25-Jul-2023	✓

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
BH2, BH2a	**05-Jun-2023**	**19-Jun-2023**	19-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**19-Jun-2023**	22-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	25-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1, BH1a, BH1b, BH1c, BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH9(E300A)	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
QA3	**23-Feb-2023**	**15-Jun-2023**	09-Mar-2023	×	**19-Jun-2023**	25-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
TB - extra	**29-May-2023**	**15-Jun-2023**	12-Jun-2023	×	**17-Jun-2023**	12-Jun-2023	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
BH2, BH2a	**05-Jun-2023**	**19-Jun-2023**	19-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f, QA2 - extra	**06-Jun-2023**	**19-Jun-2023**	20-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**19-Jun-2023**	21-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH3, BH3a, BH3b, BH3c, BH6, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**19-Jun-2023**	22-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	25-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1, BH1a, BH1b, BH1c, BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10b(HA), BH10c(HA), TP1, TP1a, TP1b	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH9(E300A)	**09-Jun-2023**	**19-Jun-2023**	23-Jun-2023	✓	**20-Jun-2023**	29-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
QA3	**23-Feb-2023**	**15-Jun-2023**	09-Mar-2023	×	**19-Jun-2023**	25-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
TB - extra	**29-May-2023**	**15-Jun-2023**	12-Jun-2023	×	**17-Jun-2023**	12-Jun-2023	×

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) BH2, BH2a	**05-Jun-2023**	**15-Jun-2023**	19-Jun-2023	✓	**16-Jun-2023**	19-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH7a, BH7b, BH7c, BH8, BH8a, BH8b, BH8c, BH8e, BH8f	**06-Jun-2023**	**15-Jun-2023**	20-Jun-2023	✓	**16-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) QA2 - extra	**06-Jun-2023**	**15-Jun-2023**	20-Jun-2023	✓	**17-Jun-2023**	20-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH4, BH4a, BH5, BH5a, BH5b	**07-Jun-2023**	**15-Jun-2023**	21-Jun-2023	✓	**16-Jun-2023**	21-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH3, BH3a, BH3b, BH3c, BH6a, BH6b, BH6c, BH6d, BH6e	**08-Jun-2023**	**15-Jun-2023**	22-Jun-2023	✓	**16-Jun-2023**	22-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH6	**08-Jun-2023**	**15-Jun-2023**	22-Jun-2023	✓	**19-Jun-2023**	22-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH1, BH1a, BH1b, BH1c, BH9a(E300A), BH9b(E300A), BH10(HA), BH10a(HA), BH10c(HA), TP1, TP1a	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**16-Jun-2023**	23-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) TP2, TP2a, TP2b, TP2c, QA1	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**17-Jun-2023**	23-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH9(E300A), BH10b(HA), TP1b	**09-Jun-2023**	**15-Jun-2023**	23-Jun-2023	✓	**19-Jun-2023**	23-Jun-2023	✓
Soil Glass Jar - Unpreserved (EP080) QA3	**23-Feb-2023**	**15-Jun-2023**	09-Mar-2023	×	**17-Jun-2023**	09-Mar-2023	×
Soil Glass Jar - Unpreserved (EP080) TB - extra	**29-May-2023**	**15-Jun-2023**	12-Jun-2023	×	**17-Jun-2023**	12-Jun-2023	×
Soil Glass Jar - Unpreserved (EP080) TS - extra	**29-May-2023**	**15-Jun-2023**	12-Jun-2023	×	**19-Jun-2023**	12-Jun-2023	×
Soil Glass Jar - Unpreserved (EP080)							

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN - Continued							
TSC	**29-May-2023**	**19-Jun-2023**	12-Jun-2023	×	**20-Jun-2023**	12-Jun-2023	×
EP202A: Phenoxyacetic Acid Herbicides by LCMS							
Soil Glass Jar - Unpreserved (EP202) BH8a	**06-Jun-2023**	**16-Jun-2023**	20-Jun-2023	✓	**17-Jun-2023**	26-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP202) BH5	**07-Jun-2023**	**16-Jun-2023**	21-Jun-2023	✓	**17-Jun-2023**	26-Jul-2023	✓
Soil Glass Jar - Unpreserved (EP202) BH1, BH9(E300A), TP1	**09-Jun-2023**	**16-Jun-2023**	23-Jun-2023	✓	**17-Jun-2023**	26-Jul-2023	✓

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)							
Electrical Conductivity (1:5)	EA010	10	96	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	12	114	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	6	52	**11.54**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	10	96	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	6	60	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	6	51	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	6	53	**11.32**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Electrical Conductivity (1:5)	EA010	5	96	**5.21**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	52	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	10	96	**10.42**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	51	**7.84**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	53	**7.55**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Electrical Conductivity (1:5)	EA010	5	96	**5.21**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	52	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	51	**7.84**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	53	**7.55**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	4	52	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICPAES (Microwave Digestion)	EG005T-MW	3	60	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	51	**7.84**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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*	
Matrix Spikes (MS) - Continued							
TRH Volatiles/BTEX	EP080	3	53	**5.66**	**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
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
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 ICPAES (Microwave Digestion)	EG005T-MW	SOIL	In house: Referenced to USEPA SW846 - 3051 (Microware Digestion); APHA 3120; USEPA SW846 - 6010. Metals in solids are determined following a microware digestion. The ICPAES technique ionizes selected elements. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass / charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS (Microwave Digestion)	EG035T-MW	SOIL	In house: Referenced to USEPA SW846 - 3051 (Microware Digestion); 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 a microware 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)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM 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.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.

Preparation Methods	Method	Matrix	Method Descriptions
Microwave Digest for Metals in Soils, Sediments and Sludges	EN31	SOIL	In house: Referenced to USEPA SW 846 - 3051. Microwave Assisted Nitric Acid Digestion 1.0g of sample is mixed with 10 mL conc. Nitric acid in a closed, high pressure vessel, and heated using a specific program. Digest is appropriate for selected metals analysis in sludge, sediments, soils and oils. This method is compliant with NEPM Schedule B(3).

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
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

ALS Environmental

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

CLIENT:	**RCA Australia (ROBCAR)**	**TURNAROUND REQUIREMENTS :**	X Standard TAT **(List due date):** 21/06/2023
OFFICE:	**92 Hill Street, Carrington**	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Non Standard or urgent TAT **(List due date):**
RCA Ref No:	**16547**	**ALS QUOTE NO.:**	**SYBQ_400_18**
		COC SEQUENCE NUMBER (Circle)	COC: 1 OF: 4
PROJECT MANAGER: Fiona Brooker	**CONTACT PH: 0408 687 529**		
SAMPLER: Kenny Yan	**SAMPLER MOBILE: 0413 488 026**		
COC emailed to ALS? (NO)	**EDD FORMAT (or default):**		
Email Reports to: administrator@rca.com.au + enviro@rca.com.au			
Email Invoice to: as above			

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:	2.7		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 14.06.2023 11:30 am	DATE/TIME: 14.6.23 1134	DATE/TIME: 14-6-23 5pm	DATE/TIME: 14/6/23 1845

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required)								Additional Information
LAB ID	Sample ID	Date / Time	Matrix	Type & Preservative *(refer to codes below)*	Total Containers	P-18/1 Discrete (SV TRH, BTEX, & PAH)	EP202 Herbicides (Phenoxy acid)	S12	P-18/1b COMP NO FMT (Metals, pH, EC)					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	BH1	9/06/2023	S	glass jar	1	x	x	x	x					
2	BH1a	9/06/2023	S	glass jar	1	x			x					
3	BH1b	9/06/2023	S	glass jar	1	x			x					
4	BH1c	9/06/2023	S	glass jar	1	x			x					
5	BH2	5/06/2023	S	glass jar	1	x			x					
6	BH2a	5/06/2023	S	glass jar	1	x			x					
7	BH3	8/06/2023	S	glass jar	1	x			x					
8	BH3a	8/06/2023	S	glass jar	1	x			x					
9	BH3b	8/06/2023	S	glass jar	1	x			x					
10	BH3c	8/06/2023	S	glass jar	1	x			x					
11	BH4	7/06/2023	S	glass jar	1	x			x					
12	BH4a	7/06/2023	S	glass jar	1	x			x					
				TOTAL	12	12	1	1	12	0	0	0	0	

Please report Naphthalene results in PAH suites

Environmental Division Sydney
Work Order Reference
ES2319667

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

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

CLIENT:	RCA Australia (ROBCAR)	**TURNAROUND REQUIREMENTS :**	X Standard TAT (List due date): 21/06/2023
OFFICE:	92 Hill Street, Carrington	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Non Standard or urgent TAT (List due date):
RCA Ref No:	16547	**ALS QUOTE NO.:**	SYBQ_400_18
PROJECT MANAGER:	Fiona Brooker	**CONTACT PH:**	0408 687 529
SAMPLER:	Kenny Yan	**SAMPLER MOBILE:**	0413 488 026
COC emailed to ALS?	(NO)	**EDD FORMAT (or default):**	
Email Reports to:	administrator@rca.com.au + enviro@rca.com.au		
Email Invoice to:	as above		

COC SEQUENCE NUMBER (Circle)

COC: 2

OF: 4

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:	2.7 °C		
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 14.6.23 11:30am	DATE/TIME: 14.6.23 1134	DATE/TIME: 14.6.23 5pm	DATE/TIME: 14/6/23 1945

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	Sample ID	Date / Time	Matrix	Type & Preservative *(refer to codes below)*	Total Containers	P-18/1 Discrete (SV TRH, BTEX, & PAH)	EP202 Herbicides (Phenoxy acid)	S12	P-18/1b COMP NO FMT (Metals, pH, EC)					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	BH5	7/06/2023	S	glass jar	1	x	x	x	x					
14	BH5a	7/06/2023	S	glass jar	1	x			x					
15	BH5b	7/06/2023	S	glass jar	1	x			x					
16	BH6	8/06/2023	S	glass jar	1	x			x					
17	BH6a	8/06/2023	S	glass jar	1	x			x					
18	BH6b	8/06/2023	S	glass jar	1	x			x					Please report Naphthalene results in PAH suites
19	BH6c	8/06/2023	S	glass jar	1	x			x					
20	BH6d	8/06/2023	S	glass jar	1	x			x					
21	BH6e	8/06/2023	S	glass jar	1	x			x					
22	BH7a	6/06/2023	S	glass jar	1	x			x					
23	BH7b	6/06/2023	S	glass jar	1	x			x					
24	BH7c	6/06/2023	S	glass jar	1	x			x					
				TOTAL	12	12	1	1	12	0	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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

CLIENT:	**RCA Australia (ROBCAR)**	**TURNAROUND REQUIREMENTS :**	X Standard TAT **(List due date):** 21/06/2023
OFFICE:	**92 Hill Street, Carrington**	(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Non Standard or urgent TAT **(List due date):**
RCA Ref No:	**16547**	**ALS QUOTE NO.:**	**SYBQ_400_18**
PROJECT MANAGER:	**Fiona Brooker**	**CONTACT PH: 0408 687 529**	
SAMPLER:	**Kenny Yan**	**SAMPLER MOBILE: 0413 488 026**	
COC emailed to ALS? (NO)		**EDD FORMAT (or default):**	
Email Reports to:	administrator@rca.com.au + enviro@rca.com.au		
Email Invoice to:	as above		

COC SEQUENCE NUMBER (Circle)

COC: 3

OF: 4

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:	2.7 °C		
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
	JN		
DATE/TIME: 14.6.23 11:30am	DATE/TIME: 1130	DATE/TIME: 14-6-23 5pm	DATE/TIME: 14/6/23 1945

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information	
LAB ID	Sample ID	Date / Time	Matrix	Type & Preservative *(refer to codes below)*	Total Containers	P-18/1 Discrete (SV TRH, BTEX, & PAH)	EP202 Herbicides (Phenoxy acid)	S12	P-18/1b COMP NO FMT (Metals, pH, EC)					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
25	BH8	6/06/2023	S	glass jar	1	x			x						Please report Naphthalene results in PAH suites
26	BH8a	6/06/2023	S	glass jar	1	x	x	x	x						
27	BH8b	6/06/2023	S	glass jar	1	x			x						
28	BH8c	6/06/2023	S	glass jar	1	x			x						
29	BH8e	6/06/2023	S	glass jar	1	x			x						
30	BH8f	6/06/2023	S	glass jar	1	x			x						
31	BH9(E300A)	9/06/2023	S	glass jar	1	x	x	x	x						
32	BH9a(E300A)	9/06/2023	S	glass jar	1	x			x						
33	BH9b(E300A)	9/06/2023	S	glass jar	1	x			x						
34	BH10(HA)	9/06/2023	S	glass jar	1	x			x						
35	BH10a(HA)	9/06/2023	S	glass jar	1	x			x						
36	BH10b(HA)	9/06/2023	S	glass jar	1	x			x						
				TOTAL	12	12	2	2	12	0	0	0	0		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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CLIENT:	**RCA Australia (ROBCAR)**	**TURNAROUND REQUIREMENTS :**	X Standard TAT **(List due date):** 21/06/2023
OFFICE:	**92 Hill Street, Carrington**	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Non Standard or urgent TAT **(List due date):**
RCA Ref No:	**16547**	**ALS QUOTE NO.:**	**SYBQ_400_18**
PROJECT MANAGER: Fiona Brooker	**CONTACT PH: 0408 687 529**		
SAMPLER: Kenny Yan	**SAMPLER MOBILE: 0413 488 026**		
COC emailed to ALS? (NO)	**EDD FORMAT (or default):**		
Email Reports to: administrator@rca.com.au + enviro@rca.com.au			
Email Invoice to: as above			

COC SEQUENCE NUMBER (Circle)

COC: 4

OF: 4

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:	2.7 °C		
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 14.6.23 11:30am	DATE/TIME: 14.6.23 1130	DATE/TIME: 14.6.23 5pm	DATE/TIME: 14/6/23 1945

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required)								Additional Information
LAB ID	Sample ID	Date / Time	Matrix	Type & Preservative *(refer to codes below)*	Total Containers	P-18/1 Discrete (SV TRH, BTEX, & PAH)	EP202 Herbicides (Phenoxy acid)	S12	P-18/1b COMP NO FMT (Metals, pH, EC)					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
37	BH10c(HA)	9/06/2023	S	glass jar	1	x			x					
38	TP1	9/06/2023	S	glass jar	1	x	x	x	x					
39	TP1a	9/06/2023	S	glass jar	1	x			x					
40	TP1b	9/06/2023	S	glass jar	1	x			x					
41	TP2	9/06/2023	S	glass jar	1	x			x					
42	TP2a	9/06/2023	S	glass jar	1	x			x					Please report Naphthalene results in PAH suites
43	TP2b	9/06/2023	S	glass jar	1	x			x					
44	TP2c	9/06/2023	S	glass jar	1	x			x					
45	QA1	9/06/2023	S	glass jar	1	x			x					
46	QA3	23/02/2023	S	glass jar	1	x			x					
47	BH3d	6/6/23	S											
48	QA2		S											
				TOTAL	10	10	1	1	10	0	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

49 TRIP SPIKE - 10 29/5/23 50 TRIP BLANK 29/5/23 51 _TSC -10 29/5/23

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2319667**

Client	: **ROBERT CARR & ASSOCIATES P/L**	Laboratory	: Environmental Division Sydney
Contact	: MS FIONA BROOKER	Contact	: Customer Services ES
Address	: 92 HILL STREET CARRINGTON NSW 2294	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: fionab@rca.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: +61 02 4902 9200	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 4902 9299	Facsimile	: +61-2-8784 8500
Project	: 16547	Page	: 1 of 4
Order number	: ----	Quote number	: ES2017ROBCAR0004 (SYBQ/400/21)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Kenny Yan		

Dates

Date Samples Received	: 14-Jun-2023 11:35	Issue Date	: 15-Jun-2023
Client Requested Due Date	: 21-Jun-2023	Scheduled Reporting Date	: **21-Jun-2023**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 2.7'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 51 / 49

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- 15/06/23 This is an updated SRN with updated analysis as per Fiona Brooker
- **Sample BH3d, QA2, TB, TS were received extra and placed on hold.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - EP202(solids) Phenoxyacetic acids	SOIL - P-18/1b Comp NO FMT + P-18/1 Discrete Excavated Natural Material Order 2014 - Discrete	SOIL - S-12 OC/OP Pesticides	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2319667-001	09-Jun-2023 00:00	BH1		✓		✓	✓	✓	
ES2319667-002	09-Jun-2023 00:00	BH1a					✓		
ES2319667-003	09-Jun-2023 00:00	BH1b					✓		
ES2319667-004	09-Jun-2023 00:00	BH1c					✓		
ES2319667-005	05-Jun-2023 00:00	BH2					✓		
ES2319667-006	05-Jun-2023 00:00	BH2a					✓		
ES2319667-007	08-Jun-2023 00:00	BH3					✓		
ES2319667-008	08-Jun-2023 00:00	BH3a					✓		
ES2319667-009	08-Jun-2023 00:00	BH3b					✓		
ES2319667-010	08-Jun-2023 00:00	BH3c					✓		
ES2319667-011	07-Jun-2023 00:00	BH4					✓		
ES2319667-012	07-Jun-2023 00:00	BH4a					✓		
ES2319667-013	07-Jun-2023 00:00	BH5		✓		✓	✓	✓	
ES2319667-014	07-Jun-2023 00:00	BH5a					✓		
ES2319667-015	07-Jun-2023 00:00	BH5b					✓		
ES2319667-016	08-Jun-2023 00:00	BH6					✓		
ES2319667-017	08-Jun-2023 00:00	BH6a					✓		
ES2319667-018	08-Jun-2023 00:00	BH6b					✓		
ES2319667-019	08-Jun-2023 00:00	BH6c					✓		
ES2319667-020	08-Jun-2023 00:00	BH6d					✓		
ES2319667-021	08-Jun-2023 00:00	BH6e					✓		
ES2319667-022	06-Jun-2023 00:00	BH7a					✓		
ES2319667-023	06-Jun-2023 00:00	BH7b					✓		
ES2319667-024	06-Jun-2023 00:00	BH7c					✓		
ES2319667-025	06-Jun-2023 00:00	BH8					✓		
ES2319667-026	06-Jun-2023 00:00	BH8a		✓		✓	✓	✓	
ES2319667-027	06-Jun-2023 00:00	BH8b					✓		
ES2319667-028	06-Jun-2023 00:00	BH8c					✓		
ES2319667-029	06-Jun-2023 00:00	BH8e					✓		
ES2319667-030	06-Jun-2023 00:00	BH8f					✓		
ES2319667-031	09-Jun-2023 00:00	BH9(E300A)		✓		✓	✓	✓	
ES2319667-032	09-Jun-2023 00:00	BH9a(E300A)					✓		
ES2319667-033	09-Jun-2023 00:00	BH9b(E300A)					✓		
ES2319667-034	09-Jun-2023 00:00	BH10(HA)					✓		
ES2319667-035	09-Jun-2023 00:00	BH10a(HA)					✓		

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EP080 BTEXN	SOIL - EP202(solids) Phenoxyacetic acids	SOIL - P-18/1b Comp NO FMT + P-18/1 Discrete Excavated Natural Material Order 2014 - Discrete	SOIL - S-12 OC/OP Pesticides	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES2319667-036	09-Jun-2023 00:00	BH10b(HA)					✓		
ES2319667-037	09-Jun-2023 00:00	BH10c(HA)					✓		
ES2319667-038	09-Jun-2023 00:00	TP1		✓		✓	✓	✓	
ES2319667-039	09-Jun-2023 00:00	TP1a					✓		
ES2319667-040	09-Jun-2023 00:00	TP1b					✓		
ES2319667-041	09-Jun-2023 00:00	TP2					✓		
ES2319667-042	09-Jun-2023 00:00	TP2a					✓		
ES2319667-043	09-Jun-2023 00:00	TP2b					✓		
ES2319667-044	09-Jun-2023 00:00	TP2c					✓		
ES2319667-045	09-Jun-2023 00:00	QA1					✓		
ES2319667-046	23-Feb-2023 00:00	QA3					✓		
ES2319667-047	06-Jun-2023 00:00	BH3d extra	✓						
ES2319667-048	06-Jun-2023 00:00	QA2 extra					✓		
ES2319667-049	29-May-2023 00:00	TS extra			✓				
ES2319667-050	29-May-2023 00:00	TB extra							✓
ES2319667-051	29-May-2023 00:00	TSC	✓						

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL**

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

Method Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA002: pH (1:5)							
BH2a	Soil Glass Jar - Unpreserved	12-Jun-2023	12-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH2	Soil Glass Jar - Unpreserved	12-Jun-2023	12-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH7a	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH7b	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH7c	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8a	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8b	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8c	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8e	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
BH8f	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
QA2	Soil Glass Jar - Unpreserved	13-Jun-2023	13-Jun-2023	14-Jun-2023	×	14-Jun-2023	×
QA3	Soil Glass Jar - Unpreserved	02-Mar-2023	02-Mar-2023	14-Jun-2023	×	14-Jun-2023	×
EA010: Electrical Conductivity (1:5)							
BH2a	Soil Glass Jar - Unpreserved	12-Jun-2023	10-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH2	Soil Glass Jar - Unpreserved	12-Jun-2023	10-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH7a	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH7b	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH7c	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH8a	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH8b	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×
BH8c	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	×	14-Jun-2023	×

BH8e	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
BH8	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
BH8f	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
QA2	Soil Glass Jar - Unpreserved	13-Jun-2023	11-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
QA3	Soil Glass Jar - Unpreserved	02-Mar-2023	30-Mar-2023	14-Jun-2023	✘	14-Jun-2023	✘
EA055: Moisture Content							
QA3	Soil Glass Jar - Unpreserved	----	09-Mar-2023	14-Jun-2023	✘	14-Jun-2023	✘
EP071: TRH - Semivolatile Fraction							
QA3	Soil Glass Jar - Unpreserved	09-Mar-2023	25-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
EP075(SIM): PAH/Phenols (SIM)							
QA3	Soil Glass Jar - Unpreserved	09-Mar-2023	25-Jul-2023	14-Jun-2023	✘	14-Jun-2023	✘
EP080: TRH Volatiles/BTEX							
QA3	Soil Glass Jar - Unpreserved	09-Mar-2023	09-Mar-2023	14-Jun-2023	✘	14-Jun-2023	✘
TB	Soil Glass Jar - Unpreserved	12-Jun-2023	12-Jun-2023	14-Jun-2023	✘	14-Jun-2023	✘
TS	Soil Glass Jar - Unpreserved	12-Jun-2023	12-Jun-2023	14-Jun-2023	✘	14-Jun-2023	✘

Requested Deliverables

ADMINISTRATOR

- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	administrator@rca.com.au

ALL INVOICES

- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au

ENVIRO

- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enviro@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enviro@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enviro@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	enviro@rca.com.au
- Chain of Custody (CoC) (COC)	Email	enviro@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	enviro@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	enviro@rca.com.au

FIONA BROOKER

- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	fionab@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	fionab@rca.com.au

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CERTIFICATE OF ANALYSIS 325629

Client Details

Client	RCA Australia
Attention	Fiona Brooker
Address	PO Box 175, Carrington, NSW, 2294

Sample Details

Your Reference	**RCA-16547**
Number of Samples	2 Soil
Date samples received	15/06/2023
Date completed instructions received	15/06/2023

Analysis Details

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	22/06/2023
Date of Issue	22/06/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Greta Petzold, Operation Manager
Hannah Nguyen, Metals Supervisor
Liam Timmins, Organics Supervisor
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	16/06/2023	16/06/2023
Date analysed	-	19/06/2023	19/06/2023
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	111	66

svTRH (C10-C40) in Soil			
Our Reference	UNITS	325629-1	325629-2
Your Reference		Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	16/06/2023	16/06/2023
Date analysed	-	18/06/2023	18/06/2023
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	84	84

PAHs in Soil			
Our Reference	UNITS	325629-1	325629-2
Your Reference		Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	16/06/2023	16/06/2023
Date analysed	-	16/06/2023	16/06/2023
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	88

Organochlorine Pesticides in soil			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	16/06/2023	16/06/2023
Date analysed	-	16/06/2023	16/06/2023
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	108	108

Organophosphorus Pesticides			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	16/06/2023	16/06/2023
Date analysed	-	16/06/2023	16/06/2023
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1
Parathion (Methyl)	mg/kg	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1
Surrogate TCMX	%	108	108

Acid Extractable metals in soil			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date prepared	-	16/06/2023	16/06/2023
Date analysed	-	16/06/2023	16/06/2023
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	15	19
Copper	mg/kg	4	5
Lead	mg/kg	4	9
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	8	6
Zinc	mg/kg	27	16

Misc Inorg - Soil			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date prepared	-	15/06/2023	15/06/2023
Date analysed	-	19/06/2023	19/06/2023
pH 1:5 soil:water	pH Units	8.2	6.5
Electrical Conductivity 1:5 soil:water	µS/cm	22	48

Moisture			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date prepared	-	16/06/2023	16/06/2023
Date analysed	-	19/06/2023	19/06/2023
Moisture	%	7.4	19

Phenoxy Acid Herbicides in Soil			
Our Reference		325629-1	325629-2
Your Reference	UNITS	Dup 1	Dup3
Type of sample		Soil	Soil
Date extracted	-	20/06/2023	20/06/2023
Date analysed	-	21/06/2023	21/06/2023
Clopyralid	mg/kg	<0.5	<0.5
3,5-Dichlorobenzoic acid	mg/kg	<0.5	<0.5
o-chlorophenoxy acetic acid	mg/kg	<0.5	<0.5
4-CPA	mg/kg	<0.5	<0.5
Dicamba	mg/kg	<0.5	<0.5
MCPP	mg/kg	<0.5	<0.5
MCPA	mg/kg	<0.5	<0.5
Dichlorprop	mg/kg	<0.5	<0.5
2,4-D	mg/kg	<0.5	<0.5
Bromoxynil	mg/kg	<0.5	<0.5
Triclopyr	mg/kg	<0.5	<0.5
2,4,5-TP	mg/kg	<0.5	<0.5
2,4,5-T	mg/kg	<0.5	<0.5
MCPB	mg/kg	<0.5	<0.5
Dinoseb	mg/kg	<1	<1
2,4-DB	mg/kg	<0.5	<0.5
Ioxynil	mg/kg	<1	<1
Picloram	mg/kg	<1	<1
DCPA (Chlorthal) Diacid	mg/kg	<0.5	<0.5
Acifluorfen	mg/kg	<2	<2
2,4,6-T	mg/kg	<0.5	<0.5
2,6-D	mg/kg	<0.5	<0.5
Bentazon	mg/kg	<1	<1
Chloramben	mg/kg	<1	<1
Fluroxypyr	mg/kg	<1	<1
Surrogate 2.4- DCPA	%	100	100

Method ID	Methodology Summary
Ext-061	Analysed by Envirolab Melbourne
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			19/06/2023	1	19/06/2023	19/06/2023		19/06/2023	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	82	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	82	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	84	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	86	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	77	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	82	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	85	[NT]
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	79	1	111	68	48	82	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			17/06/2023	1	18/06/2023	18/06/2023		17/06/2023	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	114	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	118	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	114	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	118	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	[NT]
Surrogate o-Terphenyl	%		Org-020	85	1	84	84	0	95	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	66	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	91	1	88	88	0	94	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	100	1	108	109	1	112	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	90	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	95	[NT]
Dimethoate	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	72	[NT]
Fenitrothion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	67	[NT]
Malathion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	83	[NT]
Parathion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	91	[NT]
Ronnel	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	85	[NT]
Coumaphos	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenthion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion (Methyl)	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phosalone	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	100	1	108	109	1	112	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Date analysed	-			16/06/2023	1	16/06/2023	16/06/2023		16/06/2023	[NT]
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	93	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	87	[NT]
Chromium	mg/kg	1	Metals-020	<1	1	15	17	12	86	[NT]
Copper	mg/kg	1	Metals-020	<1	1	4	4	0	87	[NT]
Lead	mg/kg	1	Metals-020	<1	1	4	5	22	84	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	97	[NT]
Nickel	mg/kg	1	Metals-020	<1	1	8	8	0	87	[NT]
Zinc	mg/kg	1	Metals-020	<1	1	27	30	11	89	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			15/06/2023	[NT]	[NT]	[NT]	[NT]	15/06/2023	[NT]
Date analysed	-			19/06/2023	[NT]	[NT]	[NT]	[NT]	19/06/2023	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Phenoxy Acid Herbicides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			20/06/2023	[NT]	[NT]	[NT]	[NT]	20/06/2023	[NT]
Date analysed	-			21/06/2023	[NT]	[NT]	[NT]	[NT]	21/06/2023	[NT]
Clopyralid	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	88	[NT]
3,5-Dichlorobenzoic acid	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-chlorophenoxy acetic acid	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-CPA	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dicamba	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
MCPP	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
MCPA	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorprop	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-D	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	88	[NT]
Bromoxynil	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Triclopyr	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-TP	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,5-T	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
MCPB	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dinoseb	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-DB	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ioxynil	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Picloram	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
DCPA (Chlorthal) Diacid	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acifluorfen	mg/kg	2	Ext-061	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-T	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-D	mg/kg	0.5	Ext-061	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bentazon	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloramben	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluroxypyr	mg/kg	1	Ext-061	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2.4- DCPA	%		Ext-061	100	[NT]	[NT]	[NT]	[NT]	98	[NT]

Result Definitions

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

Quality Control Definitions

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

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

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Phenoxy Acid Herbicids analysed by Envirolab Services Melbourne. Report No. 37990

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP

Client: RCA Australia	Client Project Name / Number / Site etc (ie report title):	**Envirolab Services**
Contact person: Fiona Brooker/Kenny Yan	RCA-16547	12 Ashley St, Chatswood, NSW 2067
Project Mgr: Fiona Brooker	PO No.:	Phone: 02 9910 6200 Fax :02 9910 6201
Sampler: Kenny Yan	Envirolab Quote No. :	E-mail: ahie@envirolabservices.com.au
Address: 92 Hill St Carrington 2294	Date results required: 22.6.2023	Contact: Aileen Hie
	Or choose:	**Envirolab Services WA t/a MPL**
	Note: Inform lab in advance if urgent turnaround is required - surcharge applies	16-18 Hayden Crt, Myaree WA 6154
Phone: 02 4902 9200 Mob: 0408 687 529	Lab comments:	Phone: 08 9317 2505 Fax :08 9317 4163
Fax:		E-mail: lab@mpl.com.au
Email: administrator@rca.com.au + enviro@rca.com.au		Contact: Joshua Lim

Sample information					Tests Required													Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	ENM suit without FM	Herbicides (Phenoxy acid) + OCP&OPP												Provide as much information about the sample as you can
1	Dup1		~~01~~.06.2023	Soil	X	X												
2	Dup~~3~~		~~01~~.06.2024	Soil	X	X												

Relinquished by (company): RCA Australia	Received by (company): ELS	*Lab use only:* 325629
Print Name: Kenny Yan	Print Name: 18623	Samples Received: Cool or Ambient (circle one)
Date & Time: 14.06.2023	Date & Time: 15623 1030	Temperature Received at: 6 (if applicable)
Signature:	Signature:	Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	RCA Australia
Attention	Fiona Brooker

Sample Login Details

Your reference	RCA-16547
Envirolab Reference	325629
Date Sample Received	15/06/2023
Date Instructions Received	15/06/2023
Date Results Expected to be Reported	22/06/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	Acid Extractable metalsin soil	Misc Inorg - Soil	Phenoxy Acid Herbicidesin Soil
Dup 1	✓	✓	✓	✓	✓	✓	✓	✓
Dup3	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info

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

Appendix H

Summary of Results

Sample Identification	Sample Depth (m) [B]	Date	Sample Profile	Dominant Stratum [C]	Sample Purpose	Sample Collected by	Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	Benzene	Toluene	Ethylbenzene	meta- and para-Xylene	ortho-Xylene	Total Xylenes	Polycyclic Aromatic Hydrocarbons (PAH)	Naphthalene	Total Recoverable Hydrocarbons (TRH)	TRH C_6-C_{10}	TRH >C_{10}-C_{16}	TRH >C_{16}-C_{34}	TRH >C_{34}-C_{40}	F1	F2
Guideline [A]					HSL 'D'	SAND 0-<1m		3	NL	NL			230		NL						260	NL
						SAND 1-<2m		3	NL	NL			NL		NL						370	NL
						SAND 2-<4m		3	NL	NL			NL		NL						630	NL
						SAND >4m		3	NL	NL			NL		NL						NL	NL
						SILT 0-<1m		4	NL	NL			NL		NL						250	NL
						SILT 1-<2m		4	NL	NL			NL		NL						360	NL
						SILT 2-<4m		6	NL	NL			NL		NL						590	NL
						SILT >4m		10	NL	NL			NL		NL						NL	NL
						CLAY 0-<1m		4	NL	NL			NL		NL						310	NL
						CLAY 1-<2m		6	NL	NL			NL		NL						480	NL
						CLAY 2-<4m		9	NL	NL			NL		NL						NL	NL
						CLAY >4m		20	NL	NL			NL		NL						NL	NL
					ESL C&I	Coarse		75	135	165			180		370			170	1700	3300	215	
						Fine		95	135	185			95		370			170	2500	6600	215	
					Non-sensitive ML	Coarse											700	1000	3500	10000		
						Fine											800	1000	5000	10000		
					DC D			430	99000	27000			81000		11000		26000	20000	27000	38000		
PQL								0.2	0.5	0.5	0.5	0.5	1		1		10	50	100	100	10	50
BH1	0	9/06/2023	FILL, Silty SAND, fine to medium grained, brown, trace of gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH1a	0.6	9/06/2023	CLAY, medium plasticity, brown, with sand	clay	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH1b	1	9/06/2023	CLAY, medium plasticity, brown, with sand	clay	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH1c	1.8	9/06/2023	CLAY, medium plasticity, brown, with sand	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH2	0.2	5/06/2023	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH2a	0.9	5/06/2023	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH3	0.55	8/06/2023	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	160	<100	--	<50
BH3a	0.9	8/06/2023	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH3b	1.3	8/06/2023	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH3c	1.8	8/06/2023	Sandy CLAY, medium plasticity, orange-brown, fine to coarse grained sand, trace of fine gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH4	0.2	7/06/2023	FILL, Silty SAND, fine to coarse grained, brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH4a	0.9	7/06/2023	GRANITE, pale grey, dark grey and orange	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH5	0.3	7/06/2023	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH5a	0.8	7/06/2023	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH5b	1.5	7/06/2023	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6	0.15	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6a	0.8	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6b	1.8	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6c	2.8	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6d	3.8	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH6e	5.8	8/06/2023	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH7a	0.3	6/06/2023	FILL, Silty Sandy GRAVEL, fine to medium, grey-brown, sub-angular	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH7b	0.8	6/06/2023	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	130	<100	--	<50
BH7c	1.6	6/06/2023	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8	0.1	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8a	0.4	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8b	0.9	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8c	1.8	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8e	4.5	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH8f	5.8	6/06/2023	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50

Sample Identification	Sample Depth (m) [B]	Date	Sample Profile	Dominant Stratum [C]	Sample Purpose	Sample Collected by	Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	Benzene	Toluene	Ethylbenzene	meta- and para-Xylene	ortho-Xylene	Total Xylenes	Polycyclic Aromatic Hydrocarbons (PAH)	Naphthalene	Total Recoverable Hydrocarbons (TRH)	TRH C_6-C_{10}	TRH >C_{10}-C_{16}	TRH >C_{16}-C_{34}	TRH >C_{34}-C_{40}	F1	F2
Guideline [A]					HSL 'D'	SAND 0-<1m		3	NL	NL			230		NL						260	NL
						SAND 1-<2m		3	NL	NL			NL		NL						370	NL
						SAND 2-<4m		3	NL	NL			NL		NL						630	NL
						SAND >4m		3	NL	NL			NL		NL						NL	NL
						SILT 0-<1m		4	NL	NL			NL		NL						250	NL
						SILT 1-<2m		4	NL	NL			NL		NL						360	NL
						SILT 2-<4m		6	NL	NL			NL		NL						590	NL
						SILT >4m		10	NL	NL			NL		NL						NL	NL
						CLAY 0-<1m		4	NL	NL			NL		NL						310	NL
						CLAY 1-<2m		6	NL	NL			NL		NL						480	NL
						CLAY 2-<4m		9	NL	NL			NL		NL						NL	NL
						CLAY >4m		20	NL	NL			NL		NL						NL	NL
					ESL C&I	Coarse		75	135	165			180		370			170	1700	3300	215	
						Fine		95	135	185			95		370			170	2500	6600	215	
					Non-sensitive ML	Coarse											700	1000	3500	10000		
						Fine											800	1000	5000	10000		
					DC D			430	99000	27000			81000		11000		26000	20000	27000	38000		
PQL								0.2	0.5	0.5	0.5	0.5	1		1		10	50	100	100	10	50
BH9(E300A)	0.3	9/06/2023	FILL, Silty Sandy GRAVEL, fine to medium, dark grey, sub-angular	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	300	--	<50
BH9a(E300A)	0.8	9/06/2023	Clayey Gravelly SAND, fine to coarse grained, orange-brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH9b(E300A)	1.3	9/06/2023	Silty SAND, fine to coarse grained, brown, trace of clay and gravel	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH10(HA)	0.1	9/06/2023	FILL, CLAY, medium plasticity, brown, with sand and gravel	silt	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH10a(HA)	0.8	9/06/2023	FILL, CLAY, medium plasticity, brown, with sand and gravel	clay	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH10b(HA)	1.1	9/06/2023	TOPSOIL, SILT, low plasticity, brown	silt	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
BH10c(HA)	1.3	9/06/2023	Clayey SAND, fine to coarse grained, brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP1	0	9/06/2023	TOPSOIL, SILT, low plasticity, orange-brown	silt	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP1a	0.6	9/06/2023	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP1b	1	9/06/2023	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP2	0	9/06/2023	FILL, Silty SAND, fine to coarse grained, brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP2a	0.4	9/06/2023	FILL, Silty SAND, fine to coarse grained, brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP2b	0.7	9/06/2023	TOPSOIL, SILT, low plasticity, brown	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50
TP2c	1.3	9/06/2023	Silty SAND, fine to coarse grained, brown, with clay and lenses of extremely weathered material	sand	Characterisation	RCA - RC		<0.2	<0.5	<0.5	<0.5	<0.5	0.5		<1		--	<50	<100	<100	--	<50

All results are in units of mg/kg. Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

F1 = TRH C_6-C_{10} minus BTEX. F1 PQL deemed equal TRH C_6-C_{10}.

F2 = TRH >C_{10}-C_{16} minus naphthalene. F2 PQL deemed = TRH >C_{10}-C_{16}.

[A] ASC NEPM 1999 (amended April 2013) Vapour Based Health Screening Levels (HSL) 'D' (Commercial/Industrial)

[A] ASC NEPM 1999 (amended April 2013) Ecological Screening Levels (ESL) C&I (Commercial and Industrial)

[A] ASC NEPM 1999 (amended April 2013) Management Limits (ML) Non-Sensitive Sites (Commercial and Industrial)

[A] CRC Care Technical Report 10, September 2011 Direct Contact (DC) Health Screening Levels 'D' (Commercial/Industrial)

[B] Note that this is a generalisation for the purpose of comparing to the HSL criteria. Where two strata equally represented, most conservative criterion used

[C] Start of sample, refer to logs for sampling interval

Results for TRH have been compared to TPH guidelines.

Presented ESL for naphthalene is an Ecological Investigation Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

ESL for TRH >C_{16}-C_{34} and >C_{34}-C_{40} are low reliability

NL designates 'Not Limiting' indicating that the pore water concentration required to constitute a vapour risk is higher than the solubility capacity for that compound based on a petroleum mixture. Vapour is therefore not a risk for this compound.

Results shown in **BOLD** are in excess of the vapour based HSL

Results shown in shading are >250% of the vapour based HSL

Results shown in underline are in excess of the ESL

Results shown in *italics* are in excess of the management limit

Results shown in patterned cells are in excess of the direct contact HSL

Where summation required (Xylene, F1, F2) calculation includes components reported as non detected as 1/2 PQL

Sample Identification	PQL	Guideline [A]		BH1	BH1a	BH1b	BH1c	BH2	BH2a	BH3	BH3a	BH3b	BH3c	BH4	BH4a
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0	0.6	1	1.8	0.2	0.9	0.55	0.9	1.3	1.8	0.2	0.9
Date				9/6/23	9/6/23	9/6/23	9/6/23	5/6/23	5/6/23	8/6/23	8/6/23	8/6/23	8/6/23	7/6/23	7/6/23
Sample Profile				FILL, Silty SAND, fine to medium grained, brown, trace of gravel	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	Sandy CLAY, medium plasticity, orange-brown, fine to coarse grained sand, trace of fine gravel	FILL, Silty SAND, fine to coarse grained, brown	GRANITE, pale grey, dark grey and orange
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	0.5		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
Acenaphthylene	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
Acenaphthene	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	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
Phenanthrene	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	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	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	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
Benz(a)anthracene	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	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(b)&(j)fluoranthene	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	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	0.5		1.4	<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-c,d)pyrene	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
Dibenz(a,h)anthracene	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(g,h,i)perylene	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 PAH (B(a)P equivalent)	1.21	40		0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605
Sum of reported PAH	8	4000		4	4	4	4	4	4	4	4	4	4	4	4
Metals				*											
Arsenic	5	3000	160	12	<5	<5	<5	<5	<5	18	9	13	<5	<5	<5
Cadmium	0.4	900		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	3600	310	20	19	22	30	21	26	19	13	18	35	12	11
Copper	5	240000	400	7	9	9	7	<5	<5	17	9	12	14	<5	<5
Mercury	0.1	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
Lead	5	1500	1800	18	16	8	12	<5	<5	75	28	34	8	<5	<5
Nickel	2	6000	55	16	11	6	11	12	10	8	9	9	13	10	9
Zinc	5	400000	360	19	13	15	16	44	39	66	37	47	33	37	34
Organochlorine Pesticides (OCP)															
alpha-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
HCB	0.05	80		<0.05	--	--	--	--	--	--	--	--	--	--	--
b-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
g-BHC (Lindane)	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
d-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.05	50		<0.05	--	--	--	--	--	--	--	--	--	--	--
Aldrin	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
alpha-Endosulfan	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDE	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.05	100		<0.05	--	--	--	--	--	--	--	--	--	--	--
beta-Endosulfan	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDD	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDT	0.2		640	<0.2	--	--	--	--	--	--	--	--	--	--	--

Sample Identification	PQL	Guideline [A]		BH5	BH5a	BH5b	BH6	BH6a	BH6b	BH6c	BH6d	BH6e	BH7a	BH7b	BH7c
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0.3	0.8	1.5	0.15	0.8	1.8	2.8	3.8	5.8	0.3	0.8	1.6
Date				7/6/23	7/6/23	7/6/23	8/6/23	8/6/23	8/6/23	8/6/23	8/6/23	8/6/23	6/6/23	6/6/23	6/6/23
Sample Profile				FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty Sandy GRAVEL, fine to medium, grey-brown, sub-angular	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	0.5		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
Acenaphthylene	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
Acenaphthene	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	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
Phenanthrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	5.4	6.6	<0.5
Anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	2.1	<0.5
Fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	<0.5	7	10.2	<0.5
Pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.2	<0.5	<0.5	6.3	9.3	<0.5
Benz(a)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	2	3.1	<0.5
Chrysene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	2	3.1	<0.5
Benzo(b)&(j)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	2.2	4.2	<0.5
Benzo(k)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.9	1.7	<0.5
Benzo(a) pyrene	0.5		1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	2.6	4.4	<0.5
Indeno(1,2,3-c,d)pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	1.4	2.4	<0.5
Dibenz(a,h)anthracene	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(g,h,i)perylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	1.7	3	<0.5
Carcinogenic PAH (B(a)P equivalent)	1.21	40		0.605	0.605	0.605	0.605	0.605	0.605	2.121	0.605	0.605	3.537	5.851	0.605
Sum of reported PAH	8	4000		4	4	4	4	4	4	14	4	4	34.55	51.35	4
Metals									*						
Arsenic	5	3000	160	<5	<5	<5	<5	<5	12	<5	<5	<5	<5	<5	<5
Cadmium	0.4	900		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	3600	310	14	15	15	22	16	18	22	16	10	20	20	21
Copper	5	240000	400	<5	<5	<5	8	5	6	8	8	<5	6	6	8
Mercury	0.1	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
Lead	5	1500	1800	9	17	5	7	6	21	35	7	<5	13	32	13
Nickel	2	6000	55	9	9	8	12	11	11	9	9	7	12	8	10
Zinc	5	400000	360	38	45	33	43	40	57	52	38	34	42	48	37
Organochlorine Pesticides (OCP)															
alpha-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
HCB	0.05	80		<0.05	--	--	--	--	--	--	--	--	--	--	--
b-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
g-BHC (Lindane)	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
d-BHC	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Heptachlor	0.05	50		<0.05	--	--	--	--	--	--	--	--	--	--	--
Aldrin	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Heptachlor epoxide	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
trans-Chlordane	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
alpha-Endosulfan	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
cis-Chlordane	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Dieldrin	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDE	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endrin	0.05	100		<0.05	--	--	--	--	--	--	--	--	--	--	--
beta-Endosulfan	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDD	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endrin Aldehyde	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Endosulfan sulfate	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
DDT	0.2		640	<0.2	--	--	--	--	--	--	--	--	--	--	--

Sample Identification	PQL	Guideline [A]		BH8	BH8a	BH8b	BH8c	BH8e	BH8f	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)	BH10b(HA)
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0.1	0.4	0.9	1.8	4.5	5.8	0.3	0.8	1.3	0.1	0.8	1.1
Date				6/6/23	6/6/23	6/6/23	6/6/23	6/6/23	6/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23
Sample Profile				FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty Sandy GRAVEL, fine to medium, dark grey, sub-angular	Clayey Gravelly SAND, fine to coarse grained, orange-brown	Silty SAND, fine to coarse grained, brown, trace of clay and gravel	FILL, CLAY, medium plasticity, brown, with sand and gravel	FILL, CLAY, medium plasticity, brown, with sand and gravel	TOPSOIL, SILT, low plasticity, brown
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	0.5		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
Acenaphthylene	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
Acenaphthene	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	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
Phenanthrene	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	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	0.5			<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	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
Benz(a)anthracene	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	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(b)&(j)fluoranthene	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	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	0.5		1.4	<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-c,d)pyrene	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
Dibenz(a,h)anthracene	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(g,h,i)perylene	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 PAH (B(a)P equivalent)	1.21	40		0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605
Sum of reported PAH	8	4000		4	4.6	4	4	4	4	4	4	4	4	4	4
Metals															
Arsenic	5	3000	160	<5	5	<5	<5	<5	<5	<5	<5	<5	8	<5	<5
Cadmium	0.4	900		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	3600	310	21	25	20	18	26	12	12	47	24	18	39	31
Copper	5	240000	400	7	11	7	6	6	<5	14	10	5	6	8	7
Mercury	0.1	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
Lead	5	1500	1800	8	14	7	7	8	<5	<5	9	6	17	9	11
Nickel	2	6000	55	12	12	11	10	9	6	20	16	15	7	16	12
Zinc	5	400000	360	40	45	41	38	35	30	50	49	45	37	39	33
Organochlorine Pesticides (OCP)															
alpha-BHC	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
HCB	0.05	80		--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
b-BHC	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
g-BHC (Lindane)	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
d-BHC	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Heptachlor	0.05	50		--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Aldrin	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Heptachlor epoxide	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
trans-Chlordane	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
alpha-Endosulfan	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
cis-Chlordane	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Dieldrin	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
DDE	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Endrin	0.05	100		--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
beta-Endosulfan	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
DDD	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Endrin Aldehyde	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Endosulfan sulfate	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
DDT	0.2		640	--	<0.2	--	--	--	--	<0.2	--	--	--	--	--

Sample Identification	PQL	Guideline [A]		BH10c(HA)	TP1	TP1a	TP1b	TP2	TP2a	TP2b	TP2c
Sample Depth (m) [B]		HIL 'D'	EIL C&I	1.3	0	0.6	1	0	0.4	0.7	1.3
Date				9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23
Sample Profile				Clayey SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, orange-brown	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	FILL, Silty SAND, fine to coarse grained, brown	FILL, Silty SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, brown	Silty SAND, fine to coarse grained, brown, with clay and lenses of extremely weathered material
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Polycyclic Aromatic Hydrocarbons (PAH)											
Naphthalene	0.5		370	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b)&(j)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a) pyrene	0.5		1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carcinogenic PAH (B(a)P equivalent)	1.21	40		0.605	0.605	0.605	0.605	0.605	0.605	0.605	0.605
Sum of reported PAH	8	4000		4	4	4	4	4	4	4	4
Metals											
Arsenic	5	3000	160	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.4	900		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	3600	310	39	19	19	24	12	15	10	13
Copper	5	240000	400	7	6	5	6	<5	<5	<5	<5
Mercury	0.1	730		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	5	1500	1800	8	11	10	10	11	14	8	8
Nickel	2	6000	55	14	6	8	10	9	10	4	8
Zinc	5	400000	360	32	18	24	26	43	45	17	24
Organochlorine Pesticides (OCP)											
alpha-BHC	0.05			--	<0.05	--	--	--	--	--	--
HCB	0.05	80		--	<0.05	--	--	--	--	--	--
b-BHC	0.05			--	<0.05	--	--	--	--	--	--
g-BHC (Lindane)	0.05			--	<0.05	--	--	--	--	--	--
d-BHC	0.05			--	<0.05	--	--	--	--	--	--
Heptachlor	0.05	50		--	<0.05	--	--	--	--	--	--
Aldrin	0.05			--	<0.05	--	--	--	--	--	--
Heptachlor epoxide	0.05			--	<0.05	--	--	--	--	--	--
trans-Chlordane	0.05			--	<0.05	--	--	--	--	--	--
alpha-Endosulfan	0.05			--	<0.05	--	--	--	--	--	--
cis-Chlordane	0.05			--	<0.05	--	--	--	--	--	--
Dieldrin	0.05			--	<0.05	--	--	--	--	--	--
DDE	0.05			--	<0.05	--	--	--	--	--	--
Endrin	0.05	100		--	<0.05	--	--	--	--	--	--
beta-Endosulfan	0.05			--	<0.05	--	--	--	--	--	--
DDD	0.05			--	<0.05	--	--	--	--	--	--
Endrin Aldehyde	0.05			--	<0.05	--	--	--	--	--	--
Endosulfan sulfate	0.05			--	<0.05	--	--	--	--	--	--
DDT	0.2		640	--	<0.2	--	--	--	--	--	--

Sample Identification	PQL	Guideline [A]		BH1	BH1a	BH1b	BH1c	BH2	BH2a	BH3	BH3a	BH3b	BH3c	BH4	BH4a
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0	0.6	1	1.8	0.2	0.9	0.55	0.9	1.3	1.8	0.2	0.9
Date				9/6/23	9/6/23	9/6/23	9/6/23	5/6/23	5/6/23	8/6/23	8/6/23	8/6/23	8/6/23	7/6/23	7/6/23
Endrin Ketone	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	2500		<0.2	--	--	--	--	--	--	--	--	--	--	--
Chlordane (cis + trans)	0.1	530		0.05	--	--	--	--	--	--	--	--	--	--	--
DDT+DDD+DDE	0.3	3600		0.15	--	--	--	--	--	--	--	--	--	--	--
Aldrin + Dieldrin	0.1	45		0.05	--	--	--	--	--	--	--	--	--	--	--
Endosulfan (aplha+beta)	0.1	2000		0.05	--	--	--	--	--	--	--	--	--	--	--
Organophosphorous Pesticides (OPP)															
Chlorpyrifos	0.05	2000		<0.05	--	--	--	--	--	--	--	--	--	--	--
Dichlorvos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Demeton-S-methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Monocrotophos	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Dimethoate	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Diazinon	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Chlorpyrifos-methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Parathion-methyl	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Malathion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Fenthion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Parathion	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Pirimphos-ethyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Chlorfenvinphos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Bromophos-ethyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Fenamiphos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Prothiofos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Ethion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Carbophenothion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Azinphos Methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Herbicides															
4-Chlorophenoxy acetic acid	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-DB	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Dicamba	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Mecoprop	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
MCPA	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-DP	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-D	0.02	9000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Triclopyr	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4.5-TP (Silvex)	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4.5-T	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
MCPB	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Picloram	0.02	35000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Clopyralid	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Fluroxypyr	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).

[A] ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).

[B] Start of sample, refer to logs for sampling interval.

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Where summation required (PAH, OCP) calculation includes components reported as non detected as 1/2 PQL.

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>2years) Arsenic

EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria

EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5

EIL for Lead are the added contaminant limit for aged (>2years) Lead

EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria

EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in underline are in excess of EIL

* Nickel duplicate results used due to poor RPD

Sample Identification	PQL	Guideline [A]		BH5	BH5a	BH5b	BH6	BH6a	BH6b	BH6c	BH6d	BH6e	BH7a	BH7b	BH7c
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0.3	0.8	1.5	0.15	0.8	1.8	2.8	3.8	5.8	0.3	0.8	1.6
Date				7/6/23	7/6/23	7/6/23	8/6/23	8/6/23	8/6/23	8/6/23	8/6/23	8/6/23	6/6/23	6/6/23	6/6/23
Endrin Ketone	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Methoxychlor	0.2	2500		<0.2	--	--	--	--	--	--	--	--	--	--	--
Chlordane (cis + trans)	0.1	530		0.05	--	--	--	--	--	--	--	--	--	--	--
DDT+DDD+DDE	0.3	3600		0.15	--	--	--	--	--	--	--	--	--	--	--
Aldrin + Dieldrin	0.1	45		0.05	--	--	--	--	--	--	--	--	--	--	--
Endosulfan (aplha+beta)	0.1	2000		0.05	--	--	--	--	--	--	--	--	--	--	--
Organophosphorous Pesticides (OPP)															
Chlorpyrifos	0.05	2000		<0.05	--	--	--	--	--	--	--	--	--	--	--
Dichlorvos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Demeton-S-methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Monocrotophos	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Dimethoate	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Diazinon	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Chlorpyrifos-methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Parathion-methyl	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Malathion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Fenthion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Parathion	0.2			<0.2	--	--	--	--	--	--	--	--	--	--	--
Pirimphos-ethyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Chlorfenvinphos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Bromophos-ethyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Fenamiphos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Prothiofos	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Ethion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Carbophenothion	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Azinphos Methyl	0.05			<0.05	--	--	--	--	--	--	--	--	--	--	--
Herbicides															
4-Chlorophenoxy acetic acid	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-DB	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Dicamba	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Mecoprop	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
MCPA	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-DP	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4-D	0.02	9000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Triclopyr	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4.5-TP (Silvex)	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
2.4.5-T	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
MCPB	0.02	5000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Picloram	0.02	35000		<0.02	--	--	--	--	--	--	--	--	--	--	--
Clopyralid	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--
Fluroxypyr	0.02			<0.02	--	--	--	--	--	--	--	--	--	--	--

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).

[A] ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).

[B] Start of sample, refer to logs for sampling interval.

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Where summation required (PAH, OCP) calculation includes components reported as non detected as 1/2 PQL.

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>2years) Arsenic

EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria

EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5

EIL for Lead are the added contaminant limit for aged (>2years) Lead

EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria

EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in underline are in excess of EIL

* Arsenic duplicate results used due to poor RPD

Sample Identification	PQL	Guideline [A]		BH8	BH8a	BH8b	BH8c	BH8e	BH8f	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)	BH10b(HA)
Sample Depth (m) [B]		HIL 'D'	EIL C&I	0.1	0.4	0.9	1.8	4.5	5.8	0.3	0.8	1.3	0.1	0.8	1.1
Date				6/6/23	6/6/23	6/6/23	6/6/23	6/6/23	6/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23
Endrin Ketone	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Methoxychlor	0.2	2500		--	<0.2	--	--	--	--	<0.2	--	--	--	--	--
Chlordane (cis + trans)	0.1	530		--	0.05	--	--	--	--	0.05	--	--	--	--	--
DDT+DDD+DDE	0.3	3600		--	0.15	--	--	--	--	0.15	--	--	--	--	--
Aldrin + Dieldrin	0.1	45		--	0.05	--	--	--	--	0.05	--	--	--	--	--
Endosulfan (aplha+beta)	0.1	2000		--	0.05	--	--	--	--	0.05	--	--	--	--	--
Organophosphorous Pesticides (OPP)															
Chlorpyrifos	0.05	2000		--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Dichlorvos	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Demeton-S-methyl	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Monocrotophos	0.2			--	<0.2	--	--	--	--	<0.2	--	--	--	--	--
Dimethoate	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Diazinon	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Chlorpyrifos-methyl	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Parathion-methyl	0.2			--	<0.2	--	--	--	--	<0.2	--	--	--	--	--
Malathion	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Fenthion	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Parathion	0.2			--	<0.2	--	--	--	--	<0.2	--	--	--	--	--
Pirimphos-ethyl	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Chlorfenvinphos	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Bromophos-ethyl	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Fenamiphos	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Prothiofos	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Ethion	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Carbophenothion	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Azinphos Methyl	0.05			--	<0.05	--	--	--	--	<0.05	--	--	--	--	--
Herbicides															
4-Chlorophenoxy acetic acid	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
2.4-DB	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Dicamba	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Mecoprop	0.02	5000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
MCPA	0.02	5000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
2.4-DP	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
2.4-D	0.02	9000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Triclopyr	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
2.4.5-TP (Silvex)	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
2.4.5-T	0.02	5000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
MCPB	0.02	5000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Picloram	0.02	35000		--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Clopyralid	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--
Fluroxypyr	0.02			--	<0.02	--	--	--	--	<0.02	--	--	--	--	--

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).

[A] ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).

[B] Start of sample, refer to logs for sampling interval.

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Where summation required (PAH, OCP) calculation includes components reported as non detected as 1/2 PQL.

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>2years) Arsenic

EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria

EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5

EIL for Lead are the added contaminant limit for aged (>2years) Lead

EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria

EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in underline are in excess of EIL

Sample Identification	PQL	Guideline [A]		BH10c(HA)	TP1	TP1a	TP1b	TP2	TP2a	TP2b	TP2c
Sample Depth (m) [B]		HIL 'D'	EIL C&I	1.3	0	0.6	1	0	0.4	0.7	1.3
Date				9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23	9/6/23
Endrin Ketone	0.05			--	<0.05	--	--	--	--	--	--
Methoxychlor	0.2	2500		--	<0.2	--	--	--	--	--	--
Chlordane (cis + trans)	0.1	530		--	0.05	--	--	--	--	--	--
DDT+DDD+DDE	0.3	3600		--	0.15	--	--	--	--	--	--
Aldrin + Dieldrin	0.1	45		--	0.05	--	--	--	--	--	--
Endosulfan (aplha+beta)	0.1	2000		--	0.05	--	--	--	--	--	--
Organophosphorous Pesticides (OPP)											
Chlorpyrifos	0.05	2000		--	<0.05	--	--	--	--	--	--
Dichlorvos	0.05			--	<0.05	--	--	--	--	--	--
Demeton-S-methyl	0.05			--	<0.05	--	--	--	--	--	--
Monocrotophos	0.2			--	<0.2	--	--	--	--	--	--
Dimethoate	0.05			--	<0.05	--	--	--	--	--	--
Diazinon	0.05			--	<0.05	--	--	--	--	--	--
Chlorpyrifos-methyl	0.05			--	<0.05	--	--	--	--	--	--
Parathion-methyl	0.2			--	<0.2	--	--	--	--	--	--
Malathion	0.05			--	<0.05	--	--	--	--	--	--
Fenthion	0.05			--	<0.05	--	--	--	--	--	--
Parathion	0.2			--	<0.2	--	--	--	--	--	--
Pirimphos-ethyl	0.05			--	<0.05	--	--	--	--	--	--
Chlorfenvinphos	0.05			--	<0.05	--	--	--	--	--	--
Bromophos-ethyl	0.05			--	<0.05	--	--	--	--	--	--
Fenamiphos	0.05			--	<0.05	--	--	--	--	--	--
Prothiofos	0.05			--	<0.05	--	--	--	--	--	--
Ethion	0.05			--	<0.05	--	--	--	--	--	--
Carbophenothion	0.05			--	<0.05	--	--	--	--	--	--
Azinphos Methyl	0.05			--	<0.05	--	--	--	--	--	--
Herbicides											
4-Chlorophenoxy acetic acid	0.02			--	<0.02	--	--	--	--	--	--
2.4-DB	0.02			--	<0.02	--	--	--	--	--	--
Dicamba	0.02			--	<0.02	--	--	--	--	--	--
Mecoprop	0.02	5000		--	<0.02	--	--	--	--	--	--
MCPA	0.02	5000		--	<0.02	--	--	--	--	--	--
2.4-DP	0.02			--	<0.02	--	--	--	--	--	--
2.4-D	0.02	9000		--	<0.02	--	--	--	--	--	--
Triclopyr	0.02			--	<0.02	--	--	--	--	--	--
2.4.5-TP (Silvex)	0.02			--	<0.02	--	--	--	--	--	--
2.4.5-T	0.02	5000		--	<0.02	--	--	--	--	--	--
MCPB	0.02	5000		--	<0.02	--	--	--	--	--	--
Picloram	0.02	35000		--	<0.02	--	--	--	--	--	--
Clopyralid	0.02			--	<0.02	--	--	--	--	--	--
Fluroxypyr	0.02			--	<0.02	--	--	--	--	--	--

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).

[A] ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).

[B] Start of sample, refer to logs for sampling interval.

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Where summation required (PAH, OCP) calculation includes components reported as non detected as 1/2 PQL.

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>2years) Arsenic

EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria

EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5

EIL for Lead are the added contaminant limit for aged (>2years) Lead

EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria

EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in underline are in excess of EIL

Sample Identification	PQL	Maximum Average Concentration for Characterisation[A]	Absolute Maximum Concentration for Characterisation[A]	BH1	BH1a	BH1b	BH1c	BH2	BH2a	BH3	BH3a	BH3b	BH3c	BH4	BH4a
Sample Depth				0	0.6	1	1.8	0.2	0.9	0.55	0.9	1.3	1.8	0.2	0.9
Date				9/06/2023	9/06/2023	9/06/2023	9/06/2023	5/06/2023	5/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	7/06/2023	7/06/2023
			Sample Description	FILL, Silty SAND, fine to medium grained, brown, trace of gravel	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	Sandy CLAY, medium plasticity, orange-brown, fine to coarse grained sand, trace of fine gravel	FILL, Silty SAND, fine to coarse grained, brown	GRANITE, pale grey, dark grey and orange
			Sample Purpose	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
			Sample collected by	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)															
Benzene	0.2	NA	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	NA	65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	NA	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- and para-Xylene	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
ortho-Xylene	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 Xylenes	1	NA	15	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 Recoverable Hydrocarbons (TRH)															
TRH C10-C14	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15-C28	100			<100	<100	<100	<100	<100	<100	120	<100	<100	<100	<100	<100
TRH C29-C36	100			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C10-C36	250	250	500	125	125	125	125	125	125	195	125	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	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	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
Acenaphthene	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	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
Phenanthrene	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	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	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	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
Benz(a)anthracene	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	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(b)&(j)fluoranthene	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	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	0.5	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	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
Dibenz(a,h)anthracene	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(g,h,i)perylene	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
Sum of reported PAH	8	20	40	4	4	4	4	4	4	4	4	4	4	4	4
Metals				*											
Arsenic	5	20	40	12	<5	<5	<5	<5	<5	18	9	13	<5	<5	<5
Cadmium	0.4	0.5	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (total)	2	75	150	20	19	22	30	21	26	19	13	18	35	12	11
Copper	5	100	200	7	9	9	7	<5	<5	17	9	12	14	<5	<5
Mercury	0.1	0.5	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
Lead	5	50	100	18	16	8	12	<5	<5	75	28	34	8	<5	<5
Nickel	2	30	60	16	11	6	11	12	10	8	9	9	13	10	9
Zinc	5	150	300	19	13	15	16	44	39	66	37	47	33	37	34
Physical Parameters															
Electrical Conductivity	0.001	1.5 dS/m	3 dS/m	0.044	0.060	0.052	0.061	0.023	0.032	0.170	0.165	0.158	0.061	0.032	0.034
pH**	0.1	5 to 9	4.5 to 10	7.3	7.3	7.4	7.4	8.4	8.5	8.3	9.8	9.9	7.8	8.4	7.3
Foreign Material															
Rubber, plastic, bitumen, paint, paper, cloth, wood		0.05 %	0.10 %	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**
Asbestos		Nil detected		**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**

All results are in units of mg/kg 'dry weight' unless otherwise specified

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] POEO (Waste) Regulation 2014 - General Exemption Under Part 9, Clause 93, The Excavated Natural Material Order 2014, Table 4

All analytes from discrete samples as per 4.4 of the Order

**The ranges given for pH are for the minimum and maximum acceptable pH values in the ENM Order

Results shown in **BOLD** are in excess of the Absolute Maximum Concentration for Characterisation

Results shown in ***shading*** are in excess of the Maximum Average Concentration for Characterisation

Where summation or average required, calculation includes components reported as non detected as 1/2 PQL.Underlined summations and averages are those not detected

* Nickel duplicate results used due to poor RPD

Sample Identification	PQL	Maximum Average Concentration for Characterisation[A]	Absolute Maximum Concentration for Characterisation[A]	BH5	BH5a	BH5b	BH6	BH6a	BH6b	BH6c	BH6d	BH6e	BH7a	BH7b	BH7c
Sample Depth				0.3	0.8	1.5	0.15	0.8	1.8	2.8	3.8	5.8	0.3	0.8	1.6
Date				7/06/2023	7/06/2023	7/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	6/06/2023	6/06/2023	6/06/2023
Sample Description				FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty Sandy GRAVEL, fine to medium, grey-brown, sub-angular	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)															
Benzene	0.2	NA	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	NA	65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	NA	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- and para-Xylene	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
ortho-Xylene	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 Xylenes	1	NA	15	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 Recoverable Hydrocarbons (TRH)															
TRH C10-C14	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15-C28	100			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C29-C36	100			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C10-C36	250	250	500	125	125	125	125	125	125	125	125	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	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	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
Acenaphthene	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	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
Phenanthrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	5.4	6.6	<0.5
Anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	2.1	<0.5
Fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	<0.5	<0.5	7	10.2	<0.5
Pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.2	<0.5	<0.5	6.3	9.3	<0.5
Benz(a)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	2	3.1	<0.5
Chrysene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	2	3.1	<0.5
Benzo(b)&(j)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	2.2	4.2	<0.5
Benzo(k)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.9	1.7	<0.5
Benzo(a) pyrene	0.5	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.5**	<0.5	<0.5	**2.6**	**4.4**	<0.5
Indeno(1,2,3-c,d)pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	1.4	2.4	<0.5
Dibenz(a,h)anthracene	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(g,h,i)perylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	1.7	3	<0.5
Sum of reported PAH	8	20	40	4	4	4	4	4	4	14	4	4	34.55	**51.35**	4
Metals									*						
Arsenic	5	20	40	<5	<5	<5	<5	<5	12	<5	<5	<5	<5	<5	<5
Cadmium	0.4	0.5	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (total)	2	75	150	14	15	15	22	16	18	22	16	10	20	20	21
Copper	5	100	200	<5	<5	<5	8	5	6	8	8	<5	6	6	8
Mercury	0.1	0.5	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
Lead	5	50	100	9	17	5	7	6	21	35	7	<5	13	32	13
Nickel	2	30	60	9	9	8	12	11	11	9	9	7	12	8	10
Zinc	5	150	300	38	45	33	43	40	57	52	38	34	42	48	37
Physical Parameters															
Electrical Conductivity	0.001	1.5 dS/m	3 dS/m	0.061	0.082	0.055	0.045	0.014	0.100	0.125	0.038	0.023	0.074	0.102	0.051
pH**	0.1	5 to 9	4.5 to 10	7.9	6.9	7.3	8.3	7.9	8.5	8.6	7.7	7.5	7.8	8.2	8.2
Foreign Material															
Rubber, plastic, bitumen, paint, paper, cloth, wood		0.05 %	0.10 %	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**
Asbestos		Nil detected		**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**

All results are in units of mg/kg 'dry weight' unless otherwise specified

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] POEO (Waste) Regulation 2014 - General Exemption Under Part 9, Clause 93, The Excavated Natural Material Order 2014, Table 4

All analytes from discrete samples as per 4.4 of the Order

**The ranges given for pH are for the minimum and maximum acceptable pH values in the ENM Order

Results shown in **BOLD** are in excess of the Absolute Maximum Concentration for Characterisation

Results shown in ***shading*** are in excess of the Maximum Average Concentration for Characterisation

Where summation or average required, calculation includes components reported as non detected as 1/2 PQL. Underlined summations and averages are those not detected

* Arsenic duplicate results used due to poor RPD

Sample Identification	PQL	Maximum Average Concentration for Characterisation[A]	Absolute Maximum Concentration for Characterisation[A]	BH8	BH8a	BH8b	BH8c	BH8e	BH8f	BH9(E300A)	BH9a(E300A)	BH9b(E300A)	BH10(HA)	BH10a(HA)	BH10b(HA)
Sample Depth				0.1	0.4	0.9	1.8	4.5	5.8	0.3	0.8	1.3	0.1	0.8	1.1
Date				6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023
			Sample Description	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty Sandy GRAVEL, fine to medium, dark grey, sub-angular	Clayey Gravelly SAND, fine to coarse grained, orange-brown	Silty SAND, fine to coarse grained, brown, trace of clay and gravel	FILL, CLAY, medium plasticity, brown, with sand and gravel	FILL, CLAY, medium plasticity, brown, with sand and gravel	TOPSOIL, SILT, low plasticity, brown
			Sample Purpose	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
			Sample collected by	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)															
Benzene	0.2	NA	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	NA	65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	NA	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
meta- and para-Xylene	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
ortho-Xylene	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 Xylenes	1	NA	15	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 Recoverable Hydrocarbons (TRH)															
TRH C10-C14	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15-C28	100			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C29-C36	100			<100	<100	<100	<100	<100	<100	160	<100	<100	<100	<100	<100
TRH C10-C36	250	250	500	125	125	125	125	125	125	235	125	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)															
Naphthalene	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	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
Acenaphthene	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	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
Phenanthrene	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	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	0.5			<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	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
Benz(a)anthracene	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	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(b)&(j)fluoranthene	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	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	0.5	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	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
Dibenz(a,h)anthracene	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(g,h,i)perylene	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
Sum of reported PAH	8	20	40	4	4.6	4	4	4	4	4	4	4	4	4	4
Metals															
Arsenic	5	20	40	<5	5	<5	<5	<5	<5	<5	<5	<5	8	<5	<5
Cadmium	0.4	0.5	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (total)	2	75	150	21	25	20	18	26	12	12	47	24	18	39	31
Copper	5	100	200	7	11	7	6	6	<5	14	10	5	6	8	7
Mercury	0.1	0.5	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
Lead	5	50	100	8	14	7	7	8	<5	<5	9	6	17	9	11
Nickel	2	30	60	12	12	11	10	9	6	20	16	15	7	16	12
Zinc	5	150	300	40	45	41	38	35	30	50	49	45	37	39	33
Physical Parameters															
Electrical Conductivity	0.001	1.5 dS/m	3 dS/m	0.096	0.059	0.088	0.114	0.135	0.049	0.032	0.055	0.028	0.112	0.047	0.056
pH**	0.1	5 to 9	4.5 to 10	9.3	8.1	9.2	8.8	8.6	8.4	7.9	7.3	7.6	7.9	7.5	7.6
Foreign Material															
Rubber, plastic, bitumen, paint, paper, cloth, wood		0.05 %	0.10 %	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**
Asbestos		Nil detected		**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**

All results are in units of mg/kg 'dry weight' unless otherwise specified

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] POEO (Waste) Regulation 2014 - General Exemption Under Part 9, Clause 93, The Excavated Natural Material Order 2014, Table 4

All analytes from discrete samples as per 4.4 of the Order

**The ranges given for pH are for the minimum and maximum acceptable pH values in the ENM Order

Results shown in **BOLD** are in excess of the Absolute Maximum Concentration for Characterisation

Results shown in ***shading*** are in excess of the Maximum Average Concentration for Characterisation

Where summation or average required, calculation includes components reported as non detected as 1/2 PQL. Underlined summations and averages are those not detected

Sample Identification	PQL	Maximum Average Concentration for Characterisation[A]	Absolute Maximum Concentration for Characterisation[A]	BH10c(HA)	TP1	TP1a	TP1b	TP2	TP2a	TP2b	TP2c	Average Concentration
Sample Depth				1.3	0	0.6	1	0	0.4	0.7	1.3	
Date				9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	
Sample Description				Clayey SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, orange-brown	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	FILL, Silty SAND, fine to coarse grained, brown	FILL, Silty SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, brown	Silty SAND, fine to coarse grained, brown, with clay and lenses of extremely weathered material	
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)												
Benzene	0.2	NA	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NA
Toluene	0.5	NA	65	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Ethylbenzene	0.5	NA	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA
meta- and para-Xylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA
ortho-Xylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Total Xylenes	1	NA	15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	NA
Total Recoverable Hydrocarbons (TRH)												
TRH C10-C14	50			<50	<50	<50	<50	<50	<50	<50	<50	25.00
TRH C15-C28	100			<100	<100	<100	<100	<100	<100	<100	<100	51.59
TRH C29-C36	100			<100	<100	<100	<100	<100	<100	<100	<100	52.50
TRH C10-C36	250	250	500	125	125	125	125	125	125	125	125	132.00
Polycyclic Aromatic Hydrocarbons (PAH)												
Naphthalene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.25
Acenaphthylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.25
Acenaphthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.25
Fluorene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.25
Phenanthrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.53
Anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.33
Fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.68
Pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64
Benz(a)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.38
Chrysene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.38
Benzo(b)&(j)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.41
Benzo(k)fluoranthene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.30
Benzo(a) pyrene	0.5	0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.43
Indeno(1,2,3-c,d)pyrene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.33
Dibenz(a,h)anthracene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.25
Benzo(g,h,i)perylene	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.36
Sum of reported PAH	8	20	40	4	4	4	4	4	4	4	4	6.16
Metals												
Arsenic	5	20	40	<5	<5	<5	<5	<5	<5	<5	<5	3.85
Cadmium	0.4	0.5	1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.20
Chromium (total)	2	75	150	39	19	19	24	12	15	10	13	20.43
Copper	5	100	200	7	6	5	6	<5	<5	<5	<5	6.42
Mercury	0.1	0.5	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.05
Lead	5	50	100	8	11	10	10	11	14	8	8	12.67
Nickel	2	30	60	14	6	8	10	9	10	4	8	10.32
Zinc	5	150	300	32	18	24	26	43	45	17	24	36.77
Physical Parameters												
Electrical Conductivity	0.001	1.5 dS/m	3 dS/m	0.051	0.022	0.067	0.055	0.020	0.016	0.025	0.053	0.06
pH**	0.1	5 to 9	4.5 to 10	7.3	6.8	6.8	6.8	6.8	6.8	7	6.1	7.85
Foreign Material												
Rubber, plastic, bitumen, paint, paper, cloth, wood		0.05 %	0.10 %	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**NA**
Asbestos		Nil detected		**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**not tested**	**NA**

All results are in units of mg/kg 'dry weight' unless otherwise specified

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

[A] POEO (Waste) Regulation 2014 - General Exemption Under Part 9, Clause 93, The Excavated Natural Material Order 2014, Table 4

All analytes from discrete samples as per 4.4 of the Order

**The ranges given for pH are for the minimum and maximum acceptable pH values in the ENM Order

Results shown in **BOLD** are in excess of the Absolute Maximum Concentration for Characterisation

Results shown in ***shading*** are in excess of the Maximum Average Concentration for Characterisation

Where summation or average required, calculation includes components reported as non detected as 1/2 PQL.Underlined summations and averages are those not detected

TIER 1 - Total Concentrations WITHOUT Leaching Test

Sample Identification	PQL	Total Concentration [A]		BH1	BH1a	BH1b	BH1c	BH2	BH2a	BH3	BH3a	BH3b	BH3c	BH4
Depth		General Solid	Restricted Solid	0	0.6	1	1.8	0.2	0.9	0.55	0.9	1.3	1.8	0.2
Sample Date				9/06/2023	9/06/2023	9/06/2023	9/06/2023	5/06/2023	5/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	7/06/2023
Sample Profile				FILL, Silty SAND, fine to medium grained, brown, trace of gravel	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	CLAY, medium plasticity, brown, with sand	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, trace of clay	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	FILL, Gravelly Sandy CLAY, medium to high plasticity, brown, trace of brick fragments (dark grey-brown)	Sandy CLAY, medium plasticity, orange-brown, fine to coarse grained sand, trace of fine gravel	FILL, Silty SAND, fine to coarse grained, brown
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)														
Benzene	0.2	10	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	288	1152	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	600	2400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	1	1000	4000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Recoverable Hydrocarbons (TRH)														
TRH C_6-C_9	--	650	2600	--	--	--	--	--	--	--	--	--	--	--
TRH C_{10}-C_{36}	250	10000	40000	125	125	125	125	125	125	195	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)														
Benzo(a) pyrene	0.5	0.8	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Reported PAH	8	200	800	4	4	4	4	4	4	4	4	4	4	4
Metals														
Arsenic	5	100	400	12	<5	<5	<5	<5	<5	18	9	13	<5	<5
Cadmium	0.4	20	80	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	100	400	20	19	22	30	21	26	19	13	18	35	12
Mercury	0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Lead	5	100	400	18	16	8	12	<5	<5	75	28	34	8	<5
Nickel	2	40	160	7	11	6	11	12	10	8	9	9	13	10
Pesticides														
Chlorpyrifos	0.05	4	16	<0.05	--	--	--	--	--	--	--	--	--	--
Endosulfan (sum)	0.1	60	240	0.05	--	--	--	--	--	--	--	--	--	--
Moderately Harmful Pesticides														
Dichlorvos, Dimethoate, Ethion, Fenthion, Malathion, Parathion-methyl	0.45	250	1000	0.225	--	--	--	--	--	--	--	--	--	--
Scheduled Chemicals														
Aldrin, alpha-BHC, beta-BHC, delta-BHC, 4.4`-DDD, 4.4`-DDE, 4.4`-DDT, Dieldrin, Endrin, Endrin aldehyde, gamma-BHC Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Chlordane	0.95	50	50	0.475	--	--	--	--	--	--	--	--	--	--
Herbicides														
Triclopyr	0.02	40	160	<0.02	--	--	--	--	--	--	--	--	--	--
Picloram	0.02	60	240	<0.02	--	--	--	--	--	--	--	--	--	--
Fluroxypyr	0.02	40	160	<0.02	--	--	--	--	--	--	--	--	--	--
Other Phenoxy Acid Herbicides	0.22			0.11	--	--	--	--	--	--	--	--	--	--
Tier 1 Sample Classification				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste
Potential Tier 2 Sample Classification (subject to leachate analysis)				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste

All total results are in units of mg/kg
PQL = Practical Quantitation Limit.
Blank Cell indicates no criterion available
[A] NSWEPA Waste Classification Guidelines, 2014. Table 1, CT1 & CT2
Results for TRH have been compared to TPH guidelines.
Guidelines reported for Chromium are for Chromium VI

Results shown in ***BOLD*** are in excess of the General Solid Waste criteria
Results shown in ***shading*** are in excess of the Restricted Solid Waste criteria
Where summation required (Xylene, TRH, PAH, Pesticides, Scheduled Chemicals) calculation includes components reported as non detected as 1/2 PQL

TIER 1 - Total Concentrations WITHOUT Leaching Test

Sample Identification	PQL	Total Concentration [A]		BH4a	BH5	BH5a	BH5b	BH6	BH6a	BH6b	BH6c	BH6d	BH6e	BH7a
Depth		General Solid	Restricted Solid	0.9	0.3	0.8	1.5	0.15	0.8	1.8	2.8	3.8	5.8	0.3
Sample Date				7/06/2023	7/06/2023	7/06/2023	7/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	8/06/2023	6/06/2023
Sample Profile				GRANITE, pale grey, dark grey and orange	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown and grey, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty SAND, fine to coarse grained, brown, trace of clay	FILL, Silty Sandy GRAVEL, fine to medium, grey-brown, sub-angular
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)														
Benzene	0.2	10	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	288	1152	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	600	2400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	1	1000	4000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Recoverable Hydrocarbons (TRH)														
TRH C_6-C_9	--	650	2600	--	--	--	--	--	--	--	--	--	--	--
TRH C_{10}-C_{36}	250	10000	40000	125	125	125	125	125	125	125	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)														
Benzo(a) pyrene	0.5	0.8	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1.5**	<0.5	<0.5	**2.6**
Sum of Reported PAH	8	200	800	4	4	4	4	4	4	4	14	4	4	34.55
Metals										*				
Arsenic	5	100	400	<5	<5	<5	<5	<5	<5	12	<5	<5	<5	<5
Cadmium	0.4	20	80	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	100	400	11	14	15	15	22	16	18	22	16	10	20
Mercury	0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	5	100	400	<5	9	17	5	7	6	21	35	7	<5	13
Nickel	2	40	160	9	9	9	8	12	11	11	9	9	7	12
Pesticides														
Chlorpyrifos	0.05	4	16	--	<0.05	--	--	--	--	--	--	--	--	--
Endosulfan (sum)	0.1	60	240	--	0.05	--	--	--	--	--	--	--	--	--
Moderately Harmful Pesticides														
Dichlorvos, Dimethoate, Ethion, Fenthion, Malathion, Parathion-methyl	0.45	250	1000	--	0.225	--	--	--	--	--	--	--	--	--
Scheduled Chemicals														
Aldrin, alpha-BHC, beta-BHC, delta-BHC, 4.4`-DDD, 4.4`-DDE, 4.4`-DDT, Dieldrin, Endrin, Endrin aldehyde, gamma-BHC Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Chlordane	0.95	50	50	--	0.475	--	--	--	--	--	--	--	--	--
Herbicides														
Triclopyr	0.02	40	160	--	<0.02	--	--	--	--	--	--	--	--	--
Picloram	0.02	60	240	--	<0.02	--	--	--	--	--	--	--	--	--
Fluroxypyr	0.02	40	160	--	<0.02	--	--	--	--	--	--	--	--	--
Other Phenoxy Acid Herbicides	0.22			--	0.11	--	--	--	--	--	--	--	--	--
Tier 1 Sample Classification				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	**Restricted Solid Waste**	General Solid Waste	General Solid Waste	**Restricted Solid Waste**
Potential Tier 2 Sample Classification (subject to leachate analysis)				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste

All total results are in units of mg/kg
PQL = Practical Quantitation Limit.
Blank Cell indicates no criterion available
[A] NSWEPA Waste Classification Guidelines, 2014. Table 1, CT1 & CT2
Results for TRH have been compared to TPH guidelines.
Guidelines reported for Chromium are for Chromium VI

Results shown in ***BOLD*** are in excess of the General Solid Waste criteria
Results shown in ***shading*** are in excess of the Restricted Solid Waste criteria
Where summation required (Xylene, TRH, PAH, Pesticides, Scheduled Chemicals) calculation includes components reported as non detected as 1/2 PQL
* Arsenic duplicate results used due to poor RPD

TIER 1 - Total Concentrations WITHOUT Leaching Test

Sample Identification	PQL	Total Concentration [A]		BH7b	BH7c	BH8	BH8a	BH8b	BH8c	BH8e	BH8f	BH9(E300A)	BH9a(E300A)	BH9b(E300A)
Depth		General Solid	Restricted Solid	0.8	1.6	0.1	0.4	0.9	1.8	4.5	5.8	0.3	0.8	1.3
Sample Date				6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	6/06/2023	9/06/2023	9/06/2023	9/06/2023
Sample Profile				FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	FILL, Silty SAND, fine to coarse grained, grey, trace of clay and fine gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty SAND, fine to coarse grained, trace of clay and gravel	FILL, Silty Sandy GRAVEL, fine to medium, dark grey, sub-angular	Clayey Gravelly SAND, fine to coarse grained, orange-brown	Silty SAND, fine to coarse grained, brown, trace of clay and gravel
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)														
Benzene	0.2	10	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	288	1152	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	600	2400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	1	1000	4000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Recoverable Hydrocarbons (TRH)														
TRH C_6-C_9	--	650	2600	--	--	--	--	--	--	--	--	--	--	--
TRH C_{10}-C_{36}	250	10000	40000	125	125	125	125	125	125	125	125	235	125	125
Polycyclic Aromatic Hydrocarbons (PAH)														
Benzo(a) pyrene	0.5	0.8	3.2	**4.4**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Reported PAH	8	200	800	51.35	4	4	4.6	4	4	4	4	4	4	4
Metals														
Arsenic	5	100	400	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.4	20	80	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	100	400	20	21	21	25	20	18	26	12	12	47	24
Mercury	0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	5	100	400	32	13	8	14	7	7	8	<5	<5	9	6
Nickel	2	40	160	8	10	12	12	11	10	9	6	20	16	15
Pesticides														
Chlorpyrifos	0.05	4	16	--	--	--	<0.05	--	--	--	--	<0.05	--	--
Endosulfan (sum)	0.1	60	240	--	--	--	0.05	--	--	--	--	0.05	--	--
Moderately Harmful Pesticides														
Dichlorvos, Dimethoate, Ethion, Fenthion, Malathion, Parathion-methyl	0.45	250	1000	--	--	--	0.225	--	--	--	--	0.225	--	--
Scheduled Chemicals														
Aldrin, alpha-BHC, beta-BHC, delta-BHC, 4.4`-DDD, 4.4`-DDE, 4.4`-DDT, Dieldrin, Endrin, Endrin aldehyde, gamma-BHC Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Chlordane	0.95	50	50	--	--	--	0.475	--	--	--	--	0.475	--	--
Herbicides														
Triclopyr	0.02	40	160	--	--	--	<0.02	--	--	--	--	<0.02	--	--
Picloram	0.02	60	240	--	--	--	<0.02	--	--	--	--	<0.02	--	--
Fluroxypyr	0.02	40	160	--	--	--	<0.02	--	--	--	--	<0.02	--	--
Other Phenoxy Acid Herbicides	0.22			--	--	--	0.11	--	--	--	--	0.11	--	--
Tier 1 Sample Classification				**Hazardous Waste**	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste
Potential Tier 2 Sample Classification (subject to leachate analysis)				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste

All total results are in units of mg/kg
PQL = Practical Quantitation Limit.
Blank Cell indicates no criterion available
[A] NSWEPA Waste Classification Guidelines, 2014. Table 1, CT1 & CT2
Results for TRH have been compared to TPH guidelines.
Guidelines reported for Chromium are for Chromium VI

Results shown in ***BOLD*** are in excess of the General Solid Waste criteria
Results shown in ***shading*** are in excess of the Restricted Solid Waste criteria
Where summation required (Xylene, TRH, PAH, Pesticides, Scheduled Chemicals) calculation includes components reported as non detected as 1/2 PQL

TIER 1 - Total Concentrations WITHOUT Leaching Test

Sample Identification	PQL	Total Concentration [A]		BH10(HA)	BH10a(HA)	BH10b(HA)	BH10c(HA)	TP1	TP1a	TP1b	TP2	TP2a	TP2b	TP2c
Depth		General Solid	Restricted Solid	0.1	0.8	1.1	1.3	0	0.6	1	0	0.4	0.7	1.3
Sample Date				9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023	9/06/2023
Sample Profile				FILL, CLAY, medium plasticity, brown, with sand and gravel	FILL, CLAY, medium plasticity, brown, with sand and gravel	TOPSOIL, SILT, low plasticity, brown	Clayey SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, orange-brown	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	Extremely Weathered Granite, properties of Silty SAND, fine to coarse grained, orange-brown, with clay	FILL, Silty SAND, fine to coarse grained, brown	FILL, Silty SAND, fine to coarse grained, brown	TOPSOIL, SILT, low plasticity, brown	Silty SAND, fine to coarse grained, brown, with clay and lenses of extremely weathered material
Sample Purpose				Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation	Characterisation
Sample collected by				RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC	RCA - RC
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)														
Benzene	0.2	10	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	288	1152	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5	600	2400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene	1	1000	4000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total Recoverable Hydrocarbons (TRH)														
TRH C_6-C_9	--	650	2600	--	--	--	--	--	--	--	--	--	--	--
TRH C_{10}-C_{36}	250	10000	40000	125	125	125	125	125	125	125	125	125	125	125
Polycyclic Aromatic Hydrocarbons (PAH)														
Benzo(a) pyrene	0.5	0.8	3.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sum of Reported PAH	8	200	800	4	4	4	4	4	4	4	4	4	4	4
Metals														
Arsenic	5	100	400	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	0.4	20	80	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	2	100	400	18	39	31	39	19	19	24	12	15	10	13
Mercury	0.1	4	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	5	100	400	17	9	11	8	11	10	10	11	14	8	8
Nickel	2	40	160	7	16	12	14	6	8	10	9	10	4	8
Pesticides														
Chlorpyrifos	0.05	4	16	--	--	--	--	<0.05	--	--	--	--	--	--
Endosulfan (sum)	0.1	60	240	--	--	--	--	0.05	--	--	--	--	--	--
Moderately Harmful Pesticides														
Dichlorvos, Dimethoate, Ethion, Fenthion, Malathion, Parathion-methyl	0.45	250	1000	--	--	--	--	0.225	--	--	--	--	--	--
Scheduled Chemicals														
Aldrin, alpha-BHC, beta-BHC, delta-BHC, 4.4`-DDD, 4.4`-DDE, 4.4`-DDT, Dieldrin, Endrin, Endrin aldehyde, gamma-BHC Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Chlordane	0.95	50	50	--	--	--	--	0.475	--	--	--	--	--	--
Herbicides														
Triclopyr	0.02	40	160	--	--	--	--	<0.02	--	--	--	--	--	--
Picloram	0.02	60	240	--	--	--	--	<0.02	--	--	--	--	--	--
Fluroxypyr	0.02	40	160	--	--	--	--	<0.02	--	--	--	--	--	--
Other Phenoxy Acid Herbicides	0.22			--	--	--	--	0.11	--	--	--	--	--	--
Tier 1 Sample Classification				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste
Potential Tier 2 Sample Classification (subject to leachate analysis)				General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste	General Solid Waste

All total results are in units of mg/kg
PQL = Practical Quantitation Limit.
Blank Cell indicates no criterion available
[A] NSWEPA Waste Classification Guidelines, 2014. Table 1, CT1 & CT2
Results for TRH have been compared to TPH guidelines.
Guidelines reported for Chromium are for Chromium VI

Results shown in ***BOLD*** are in excess of the General Solid Waste criteria
Results shown in ***shading*** are in excess of the Restricted Solid Waste criteria
Where summation required (Xylene, TRH, PAH, Pesticides, Scheduled Chemicals) calculation includes components reported as non detected as 1/2 PQL