



Oatlands Golf Club  
Preliminary Site Investigation

Oatlands Golf Course  
94 Bettington Road, Oatlands NSW 2117

27 October 2021  
60383/141615 (Rev 0)  
JBS&G Australia Pty Ltd

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## Abbreviations

Term	Definition
AEC	Areas of Potential Environmental Concern
AHD	Australian Height Datum
ASS	Acid Sulfate Soils
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CLM Act	Contaminated Land Management Act 1997
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DA	Development Application
DCP	Development Control Plan
DD	Due Diligence
DP	Deposited Plan
DPI	Department of Primary Industries
EPA	NSW Environment Protection Authority
JBS&G	JBS&G Australia Pty Ltd
LEP	Local Environmental Plan
LOR	Limit of Reporting
MGA	Map Grid of Australia
NATA	National Accreditation Testing Authority
NEPC	National Environment Protection Council
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per- and Poly- Fluoroalkyl Substances
POEO Act	Protection of the Environment Operations Act 1997
PSI	Preliminary Site Investigation
SEPP 55	State Environmental Planning Policy No. 55 – Remediation of Land
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compounds

## Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by Oatlands Golf Club (OGC, the client) for the provision of environmental services associated with a property located at 94 Bettington Road, Oatlands, New South Wales (NSW) 2117 (the site). The site forms part of the broader Oatlands Golf Course and is legally identified as Part Lot 100 DP 1243044 occupies an area of approximately 1.6ha. The site location and layout are shown on **Figures 1 and 2**, respectively.

This report has been prepared to form part of the Site Compatibility Certificate submission prepared by Urbis, as such OGC have requested JBS&G prepare a Preliminary Site Investigation (PSI) report detailing the environmental status of the site to support the Concept Plan Modification Application and to address the requirements of *State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)* and in accordance with NEPC (2013<sup>1</sup>).

The objectives of this investigation were to assess the potential for contamination based on current and historical site activities and to draw preliminary conclusions regarding the potential contamination status of the site to form part of the Site Compatibility Certificate, as per the requirements of SEPP 55.

The agreed scope of works completed as part of the assessment comprised; a review of available site history and background information to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPC); development and documentation of a conceptual site model (CSM) based on the available information; implementation of a preliminary intrusive investigation to target identified AECs and provide broad site coverage, and preparation of a PSI report in general accordance with relevant EPA Guidelines.

The site comprises an irregular shaped parcel of land bound by Bettington Road to the west, golfing greens to the north, east and south, beyond which are residential dwellings. The site currently comprises the existing Oatlands Golf Course Clubhouse facility and main carpark area including walkways, paths, and landscaped gardens. Vehicular access to the site was from Bettington Road to the northwest. The northernmost and southern portions of the site comprise part of the broader golf course greens, including turfed lawn, tee off podiums, sand bunkers etc. The central portion of the site is relatively flat with the northernmost portion of the site sloping to the northeast and the southmost portion of site sloping to the southeast.

Based on the findings of this investigation, and subject to the limitations in **Section 11**, the following observations are made:

- The site has historically been used as a private golf course since 1931, excluding a short period between 1942-1947 where the Australian Army occupied the site for housing. The golf clubhouse building has undergone multiple phases of renovation;
- It is noted portions of the original clubhouse appear to remain as part of the current configuration. Maintenance and development of the golf course has included re-configuration of site surfaces as part of golfing terrain design/shaping, which has likely included the use of site-won fill and/or importation of fill materials of unknown origin;
- The desktop review identified the potential for soil and groundwater impacts to be present at the site. The limited program of soil sampling identified the following:
  - Reported concentrations of COPC within soil samples were generally reported below the adopted human health criteria;

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<sup>1</sup> *National Environment Protection (Assessment of Site Contamination) Measure No. 1 2013*. National Environment Protection Council (NEPC 2013)

- Minor exceedances of the generic ecological criteria for heavy metals were reported at one location (BH3 0.08-0.18);
  - The laboratory limit of reporting (LOR) for some TRH fractions were raised in a number of samples, with <LOR results for TRH F2 fraction (TRH C<sub>10</sub>-C<sub>16</sub> less naphthalene) in samples HA01 (0-0.1) and BH3 (0.08-0.18) exceeding adopted ecological and human health criteria respectively, and likely attributed to asphalt/bitumen in the surface soil samples;
  - Fragments of bonded ACM were reported in fill at sample locations TP02 (0.5m) and TP03 (0-1.6m), within the southern portion of the site (golfing greens), with visible asbestos in surface soil exceeding adopted health criteria; and
  - Under the most sensitive land use scenario, building and demolition rubble may pose an unacceptable aesthetic issue (pursuant to NEPC (2013)), should materials be accessible to future site users.
- Groundwater samples reported heavy metals concentrations exceeding the 95% species protection limit for receiving waters, however concentrations were considered representative of urban environments and unlikely to represent an unacceptable risk to ecological receptors nor require remediation/management;
  - Whilst potential remains for additional contamination to be present at the site (beyond that which was identified by the limited intrusive investigation), the assessment did not identify the potential for gross or widespread contamination which may preclude redevelopment of the site in accordance with the proposed Concept Plan modification and associated residential use. Identified potential soil and groundwater impacts are considered representative of common contaminants and potentially contaminating land use activities which can be readily dealt with during the Development Application (DA) stage (i.e. including completion of detailed site investigations consistent with relevant Council Development Control Plans (DCPs) and SEPP 55 requirements) for redevelopment and assessment for site suitability; and
  - Based on the PSI, and subject to further investigations confirming the environmental condition of the site is consistent with this preliminary investigation, it is considered the site can be made suitable for the intended land use subject to development and implementation of an appropriate contamination management strategy, including remediation where required.

It is recommended that a detailed site investigation be undertaken at the next phase in accordance with SEPP 55.

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken on site structures prior to any demolition and redevelopment works for the site.

## 1. Introduction & Background

### 1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Oatlands Golf Club (OGC, the client) for the provision of environmental services associated with a property located at 94 Bettington Road, Oatlands, New South Wales (NSW) 2117 (the site). The site forms part of the broader Oatlands Golf Course and is legally identified as Part Lot 100 DP 1243044 occupies an area of approximately 15,500 m<sup>2</sup>. The site location and layout are shown on **Figure 1** and **2**, respectively.

*State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) and DUAP/EPA (1998) Planning Guidelines require consideration of contamination issues when assessing changes in land use(s) under proposed redevelopment scenarios. As such, OGC have requested JBS&G prepare a Preliminary Site Investigation (PSI) report detailing the environmental status of the site to support the Concept Plan Modification Application and to address the requirements of SEPP 55 and in accordance with NEPC (2013<sup>2</sup>). This report has been prepared to form part of the Site Compatibility Certificate submission prepared by Urbis Pty Ltd.

### 1.2 Objective

The objectives of the investigation are to assess the potential for contamination from current and historical site activities and to draw conclusions regarding the potential contamination status of the site to support the proposed Concept Plan, as per the requirements of SEPP 55.

It is noted that the objective of the investigation was not to determine site suitability, rather to assess potential contamination issues that may preclude the Concept Plan, specifically, contamination issues that cannot be readily addressed during the DA stages for redevelopment.

### 1.3 Scope of Work

The scope of works completed as part of the assessment included:

- A review of available site history and background information to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPC) including:
  - Review of current Section 10.7 Planning Certificates obtained from City of Parramatta (Council);
  - Historical aerial photographs;
  - Heritage records held by the Office of Environment & Heritage (OEH) and any local heritage information as may be publicly available via online sources;
  - Records of environmental incidents, former environmental licences, or contaminated land notices or notifications, as held by the Environment Protection Authority (EPA) including information with regards to per- and polyfluoroalkyl substances (PFAS) investigation programs;
  - Historical Land Titles;
  - Review the Fair-Trading NSW Loose-fill Asbestos Insulation Register;
  - Licensed groundwater bores present within a 1.5 km radius of the site; and
  - The environmental setting including information relating to topography, geology, soils and hydrogeology of the site and surrounding areas.

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<sup>2</sup> *National Environment Protection (Assessment of Site Contamination) Measure No. 1 2013*. National Environment Protection Council (NEPC 2013)

- Detailed site inspection to identify AECs and confirm desktop findings;
- Development and documentation of a conceptual site model (CSM) based on the available information;
- Advancement of four hand auger bore holes (HA01-HA04) and three test pit locations (TP01 to TP03) and soil sampling and analysis for a range of contaminants of potential concern (COPC);
- Additional sampling and analysis for a range of COPC from one geotechnical borehole advanced by others concurrent with JBS&G investigations (BH3);
- Gauging and sampling of two newly installed groundwater monitoring wells (MW01 and MW03) and analysis of samples for relevant COPC; and
- Preparation of this PSI report in general accordance with relevant EPA guidelines presenting the outcomes of the assessment and associated conclusions.

## 2. Site Condition & Surrounding Environment

### 2.1 Site Identification

The location of the site is shown in **Figure 1** and the current site layout is shown in **Figure 2**. The site details are summarised in **Table 2.1**.

**Table 2.1: Site Details**

Lot/DP	Part Lot 100 DP1243044 ( <b>Figure 2</b> )
Site Address	94 Bettington Road, Oatlands NSW 2117
Local Government Authority	City of Parramatta
Site Area	Approximately 1.55 ha
Site Zoning	RE2- Private Recreation (Parramatta Local Environmental Plan 2011)
Historical Land Use	Golf Course / Army Housing
Current Use	Oatlands Golf Course
Proposed Use	Mixed residential and recreational

### 2.2 Site Condition

The site currently comprises the existing Oatlands Golf Course Clubhouse facility and main carpark area including walkways, paths, and landscaped gardens. Vehicular access to the site was from Bettington Road to the northwest. The northernmost and southern portions of the site comprise part of the broader golf course greens, including turfed lawn, tee off podiums, sand bunkers etc. (as shown on **Figure 2**).

The central portion (club house / car park) of the site is relatively flat with the northern most portion of the site sloping to the northeast and the southmost portion of site sloping to the southeast.

### 2.3 Surrounding Land Use

The current land use of adjacent properties or properties across adjacent roads is summarised below.

- North – The site is bound to the north by greenways of the Oatlands Golf course and residential properties;
- South – The site is bound directly to the south by residential properties;
- East – The site is bound to the east by greenways of the Oatlands Golf course; and
- West – The site is bound to the west by Bettington Road and residential properties.

Based on the review of surrounding properties, no significant potentially contaminating land use activities were identified in close proximity to or upgradient of the site and there is considered to be a low risk of potential offsite contamination migration risk to the subject site.

### 2.4 Topography

The central northern portion of the site occupied by the existing carpark and clubhouse sit atop a topographical ridge with ground levels of 71 m Australian height datum (AHD) at the northwestern boundary (entry from Bettington Road) gently sloping to 68 m AHD to the east. Site levels in the southern and northernmost portions of the site notably fall away from the ridge line, with substantial relief noted in the southern portion of the site, with surface levels falling to 61 m AHD at the southern boundary.

The site appears to have been subject to cut/fill activities associated with the levelling of the carpark and clubhouse areas, as well as localised cut/filling associated with the establishment of the golfing greens (bunkers/tee off podiums etc.).

## 2.5 Geology and Soils

The site is underlain by Wianamatta Group Ashfield Shale, which typically comprises laminite and dark grey shale. Reference to the eSPADE NSW Soil and Land Information database (OEH 2021<sup>3</sup>) indicates that the site falls within the Glenorie erosional landscape, characterised by undulating to rolling hills on Wianamatta Group Shale. Soils are identified as shallow to moderately deep (<100 cm) red podzolic soils on crests with moderately deep red and brown podzolic soils on upper slopes. Yellow and gleyed podzolic soils are expected along drainage lines. Limitations comprise high soil erosion hazards, localised impermeable highly plastic soil which is moderately reactive.

## 2.6 Hydrology

A review of Nearmap<sup>4</sup> identified that the nearest surface water receptor to the site to be Vineyard Creek located approximately 250 m northeast of the site / 700 m to the south east of site. Vineyard Creek flows to the southeast before heading south entering into the Parramatta River, located 2.2 km to the south.

It is anticipated that surface water generated during periods of rainfall is likely to result in infiltration into the ground surface at a rate reflective of the silty clay low permeability soils and/or heterogeneous moderate permeability fill material. In sealed portions of the site, surface water is expected to be collected by local stormwater drainage networks before discharging into the stormwater drains present along Bettington Road. In periods of heavy or prolonged rainfall, excess water is anticipated to follow the topographic gradient of the area towards Vineyard Creek.

## 2.7 Hydrogeology

Licensed groundwater bore information obtained from the Water NSW groundwater mapping portal (Water NSW 2020<sup>5</sup>), included as **Appendix A**, indicated the closest registered bores were located at a property situated approximately 1.2 km southeast of the site. The bores were situated across Vineyard Creek and noting the varied regional topography with the site sitting at 44 m AHD in close proximity to the creek alignment, considered not to be consistent with anticipated site conditions.

Groundwater is anticipated to flow toward the south/south east, following the regional topographic gradient toward Vineyard Creek and subsequently Parramatta River to the south.

## 2.8 Acid Sulfate Soils

The site is not located in an acid sulfate soil (ASS) risk area according to the risk maps prepared by the Department of Land and Water Conservation.

With consideration to the geological and soil characteristics of the site, management of development activities is not required to address the potential for impact on ASS / potential acid sulfate soils (PASS).

## 2.9 Meteorology

A review of average climatic data for the nearest Bureau of Meteorology monitoring location (Parramatta North<sup>6</sup>) indicates the site is located within the following meteorological setting:

- Average minimum temperatures vary from 6.3 °C in July to 17.7 °C in January;
- Average maximum temperatures vary from 18.7 °C in July to 28.6 °C in January;

<sup>3</sup> 'eSPADE NSW Soil and Land Information', NSW Office of Environment and Heritage, Accessed 27 October 2021, <http://www.environment.nsw.gov.au/eSpade2Webapp>

<sup>4</sup> <https://www.nearmap.com/au/en>

<sup>5</sup> Water NSW, 2019. Groundwater Monitoring Overview Map. <https://realtimedata.waternsw.com.au/>. Accessed 25 October 2021.

<sup>6</sup> [http://www.bom.gov.au/climate/averages/tables/cw\\_066124.shtml](http://www.bom.gov.au/climate/averages/tables/cw_066124.shtml), Commonwealth of Australia, 2013 Bureau of Meteorology, Product IDCJCM0028 accessed by JBS&G on 25 October 2021.



- The average annual rainfall is approximately 966 mm with rainfall greater than 1 mm occurring on an average of 86.8 days per year; and
- Monthly rainfall varies from 45.6 mm in July to 126.2 mm in February.

### 3. Site History

#### 3.1 Aerial Imagery

Copies of aerial photographs are included in **Appendix B**.

The site has primarily been used as a private golf course since 1931, excluding a short period between 1942-1947 where the Australian Army occupied the site, housing approximately 1000 soldiers and officers of the Signals Corps. As evidenced by historic aerial images, the site contained a series of small structures (temporary living quarters) and other facilities to the east and south of the clubhouse associated with military occupation during this period. It is understood clubhouse facilities were used as a dining hall for the resident service men. By 1951, no evidence of military occupation remained, with camp areas, buildings, retaining walls and infrastructure to the east and south of the clubhouse having been removed.

The clubhouse building has undergone multiple phases of renovation, with alterations and additions to the original layout. It is noted portions of the original clubhouse appear to remain as part of the current configuration.

Maintenance and development of the golf course has included re-configuration of site surfaces as part of golfing terrain design/shaping.

#### 3.2 Council Records

Copies of Section 10.7 Planning Certificates 2 and 5 were obtained for the site from City of Parramatta Council and reviewed as part of this investigation, included as **Appendix C**.

The planning certificates outlined the following information pertaining to the site:

- The land is zoned RE 2 Private Recreation under Parramatta Local Environmental Plan (LEP, 2011);
- The land has not been identified as comprising soils classified as Class 1 or Class 2 ASS;
- The site is not affected by Section 38 or 39 of the *Coastal Protection Act 1979*;
- The land is not within a proclaimed mine subsidence district under Section 15 of the *Mine Subsidence Compensation Act 1961*;
- The land has not been certified as biodiversity certified land;
- NSW Office of Environment and Heritage mapping indicates this site may contain 'native vegetation' or is included on the 'Biodiversity Values Map' which are subject to Part 7 of the Biodiversity Conservation Act 2016;
- Part of the land:
  - comprises, or on which there is, a draft heritage item;
  - comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register or that is subject to an interim heritage order under the Heritage Act 1977 or is identified as an item of environmental heritage in an environmental planning instrument);
  - is identified by an environmental planning Instrument as being within environmentally sensitive land; and
  - is identified by an environmental planning Instrument as being within a riverfront area.
- The land has not been affected by a policy that restricts development of land because of likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulfate soils or any other risk (other than flooding);

- The land is affected by a 100 year Average Recurrence Interval flood as indicated by Council's current flooding information. Development on the site is subject to flood related development controls;
- The land has not been identified on the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation;
- The land is identified within a report published by the Department of Environment, Climate Change and Water (DECCW) (in April 2010) entitled 'James Hardie Asbestos Waste Contamination Legacy' (Report), or is similarly identified within a subsequent NSW Environment Protection Authority revision of that Report, as being within an area formerly used as an asbestos disposal site by James Hardie Industries, however JBS&G note the DECCW (2010) report itself indicates the area in question is the eastern side of the golf course bound by Rock Farm Ave and Adderton Rd, beyond the site area, and further that EPA found no visible evidence of asbestos;
- The land the subject of this certificate is potentially affected by contamination as indicated by Council's current information and records. As such Council is required to take this into account when determining any development application made in respect of the land;
- The land is not declared to be significantly contaminated land within the meaning of *Contaminated Land Management Act 1997*; and
- The land is not subject to a management order, a voluntary management proposal, ongoing maintenance order or a site audit statement and is not considered to be significantly contaminated to warrant regulation under the *CLM Act 1997*.

### 3.3 EPA Records

A search of the NSW EPA's database was undertaken on 5 February 2021 for the site and immediate surrounds. The search comprised review of the following:

- NSW EPA contaminated land public register of record of notices (under Section 58 of the *Contaminated Land Management Act 1997 (CLM Act)*);
- NSW contaminated sites notified to the EPA (under Section 60 of the *CLM Act*); and
- NSW EPA *Protection of the Environment Operations Act 1997 (POEO Act)* public register of licence, applications and notices (maintained under Section 308 of the *POEO Act*);
- EPA's public PFAS register

The search identified that, for the site and immediate surrounds, there were:

- No notices issued under Section 58 of the *CLM Act*;
- No notifications to the EPA under section 60 of the *CLM Act*.
- No licences or notices have been issued for the site under the *POEO Act*.
- No notifications to the EPA with regards to PFAS contamination.

Additionally, a search of the Unexploded Ordinance in Australia (UXO) resources indicated there was no manufacturing, training or storage of ammunitions on site. As discussed above, the site was utilised as a camp housing military personnel and vehicles.

EPA search results are included as **Appendix D**.

### 3.4 Loose-Asbestos Fill Register

A search of the Fair-Trading NSW Loose-fill Asbestos Insulation Register (LFAI register<sup>7</sup>) for the site address has indicated the site is not currently registered as being affected by the presence of LFAI. Results are included as **Appendix D**.

### 3.5 Historical Land Titles

Relevant details from a historical review of the land titles for the site are listed in **Table 3.1**. A copy of title search results is provided in **Appendix E**.

**Table 3.1: Summary of Historical Land Titles**

Date	Registered Proprietor
<b>As regards the part numbered (1) on the charting map extract Attachment E.</b>	
05.07.1926 (1926 to 1938)	Robert Goldrick (Nurseryman)
16.03.1938 (1938 to date)	# Oatlands Golf Club Limited
<b>As regards the part numbered (2) on the charting map extract Attachment E.</b>	
05.07.1926 (1926 to 1935)	William Goldrick (Nurseryman)
08.07.1935 (1935 to 1943)	Sarah Ann Goldrick (Widow)
08.05.1943 (1943 to 1947)	Sydney Alfred Goldrick (Tobacconist) Frances Goldrick (Married Woman)
12.11.1947 (1947 to 1960)	Beth Securities Pty Limited
01.06.1960 (1960 to date)	# Oatlands Golf Club Limited
<b>As regards the part numbered (3) on the charting map extract Attachment E.</b>	
31.05.1928 (1928 to 1960)	Albert Clyde Berk (Importer) Vida Davis Berk (Married Woman) Victor Bernard Audette (Investor) – Died 07.03.1933 Vivienne Berk Audette (Married Woman) Now Vivienne Berk Hauslaib (Married Woman)
01.07.1960 (1960 to 1960)	William Russell Hauslaib (Company Director) Vivienne Berk Hauslaib (Married Woman) Robert Berk Audette (Company Director)
01.06.1960 (1960 to date)	# Oatlands Golf Club Limited

### 3.6 Australian and NSW Heritage Register

A search of the Australian Heritage Trust database did not identify items of Australian or NSW historical significance on or in close proximity to the site.

A search of the NSW Heritage Inventory did not identify items of Australian or NSW historical significance on the site. The Oatlands House located approximately 50 m east of the site is identified on the NSW Heritage Inventory.

Review of Section 10.7 planning certificates for the site identified heritage items at part of the site.

The review of historical registers is included as **Appendix F**.

### 3.7 Summary Site History and Integrity Assessment

A combined review of available historical information indicates that the site has historically been used as a private golf course since 1931, excluding a short period between 1942-1947 where the

<sup>7</sup> <https://www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register> accessed 31 August 2021

Australian Army occupied the site for housing. It is understood clubhouse facilities were used as a dining hall for the resident service men. By 1951, no evidence of military occupation remained, with camp areas, buildings, retaining walls and infrastructure to the east and south of the clubhouse having been removed.

The clubhouse building has undergone multiple phases of renovation. It is noted portions of the original clubhouse appear to remain as part of the current configuration. JBS&G consider there is the potential for hazardous building materials (asbestos containing materials (ACM), lead paint etc.) to have been used in construction of current/former site structures. Fallout of hazardous materials may have impacted surrounding soils.

Maintenance and development of the golf course has included re-configuration of site surfaces as part of golfing terrain design/shaping, which has likely included the use of site-won fill and/or importation of fill materials of unknown origin. It is considered possible that reconfiguration of site levels occurred ancillary to the demolition of former site structures (buildings/walls) which may have contained hazardous building materials in the southern portion of the site/former army camp area.

No significant potentially contaminating land use activities were identified in close proximity to or upgradient of the site and there is considered to be a low risk of potential offsite contamination migration risk to the subject site.

Based on the range of sources and the general consistency of the historical information along with historical aerial photographs, it is considered that the historical assessment has an acceptable level of accuracy with respect to the potentially contaminating activities historically occurring at the site.

## 4. Conceptual Site Model

Based on the site setting and history review areas of environmental concern and potential contaminants of concern have been identified for the site, as presented in **Table 4.1**.

**Table 4.1: Potential AECs and Associated COPC**

AEC	COPC
Historical and existing site structures	Heavy metals (specifically lead paint and lead dust), and asbestos
Fill materials of unknown origin used to create existing site levels	Heavy metals, PAH, TRH/ BTEX, OCPs, PCBs and asbestos

### 4.2 Potentially Contaminated Media

Potentially contaminated media present at the site include:

- Surface soils;
- Fill materials;
- Natural soils/bedrock;
- Groundwater; and
- Soil vapours.

Where fill materials are present to depth, or soils have been disturbed, there is a likelihood that environmental impact may be present at depth, consistent with the depth of the disturbance. Anthropogenic materials are commonly present in impacted fill materials and can be used as an indication of the depth of disturbance. Where fill materials impacted with chemical based contaminants are identified, there is a likelihood the impact may have migrated laterally and vertically below the fill material.

With the exception of asbestos, each of the COPCs identified in **Table 4.1** for the site have the potential to migrate from shallow soils into groundwater.

### 4.3 Potential for Migration

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is determined by the following factors:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review for the site and broader surrounds are generally in either a solid form (e.g. heavy metals, asbestos, etc.) or liquid form (e.g. fuel, lubricants, etc.), however, dependent upon concentrations, there is the potential for impacts from volatile COPC impacts to occur in a vapour form also in soils and groundwater underlying the site.

As the site is primarily paved with hardstand pavements or vegetated with turfed lawns and vegetated garden beds, the potential for windblown dust migration of contamination from the site is generally low. Where soil may be exposed (such as within the walls of depressed sand bunkers forming part of the golfing green) there is a moderate potential of windblown dust migration. The potential for contamination migration via surface water movement and infiltration of water and subsequent migration through the soil profile is considered generally to be low in areas of hardstand

ground covering (car park and buildings). The potential is considered to be moderate to high in unsealed areas, specifically the northern and southern golfing greens, noting the underlying natural geology comprising relatively impermeable silty/sandy clays are anticipated to reduce the rate of surface water infiltration and vertical migration (**Section 2.5**).

Given the potential for perched groundwater along the soil-rock interface and/or within fill materials across the site, migration of contamination via groundwater movement is considered to be a potential migration pathway, albeit moderate (based on underlying geology).

The vapour generation potential associated with volatile and semi-volatile COPC is identified as a potential migration pathway, particularly in areas of subsurface infrastructure, that underlie the site, and within areas identified to contain fill materials.

#### **4.4 Potential Exposure Pathways**

Based on COPC identified in various media, as discussed above, and proposed site development activities, the exposure pathways for the site during and following development works include:

- Inhalation of potential COPC including vapours and fibres migrating from fill material of unknown origins or impacted surface soils; and/or
- Potential dermal and oral contact to impacted soils as present at shallow depths and/or accessible by future service excavations across the extent of the site; and/or
- Potential oral and dermal contact to shallow groundwater as accessible by potential future service excavations and/or installed services pits; and/or
- Potential contaminant uptake by vegetation within landscaped areas; and/or
- Potential offsite exposure to users of the aquatic ecosystem of Vineyard Creek and in turn Parramatta River (located hydro-geologically down gradient of the site).

#### **4.5 Receptors**

Potential receptors of environmental impact present within the site which may need to be addressed with respect to the suitability of the site for the proposed use include:

- Future workers of non-paved areas (landscapers, residents, construction works) and residents/occupants whom may potentially be exposed to COPC through direct contact with impacted soils and/or inhalation of dusts / fibres associated with impacted soils; and/or
- Residents / excavation / construction / maintenance and landscaping workers conducting activities at the site, who may potentially be exposed to COPC through direct contact with impacted soils present within excavations and/or inhalation of dusts from unsealed areas / fibres associated with impacted soils;
- Flora species to be established on the vegetated areas of the site; and/or
- The aquatic ecosystem of Vineyard Creek and in turn Parramatta River which is located hydro-geologically down gradient of the site.

Where petroleum or other volatile COPC impact is identified, potential inhalation exposure to vapours will need to be considered.

#### **4.6 Preferential Pathways**

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPC as either liquids or gasses/vapours.

Man-made preferential pathways are present throughout the site, generally associated with fill materials present beneath existing ground surface, and at near surface depths over the remainder of

the site. Fill materials are anticipated to have a higher permeability than the underlying natural soil and/or bedrock.

Sub-surface services are also likely present throughout the site at near surface depths, including any potential stormwater pipelines that discharge from the site to Bettington Road or off-site to the east. Preferential pathways can be formed by the generally higher permeability backfill used to re-instate these trenches and backfill along Bettington Road.

Preferential pathways are also important in the assessment of potential off-site sources of COPC. Preferential pathways are potentially present in the adjoining road network, as associated with service easements, and also as associated with the underlying geology of the site and broader surrounds (soil/rock interface).



## 5. Limited Intrusive Investigation

Based on the site inspection, known site history and project objectives, a preliminary soil and groundwater sampling program was conducted as part of the PSI. The soil sampling locations were selected in order to target some AECs whilst providing broad site coverage also (i.e. systematic sample locations) in accordance per EPA (1995<sup>8</sup>). Sample locations are shown on **Figure 3**.

The sampling program was developed with respect to the objectives to determine if there are any contamination issues from historical and/or current potentially contaminating activities that would prohibit the proposed Concept Plan for the site.

### 5.1 Soil Assessment

A total of 9 investigation locations were advanced across the site, as shown on **Figure 3**. Soil samples were collected from a combination of manually advanced bore holes using a hand auger or test pits via the use of a 5 tonne excavator. At one location (BH3, advanced by a geotechnical consultant), soil samples were collected via a drill rig with solid flight auger attachments. Soil samples were generally collected from the near ground surface (0-0.1 m bgs) and subsurface (0.3 m bgs / 0.5 m bgs / 1.0 m bgs and every 0.5 m interval after) to a max depth of 10.53 m bgs during well installation.

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indicators of contamination, if present, were noted. Field logs are included in **Appendix G**.

Collected samples were immediately transferred to laboratory supplied sample jars/zip-lock bags. The sample jars/zip-lock bags were transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded with the samples to the testing laboratory. Preservation of the primary soil and quality assurance/quality control (QA/QC) samples obtained during this investigation was completed in accordance with the protocols outlined in NEPC (2013).

Soil samples were analysed in accordance with the laboratory schedule (**Table 5.3**). Not all soil samples collected were analysed. All samples will remain at the primary laboratory for a period of two months if future analysis is required following receipt of sample results, providing analytes are within holding times.

#### 5.1.1 Field Screening

Soil samples were screened on site during works using a photo-ionisation detector (PID) to assess the potential presence of VOCs including petroleum hydrocarbons. Samples obtained for PID screening were placed in a sealed plastic bag for a period of approximately 5 minutes to equilibrate, prior to a PID being attached to the bag. Readings were then monitored for a period of approximately 1 minute or until values stabilised and the stabilised/highest reading was recorded. PID screening results were recorded on the field logs included as **Appendix G**. PID calibration records are included **Appendix J**.

#### 5.1.2 Decontamination

Prior to the commencement of soil sampling activities, non-disposable sampling equipment, including augers, hand tools, etc were cleaned with a pressure water/detergent spray, rinsed with water and then air dried. The equipment was then inspected to ensure that no soil, oil, debris or other contaminants were apparent on the equipment prior to the commencement of works. A rinsate sample was collected during the sampling event to demonstrate the effectiveness of decontamination procedures.

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<sup>8</sup> *Sampling Design Guidelines*. Environment Protection Authority NSW, September 1995 (EPA 1995).

### 5.1.3 Duplicate and Triplicate Sample Preparation

Field duplicate and triplicate soil samples were obtained during sampling using the above sampling methods. The collected samples were then divided laterally into three samples within minimal disturbance to reduce the potential for loss of volatiles and placed in three glass jars or sample bags as appropriate. Each sample was then labelled with a primary, duplicate or triplicate sample identification before being placed in the same chilled esky for laboratory transport.

## 5.2 Groundwater Assessment

During the investigation, two groundwater monitoring wells (MW01 and MW03) were installed within the site area to assess potential groundwater contamination. Monitoring well locations shown on **Figure 3**.

The wells were constructed from 50 mm unplasticised polyvinyl chloride (uPVC) screen and casing, with appropriate gravel packs, bentonite seals, and lockable caps to complete the wells. The wells were then completed with steel gatic covers for trafficable environments.

Newly installed monitoring wells were developed following installation and prior to sampling via the use of Waterra's Inertial Footvalves and high-density polyethylene (HDPE) tubing to ensure adequate connection to the aquifer and remove sediment disturbed during well installation. During development, the wells were rapidly purged and then allowed to recharge.

All monitoring wells were sampled using the following procedure:

- Prior to sampling, groundwater levels were gauged with an interface probe (IP) to assess standing groundwater levels (SWLs) and the potential presence of non-aqueous phase liquid (NAPL) within the groundwater well;
- Following gauging, HydraSleeves were placed in each well using PFAS free equipment. Each HydraSleeve remained in each well for a period of more than 24 hours before being removed for sampling. Groundwater collected from each HydraSleeve was transferred directly into laboratory supplied PFAS free sampling containers and placed in a chilled esky for transport to the laboratory. PFAS sampling was conducted in general accordance with the Heads of EPAs Australia and New Zealand (HEPA) *PFAS National Environment Management Plan (NEMP) (Version 2.0)* (HEPA, 2020);
- Following PFAS sampling, low flow pumping was undertaken with a peristaltic pump using new disposable silicone tubing and disposable low-density polyethylene (LDPE) tubing for sampling at each monitoring well to remove standing/static water. The LDPE tubing was lowered to a maximum depth of two-thirds of the wetted screen length of the monitoring well prior to the commencement of purging;
- Purging of groundwater was then undertaken generally at a rate of 1L to 2L per minute while ensuring that the excessive drawdown did not occur (as measured by interface probe) during the pumping event;
- Measurement of field parameters including pH, conductivity, redox potential, dissolved oxygen and temperature was completed at a frequency of once every 1 to 5 minutes dependent on the purging rate, using a multi-parameter probe/meter and a flow cell;
- During the development, purging and sampling, features such as discolouration, staining, odours and other indications of contamination were noted of field forms;
- Groundwater samples were obtained using the low-flow peristaltic pump once readings of field parameters (pH, dissolved oxygen, electrical conductivity and redox potential) had stabilised;

- Collected groundwater samples were immediately transferred to sample containers of appropriate composition, which had been pre-treated in a manner appropriate for the laboratory analysis. Groundwater samples were obtained in a manner that ensures no headspace remained in the bottles, and where appropriate were filtered in the field prior to preservation;
- Each of the sample bottles were labelled with the project ID, date, sampler's initials and unique monitoring well ID (or QC sample name), using permanent ink marker on labels affixed to the sides of the bottles by the laboratory;
- All bottles were placed directly into a pre-chilled ice chest, for transport to the testing laboratories; and
- Chain of custody documentation were completed for each batch of samples relinquished to the laboratory and included: sample ID; number of bottles/vials; media type (i.e., water); project ID; name; date; and time of sampling and relinquishment.

At the completion of sampling at each location, single use sampling equipment was disposed of and re-useable equipment that potentially contacted groundwater including the interface probe was decontaminated as per the general procedures discussed above for non-disposable soil sampling equipment. Rinsate samples were collected to demonstrate the effectiveness of decontamination procedures. In addition, a single duplicate and triplicate sample were collected at a select location, for QA/QC purposes.

### 5.3 Laboratory Analysis

JBS&G subcontracted Eurofins MGT Ltd (Eurofins) as the primary laboratory for the required analyses. The secondary laboratory for the works was Envirolab Services Pty Ltd (Envirolab). Both laboratories are NATA accredited for the required analyses. Laboratory analysis of samples was conducted with reference to COPCs identified for the site. The analytical schedule adopted for the investigation is summarised in **Table 5.3** below.

**Table 5.3: Analytical Schedule**

Sample Media	No. of Investigation Locations	No. of Analyses (excl. QA/QC)
Soil	10	Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) – 7 samples TRH/BTEX – 5 samples PAH – 6 samples VOCs – 5 samples OCPs/PCBs – 3 samples Herbicides/fungicides – 3 samples PFAS – 5 samples Asbestos – 10 samples
Groundwater	2	Heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) – 2 samples TRH/BTEX – 2 samples PAH – 2 samples VOCs – 2 samples PFAS – 2 samples Ammonia – 2 samples

## 6. Assessment Criteria

### 6.1 Regulatory Guidelines

The investigation was undertaken with consideration to aspects of the following guidelines, as relevant:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013*, National Environment Protection Council (NEPC 2013);
- *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*, 3rd Edition. NSW EPA, October 2017 (EPA 2017);
- *Contaminated Sites: Sampling Design Guidelines*, NSW EPA, 1995 (EPA 1995);
- *Guidelines for Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*, NSW EPA, May 2020 (EPA 2020);
- *Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination*, NSW Department of Environment and Conservation, March 2007 (DEC 2007);
- *Australia and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG 2018);
- *Waste Classification Guidelines Part 1: Classifying Waste*. NSW EPA, November 2014 (EPA 2014a); and
- *PFAS National Environmental Management Plan (NEMP) (Version 2.0)*, Heads of EPAs Australia and New Zealand (HEPA), January 2020 (HEPA 2020).

### 6.2 Assessment Criteria

#### 6.2.1 Soil Assessment Criteria

The proposed Concept Plan provides a most sensitive land use scenario equivalent to a residential with accessible soil (HIL-A, NEPC 2013). Concentrations of contaminants in soil were compared against Health Investigation Levels (HILs) and Health Screening Levels (HSLs), and Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs), as outlined below:

- HILs: HIL A – residential with accessible soil;
- HSLs: HSL A – residential with accessible soil (clay– fine textured soils);
- EILs and ESLs: residential with accessible soil (aged soils);
- Management Limits for residential with accessible soil (clay – fine textured soils) (NEPC 2013); and
- Aesthetic considerations as per NEPC (2013).

PFAS in soil was compared to the HEPA (2020) criteria.

#### 6.2.2 Groundwater Assessment Criteria

Groundwater analytical data has been compared against the following groundwater criteria:

- Default guideline values (DGVs) for 95% species protection in freshwater ecosystems presented in ANZG (2018<sup>9</sup>);
- GIL for recreational water as presented in NEPM (2013);

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<sup>9</sup> *Australia and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian Government 2018 (ANZG 2018)

- Groundwater HSLs for vapour intrusion for Low to High Density Residential and Recreational Open Space (2 m -<4 m); and
- PFAS Tier 1 Screening Levels for the 95% protection of freshwater ecosystems presented in NEMP (2020).

Consideration was given to groundwater investigation levels (GILs) for drinking water, as presented in NEPC (2013). Notwithstanding, GILs for drinking water were not considered applicable to the investigation outlined herein due to the reported saline nature of groundwater underlying the site and as such lack of beneficial re-use as potable water and/or re-use under proposed future land use(s).

## **7. Quality Assurance / Quality Control**

An assessment of QA/QC was undertaken by calculation of DQIs for the data generated as part of the assessment activities.

The field sampling, inspection and handling procedures produced QA/QC results which indicated that the data set is of an acceptable quality and suitable for use in the assessment.

The NATA certified laboratory results indicate that the project laboratories were generally achieving levels of performance within their recommended control limits during the period when the samples from this program were analysed.

On the basis of the results of the field and laboratory QA/QC program, the data set is of an acceptable quality upon which to draw conclusions regarding the environmental condition of the site.

## 8. Results

### 8.1 Field Observations

#### 8.1.1 Soil Observations

Fill materials identified during the intrusive investigation were noted to depths of between 0.2 m below ground surface (bgs) at TP01 and 1.6 m bgs at TP03 (within areas of filled topographic features). Fill materials generally comprised a heterogeneous brown/red gravelly/sandy clay with varied inclusions of slag, igneous, quartz and shale gravel. Silty sands were identified in areas, albeit to a limited extent.

A distinct fill profile containing glass, slag, brick, concrete and bonded ACM was identified at two locations in the southern portion of the site (TP02 and TP03). Both locations were advanced within accessible areas which were visually raised/filled to facilitate the design/layout of the golf course (tee off areas/drainage embankment). Additional filled areas in vicinity of these locations were identified, however given access restrictions were unable to be inspected as part of the investigation outlined herein.

Natural soil comprising and orange grey mottled clay was noted underlying fill, with siltstone/shale bedrock noted to the maximum depth of the investigation (<10 m bgs).

#### 8.1.2 Groundwater Observations

Stabilised groundwater parameters as measured in the field prior to the collection of groundwater samples during the groundwater monitoring event (GME) are presented in **Table 8.1**.

**Table 8.1 Groundwater Parameters**

Well ID	DO (mg/L)	EC (µs/cm)	pH	Redox (mV)	Temperature (°C)
MW01	0.05	700	5.58	78.0	20.4
MW03	1.41	420	5.51	181.3	22.9

Groundwater was generally observed to be slightly turbid (grey) to clear/colourless. No odours or sheen were observed at any groundwater monitoring location. Standing groundwater levels were reported at between 2.960 m below top of casing (btoc) (MW03) and 3.980 m btoc (MW01).

### 8.2 Analytical Results

The following sections provide a summary of analytical results reported as part of the investigation outlined herein. Exceedances of assessment criteria presented in **Section 6** are shown in summary tables provided in **Appendix H**. Detailed laboratory certificates of analysis are included in **Appendix I**. Calibration forms are provided in **Appendix J**.

#### 8.2.1 Soil Analytical Results

##### 8.2.1.2 Heavy Metals

All samples submitted for analysis reported concentrations of heavy metals below the adopted criteria with the exception of copper, nickel and zinc marginally exceeding the generic ecological criteria at one location (BH3 0.08-0.18). A summary of reported exceedances is provided in **Appendix H**.

##### 8.2.1.3 TRH/BTEX

All TRH/BTEX concentrations were below the adopted human health, management limit and ecological assessment criteria with the exception of the following:

- Sample HA01 0-0.1 with a LOR for F2 TRH C<sub>10</sub>-C<sub>16</sub> less naphthalene reported as <250 mg/kg, exceeding the Ecological Screening Level (ESL) criterion of 120 mg/kg; and

- Sample BH3 0.08-0.18 with a LOR for F2 TRH C<sub>10</sub>-C<sub>16</sub> less naphthalene reported as <500 mg/kg, in exceedance of the adopted vapour intrusion (0-1m) Health Screening Level (HSL) criterion of 280 mg/kg.

The laboratory reported that raised LORs were due to matrix interference. This may be a result of the presence of asphalt/bitumen surface materials in these immediately underlying soil samples.

#### **8.2.1.4 PAHs**

All PAH concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.1.5 OCP/PCB**

All OCP/PCB concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.1.6 Herbicides/Fungicides**

All herbicide/fungicide concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.1.7 VOC**

All VOC concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.1.8 PFAS**

All PFAS concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.1.9 Asbestos**

All concentrations were below the adopted HSL for asbestos in soils and the laboratory LOR.

Suspected ACM fragments identified in TP03 (0-0.1, 0.5-0.6 and 1.0-1.1) and TP02 (0.7-0.8) were confirmed as containing asbestos fibres. The presence of visible ACM in surface soils exceeds adopted health criteria.

### **8.2.2 Groundwater Analytical Results**

#### **8.2.2.2 Heavy Metals**

Both locations (MW01 and MW03) reported concentrations of copper and zinc in exceedance of the 95% protection limit for freshwater species. Sample MW01 also reported a concentration of nickel of 0.012 mg/L marginally exceeding the criterion of 0.011 mg/L. A summary of reported exceedances is provided in **Appendix H**.

#### **8.2.2.3 TRH/BTEX**

All TRH/BTEX concentrations were below the adopted human health, management limit and ecological assessment criteria.

#### **8.2.2.4 PAHs**

All PAH concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.2.5 OCP/PCB**

All OCP/PCB concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.2.6 Ammonia**

Ammonia concentrations were below the adopted human health and ecological assessment criteria.



#### **8.2.2.7 VOC**

All VOC concentrations were below the adopted human health and ecological assessment criteria.

#### **8.2.2.8 PFAS**

All PFAS concentrations were below the adopted human health and ecological assessment criteria.

## 9. Discussion

Minor exceedances of the generic ecological criteria for heavy metals were reported at one location (BH3 0.08-0.18) and several TRH fractions reported elevated LORs in sample HA01 (0-0.1) exceeding the ESL, which may relate to asphalt in the sample. Minor exceedances of the ecological criteria are considered not to have a material bearing on the proposed Concept Plan.

Reported concentrations of COPC within all soil samples were generally reported below the adopted human health criteria. Visible ACM in surface soils (0-0.1 m) exceeds the adopted HSL.

The laboratory LOR was raised for several TRH fractions in sample BH3 0.08-0.18, with the LOR for F2 TRH C<sub>10</sub>-C<sub>16</sub> less naphthalene exceeding the adopted vapour intrusion (0-1m) HSL. The laboratory reported that raised LORs were due to matrix interference. JBS&G note the sample (BH2 0.08-0.18) contained bituminous gravels and asphalt, which are known sources of TRH. Field PID screening did not indicate the presence of significant volatile contamination, consistent with the heavier end fraction hydrocarbon constituents of such source material. The respective LOR in exceedance of the adopted criterion is unlikely to impact development considerations under the proposed Concept Plan (it is anticipated excavation and removal of fill material at sample location BH3 0.08-0.18 will occur).

Fragments of bonded ACM were reported in fill at sample locations TP02 (0.5m) and TP03 (0-1.6m), within the southern portion of the site (golfing greens). Fill materials were observed to form part of established topographical features associated with the golf course design/construction, including raised/levelled tee off podiums (TP02) and a contoured drainage embankment. Fill at both locations contained varied inclusions of slag, glass and building/demolition wastes (brick and concrete).

The presence of building wastes and ACM within fill material within the southern portion of the site may be attributed to former site structures in this area and/or general uncontrolled filling. It is noted access restrictions and limitations of the investigation precluded a detailed inspection of other filled areas in the southern portion of the site. As a conservative measure, JBS&G consider that other fill materials in this area utilised to establish current site levels are potentially impacted to varied degrees with asbestos and building wastes.

Under the most sensitive land use scenario, building and demolition rubble may pose an unacceptable aesthetic issue (pursuant to NEPC (2013)), should materials be accessible to future site users.

Heavy metals concentrations in groundwater are considered representative of urban environments and not considered to pose a risk to ecological receptors nor require remediation/management.

## 10. Conclusions & Recommendations

### 10.1 Conclusions

Based on the findings of this investigation, and subject to the limitations in **Section 11**, the following observations are made:

- The site has historically been used as a private golf course since 1931, excluding a short period between 1942-1947 where the Australian Army occupied the site for housing;
- The golf clubhouse building has undergone multiple phases of renovation. It is noted portions of the original clubhouse appear to remain as part of the current configuration. Maintenance and development of the golf course has included re-configuration of site surfaces as part of golfing terrain design/shaping, which has likely included the use of site-won fill and/or importation of fill materials of unknown origin;
- The investigation identified the potential for soil and groundwater impacts to be present at the site, however, the investigation did not identify the potential for gross or widespread contamination which may preclude redevelopment of the site in accordance with the proposed Concept Plan modification and associated residential use. Identified potential soil and groundwater impacts are considered representative of common contaminants and potentially contaminating land use activities which can be readily dealt with during the Development Application (DA) stage (i.e. including completion of detailed site investigations consistent with relevant Council Development Control Plans (DCPs) and SEPP 55 requirements) for redevelopment and assessment for site suitability; and
- Based on the PSI, the site is capable of being suitable for the proposed land use.

### 10.2 Recommendations

It is recommended that a detailed site investigation (DSI) be undertaken at the next phase in accordance with SEPP 55.

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken prior to any demolition and redevelopment works for the site.

## 11. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

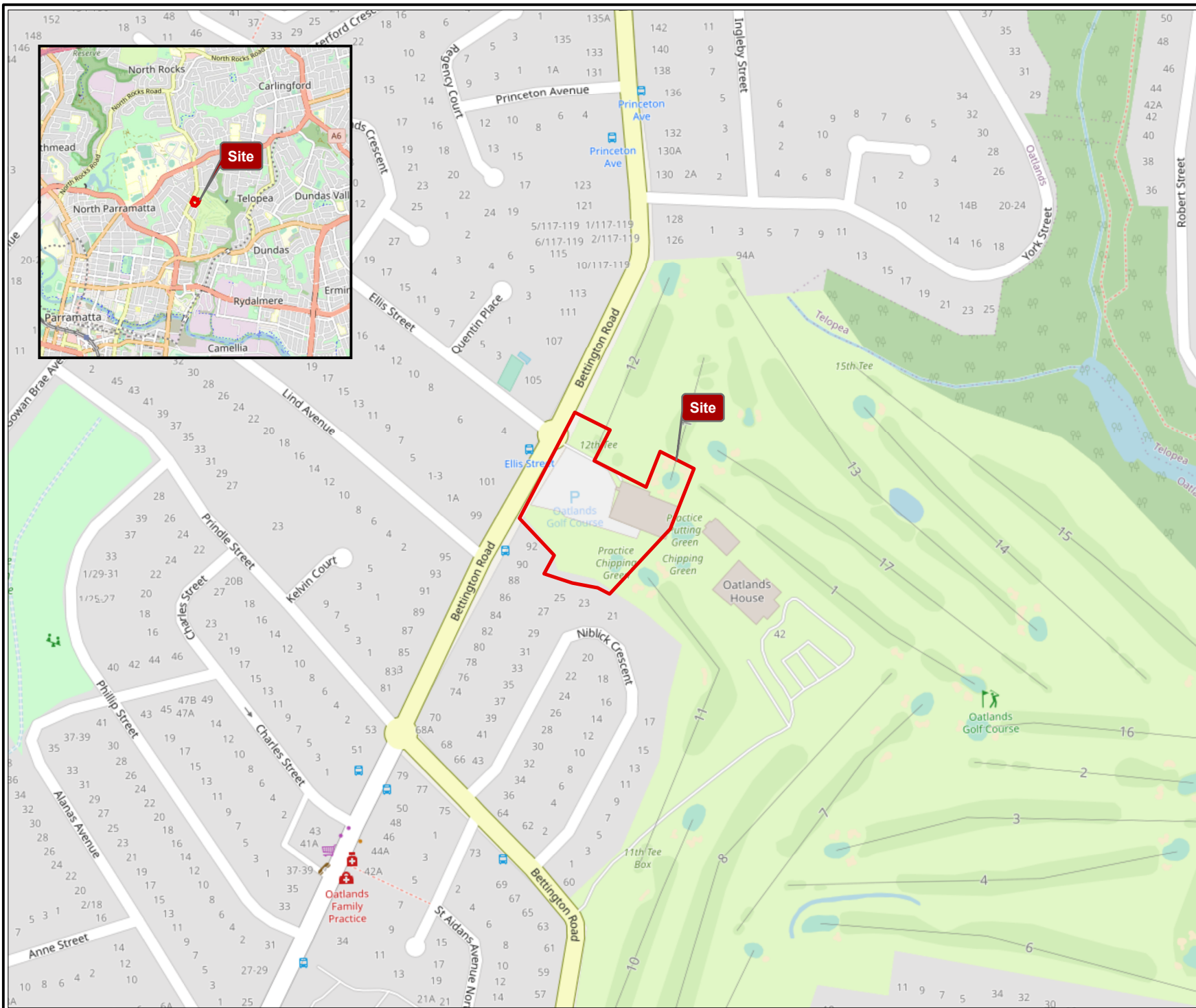
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

## Figures



## Legend

  Approximate Site Boundary - Part Lot 100 DP1243044



Job No: 60383

Client: Oatlands Golf Club

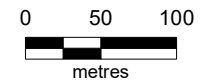
Version: R01 Rev A

Date 26/10/2021

Drawn By: JZ/RF

Checked By: EH

Scale 1:5,000



Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**SITE LOCATION**

**FIGURE 1**





# Legend

- Approximate Site Boundary - Part Lot 100 DP1243044
- NSW Cadastre (DFS1, 2021)

## Site Features

- Slopes



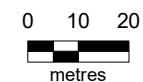
Job No: 60383

Client: Oatlands Golf Club

Version: R01 Rev A Date 26/10/2021

Drawn By: JZ/RF Checked By: CK

Scale 1:1,500



Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course**  
**Oatlands, NSW**

**SITE LAYOUT**

**FIGURE 2**





## Legend

- Approximate Site Boundary - Part Lot 100 DP1243044
- NSW Cadastre (DFS1, 2021)
- Historical Sample Locations**
  - Geotechnical Borehole
  - JBS&G Borehole
  - JBS&G Groundwater Monitoring Well
  - ACM identified in Fill



Job No: 60383

Client: Oatlands Golf Club

Version: R01 Rev A Date 26/10/2021

Drawn By: JZ/RF Checked By: CK

Scale 1:1,500



0 10 20  
metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course**  
**Oatlands, NSW**

**SAMPLE LOCATIONS**

**FIGURE 3**



## Appendix A Groundwater Search

## Daily River Reports

[Daily River Reports](#)

## Dams

[favourites](#) [search](#)

[download sites](#) [find a site](#)

[Real Time Data - Major Dams](#)

## Groundwater (Telemetered data)

[favourites](#) [search](#)

[download sites](#) [find a site](#)

[Real Time Data - Bores](#)

## All Groundwater Site details

[search](#) [download sites](#)

[find a site](#) [search by licence](#)

[All Groundwater Map](#)

## Meteorology

[favourites](#) [search](#)

[download sites](#) [find a site](#)

[Real Time Data - Weather Statio...](#)

## Hunter Integrated Telemetry System

[Hunter Integrated Telemetry Sys...](#)

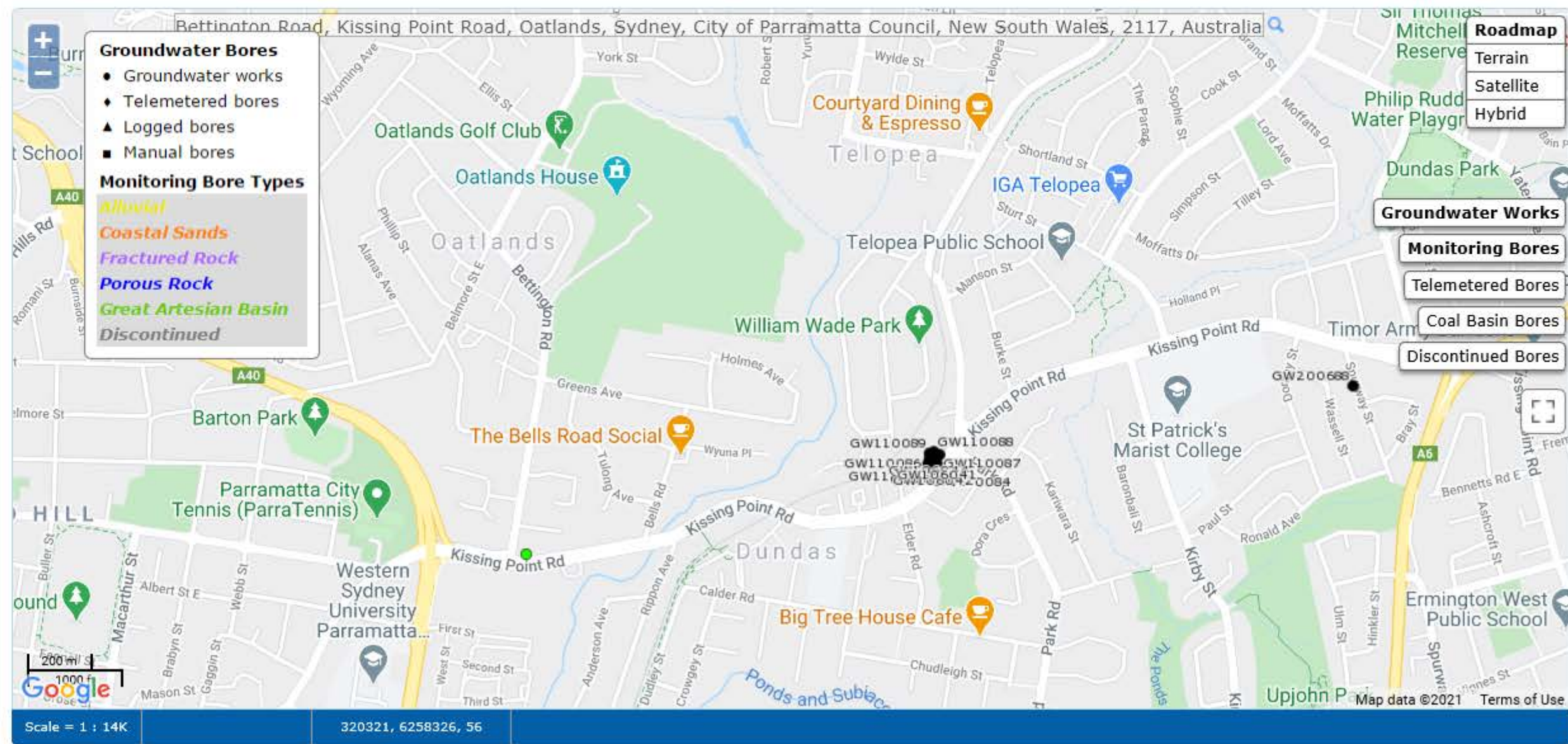
All Groundwater Site Details

# ALL GROUNDWATER MAP

All data times are Eastern Standard Time

Map

Info



[bookmark this page](#)

## **Appendix B Historical Aerial Imagery**





# Legend

Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

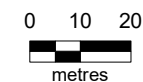
Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500




Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 1943**

**FIGURE 1943**

**Legend**

 Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials


Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



0 10 20  
  
metres

Coord. Sys. GDA 1994 MGA Zone 56


**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 1951**

**FIGURE 1951**



**Legend**

 Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



0 10 20  
metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**


**HISTORICAL AERIAL  
PHOTOGRAPH - 1965**

**FIGURE 1965**



**Legend**  

Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club


Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



01020



metres

Coord. Sys. GDA 1994 MGA Zone 56


**Oatlands Golf Course**  
**Oatlands, NSW**  
  
**HISTORICAL AERIAL**  
**PHOTOGRAPH - 1975**

**FIGURE 1975**

File Name: N:\Projects\60383 Oatlands Golf Course\GIS\Maps\Aerials\60383\_1975\_HistoricalAerialPhotograph.mxd  
Reference: Spatial Services, NSW



**Legend**

 Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



0 10 20  
metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 1984**

**FIGURE 1984**





**Legend**  
 Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



01020



metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course**  
**Oatlands, NSW**  
**HISTORICAL AERIAL**  
**PHOTOGRAPH - 1998**


**FIGURE 1998**

File Name: N:\Projects\60383 Oatlands Golf Course\GIS\Maps\Aerials\60383\_1998\_HistoricalAerialPhotograph.mxd  
Reference: Spatial Services, NSW





**Legend**

 Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



0 10 20  
metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 2002**

**FIGURE 2002**





# Legend

Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



0 10 20  
metres

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 2010**

**FIGURE 2010**





# Legend

Approximate Site Boundary



Job No: 60383

Client: Oatlands Golf Club

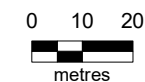
Version: Aerials

Date 26/10/2021

Drawn By: JZ

Checked By: CK

Scale 1:1,500



Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course  
Oatlands, NSW**

**HISTORICAL AERIAL  
PHOTOGRAPH - 2015**

**FIGURE 2015**





**Legend**  
 Approximate Site Boundary

Job No: 60383  
 Client: Oatlands Golf Club

Version: Aerials	Date 26/10/2021
Drawn By: JZ	Checked By: CK

Scale 1:1,500

Coord. Sys. GDA 1994 MGA Zone 56

**Oatlands Golf Course**  
**Oatlands, NSW**  
  
**HISTORICAL AERIAL**  
**PHOTOGRAPH - 2020**

**FIGURE 2020**



## **Appendix C Council Planning Certificate**

**PLANNING CERTIFICATE**

**CERTIFICATE UNDER SECTION 10.7**

Environmental Planning and Assessment Act, 1979 as amended

**Certificate No:** 2021/660  
**Fee:** \$133.00  
**Issue Date:** 3 February 2021  
**Receipt No:** 6256443  
**Applicant Ref:** 60383:141842

**DESCRIPTION OF LAND**

**Address:** Oatlands Golf Club  
94 Bettington Road  
OATLANDS NSW 2117  
**Lot Details:** Lot 2 DP 508441 Lot 100 DP 1243044

**SECTION A**

The following Environmental Planning Instrument to which this certificate relates applies to the land:

**Parramatta Local Environmental Plan 2011**

For the purpose of **Section 10.7(2)** it is advised that as the date of this certificate the abovementioned land is affected by the matters referred to as follows:

**Contact us:**

council@cityofparramatta.nsw.gov.au | 02 9806 5050  
@cityofparramatta | PO Box 32, Parramatta, NSW 2124  
ABN 49 907 174 773 | [cityofparramatta.nsw.gov.au](http://cityofparramatta.nsw.gov.au)

**The land is zoned: RE2 Private Recreation PLEP2011**

**Zone RE2- Private Recreation (Parramatta Local Environmental Plan 2011)**

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

NOTE: This table is an excerpt from Parramatta Local Environmental Plan 2011 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

**Zone RE2 Private Recreation**

**1 Objectives of zone**

- To enable land to be used for private open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To identify privately owned land used for the purpose of providing private recreation, or for major sporting and entertainment facilities which serve the needs of the local population and of the wider Sydney region.

**2 Permitted without consent**

Nil

**3 Permitted with consent**

Aquaculture; Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Jetties; Kiosks; Markets; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Take away food and drink premises; Tourist and visitor accommodation; Water recreation structures; Water recycling facilities

**4 Prohibited**

Any other development not specified in item 2 or 3

**SECTION B**

**State Policies and Regional Environmental Plans**

The land is also affected by the following State Environmental Planning Policies (SEPP) and Regional Environmental Plans (SREP):

State Environmental Planning Policy (SEPP) No.19 - Bushland in Urban Areas

State Environmental Planning Policy (SEPP) No.21 - Caravan Parks

State Environmental Planning Policy (SEPP) No.33 -Hazardous and Offensive Development

State Environmental Planning Policy (SEPP) No.55 - Remediation of Land

State Environmental Planning Policy (SEPP) No.64 - Advertising and Signage

State Environmental Planning Policy (SEPP) No.65 – Design Quality of Residential Flat Development.

State Environmental Planning Policy (SEPP) No.70 -Affordable Housing (Revised Schemes)

State Environmental Planning Policy (SEPP) (Housing for Seniors or People with a Disability) 2004



State Environmental Planning Policy (SEPP) (Building Sustainability Index: BASIX) 2004  
State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005  
State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007  
State Environmental Planning Policy (SEPP) (Infrastructure) 2007  
State Environmental Planning Policy (SEPP) (Exempt and Complying Development Codes) 2008  
State Environmental Planning Policy (SEPP) (Affordable Rental Housing) 2009  
State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017  
State Environmental Planning Policy (SEPP) (Educational Establishments and Child Care Facilities) 2017  
State Environmental Planning Policy (SEPP) (Concurrences) 2018  
State Environmental Planning Policy (SEPP) (Primary Production and Rural Development) 2019

Sydney Regional Environmental Plan (SREP) No.9 (No.2) - Extractive Industries  
Sydney Regional Environmental Plan (SREP) – (Sydney Harbour Catchment) 2005

DRAFT State Environmental Planning Policy to amend State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006 – Amendment to include the Greater Parramatta Priority Growth Area as a Growth Centre  
DRAFT State Environmental Planning Policy (Draft SEPP) – Environment

N.B. All enquiries as to the application of Draft State Environmental Planning Policies should be directed to The NSW Department of Planning, Industry and Environment.

### **Draft Local Environmental Plan**

The land is affected by a Draft Local Environmental Plan which has been placed on Public Exhibition and has not yet been published. The Draft Local Environmental Plan is described below.

### **Planning Proposal – Draft Parramatta Local Environmental Plan 2020 (Harmonisation LEP)**

This land is affected by a planning proposal seeking to create a single consolidated Local Environmental Plan (LEP) that will apply to the whole City of Parramatta Local Government Area (LGA). The new LEP will replace five (5) existing LEPs where they apply to land within the Parramatta LGA. These include:

- *Auburn Local Environmental Plan 2010*
- *Holroyd Local Environmental Plan 2013*
- *Hornsby Local Environmental Plan 2013*
- *Parramatta Local Environmental Plan 2011*
- *Parramatta (former The Hills) Local Environmental Plan 2012*

The new Parramatta LEP will create a common set of objectives, land use tables and provisions for all land within the LGA. This will result in some changes to the current planning controls applying to certain areas, including:

- Changes to land uses permitted in certain areas, because of the creation of a common set of land use tables.
- Prohibiting dual occupancy developments in certain locations.

- A minimum lot size of 600sqm and frontage to a public road of 15 metres development standards for Dual Occupancies or Manor Houses where they are permitted;
- Changes to height and FSR controls applying to residential zones – these include:
  - applying a FSR of 0.5:1 to R2 Low Density Residential zoned land and a FSR of 0.6:1 to R3 Medium Density Residential zoned land in the Parramatta (former The Hills) LEP 2012 and Hornsby Council LEP 2013 (where none currently applies);
  - reducing the FSR from 0.75:1 to 0.6:1 applying to R3 Medium Density Residential zoned land in Silverwater;
  - increasing the height limit from 8.5 metres to 9 metres applying to R2 Low Density Residential zoned land in the Hornsby Council LEP 2013;
  - applying a 11 metre height limit to R3 Medium Density Residential zoned land in the Parramatta (former The Hills) LEP 2012, Hornsby LEP 2013 and Auburn LEP 2010;
  - applying a FSR control to R4 High Density Residential zoned land in the former Parramatta (former The Hills) LEP 2012, Hornsby LEP 2013 and Auburn LEP 2010 (where none is currently applied); and,
  - A limited number of targeted site-specific changes associated with changes of zoning or to address anomalies.
- Applying a 550sqm minimum subdivision lot size to residential land (except R2 Low Density Residential zoned land in the Parramatta (former The Hills) LEP 2012, which will retain the existing 700sqm requirement)
- Mapping of additional Biodiversity Land and Riparian Land and Waterways
- A limited number of changes to the zoning of some sites to address inconsistencies and anomalies across current land use plans, this includes:
  - Removing the R1 General Residential zone, and rezoning this land to R4 High Density Residential or R3 Medium Density Residential;
  - Rezoning all public bushland reserves to E2 Environmental Conservation;
  - Rezoning some R3 Medium Density Residential zoned land in Northmead, North Rocks and Carlingford to R2 Low Density Residential; and,
  - Rezoning existing lawful places of public worship in the former Parramatta Council area from SP1 Special Activities to R2 Low Density Residential.

Further information on the Planning Proposal for the new Parramatta Local Environmental Plan (LEP) can be found at: [www.cityofparramatta.nsw.gov.au/planningharmonisation](http://www.cityofparramatta.nsw.gov.au/planningharmonisation) or by contacting Council

***Please note.** Council is separately progressing a number of planning proposals relating to specific sites in the LGA. The intention is that, should these site-specific planning proposals be finalised before the new consolidated LEP is made, the*

*respective amendments to planning controls will be carried over into the new LEP and the Harmonisation Planning Proposal will be updated as needed.*

**Proposed Zoning Draft Parramatta LEP 2020**

The land is proposed to be zoned in the in the Draft Parramatta LEP 2020:

**RE2 Private Recreation PLEP2020****Proposed Zone RE2 Private Recreation (Draft Parramatta LEP 2020)**

**Note:** *The following land use table is an excerpt from the Draft Parramatta Local Environmental Plan 2020 (Harmonisation LEP) document exhibited on 31 August 2020 and must be read in conjunction with and subject to other provisions of that draft instrument.*

**Zone RE2 Private Recreation****1 Objectives of zone**

- To enable land to be used for private open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To identify privately owned land used for the purpose of providing private recreation, or for major sporting and entertainment facilities which serve the needs of the local population and of the wider Sydney region.

**2 Permitted without consent**

Nil

**3 Permitted with consent**

Aquaculture; Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Charter and tourism boating facilities; Centre-based child care facilities; Community facilities; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Jetties; Kiosks; Markets; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Take away food and drink premises; Tourist and visitor accommodation; Water recreation structures;

**4 Prohibited**

Any other development not specified in item 2 or 3

**Proposed Heritage Item Draft Parramatta LEP 2020**

The land or part of the land is proposed to be identified as a Heritage Item in the Draft Parramatta LEP 2020.

***Proposed Biodiversity Protection Draft Parramatta LEP 2020***

The land or part of the land is identified as “Biodiversity” on the proposed Natural Resources Biodiversity map of the Draft Parramatta LEP 2020.

***Proposed Riparian Land and Waterways Draft Parramatta LEP 2020***

The land or part of the land is identified as “Riparian Land and Waterways” on the Natural Resources – Riparian Land and Waterways map of the Draft Parramatta LEP 2020.

**Development Control Plan**

The land is affected by Parramatta Development Control Plan 2011.

The Minister for Planning has issued directions that provisions of an EPI do not apply to certain Part 4 development where a concept plan has been approved under Part 3A.

**Development Standards**

The land is identified as “Riparian Land and Waterways” on the Natural Resources – Riparian Land and Waterways map and is subject to Clause 6.5 of Parramatta Local Environmental Plan 2011.

The land is identified as “Biodiversity” on the Natural Resources Biodiversity map and is subject to Clause 6.4 of Parramatta Local Environmental Plan 2011.

**Development Contribution Plan**

The Parramatta Section 94A Development Contributions Plan (Amendment No. 5) applies to the land.

**Heritage Item/Heritage Conservation Area**

The land is identified as containing a Heritage Item in Parramatta Local Environmental Plan 2011

The land is affected by a planning proposal that seeks to identify the land as containing a Heritage Item in an environmental planning instrument. Refer to the Draft Local Environmental Plan section of this certificate for more details.

The land is not located in a heritage conservation area.

**Road Widening**

The land is not affected by road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993.
- (b) Any Environmental Planning Instrument.
- (c) Any Resolution of Council.

**Land Reservation Acquisition**

The land is not affected by Land Reservation Acquisition in Parramatta Local Environmental Plan 2011.

**Site Compatibility Certificate** (Seniors Housing, Infrastructure and Affordable Rental Housing) At the date of issue of this certificate Council is not aware of any

- a. Site compatibility certificate (affordable rental housing),
- a. Site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments),
- b. Site compatibility certificate (seniors housing)

in respect to the land issued pursuant to the Environmental Planning & Assessment Amendment (Site Compatibility Certificates) Regulation 2009 (NSW).

### **Contamination**

Matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 – as listed:

*Clause 59(2)(a) - is the land to which the certificate relates is significantly contaminated land?*

**NO**

*Clause 59(2)(b) - is the land to which the certificate relates is subject to a management order?*

**NO**

*Clause 59(2)(c) - is the land to which the certificate relates is the subject of an approved voluntary management proposal?*

**NO**

*Clause 59(2)(d) - is the land to which the certificate relates is subject to an ongoing maintenance order?*

**NO**

*Clause 59(2)(e) - is the land to which the certificate relates is the subject of a site audit statement?*

**NO**

The land the subject of this certificate is potentially affected by contamination as indicated by Council's current information and records. As such Council is required to take this into account when determining any development application made in respect of the land.

Persons should make their own enquires as to the contamination condition of the land. Further information is available by making an open file application by contacting Councils Customer Service Centre 9806 5050

### **Tree Preservation**

The land is subject to Section 5.4 Preservation of Trees or Vegetation in Parramatta Development Control Plan 2011.

Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

**Coastal Protection**

Has the owner (or any previous owner) of the land been consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?

**NO**

**Council Policy**

Council has not adopted a policy to restrict the development of the land by reason of the likelihood of projected sea level rise (coastal protection), tidal inundation, subsidence or any other risk.

Council has adopted a policy covering the entire City of Parramatta to restrict development of any land by reason of the likelihood of flooding.

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Parramatta. The Policy will restrict the development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Councils website at [www.cityofparramatta.nsw.gov.au](http://www.cityofparramatta.nsw.gov.au) or from the Customer Service Centre.

**Mine Subsidence**

The land is not affected by the Coal Mine Subsidence Compensation Act 2017 proclaiming land to be a Mine Subsidence District.

**Bushfire Land**

The land is not bushfire prone land.

**Threatened Species**

NSW Office of Environment and Heritage mapping indicates this site may contain 'native vegetation' or is included on the 'Biodiversity Values Map' which are subject to Part 7 of the Biodiversity Conservation Act 2016.

**Biodiversity certified land**

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

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

**Biodiversity stewardship sites**

The Chief Executive of the Office of Environment and Heritage has not notified the Council if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

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

**Native vegetation clearing set asides**

Council has not been notified of the land containing a set aside area under section 60ZC of the Local Land Services Act 2013.

**Property vegetation plans**

Council has not been notified of the existence of the property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 on the land.

**Paper Subdivision information**

The land is not subject to any development plan adopted by a relevant authority or that is proposed to be subject to a consent ballot. A subdivision order does not apply to the land.

**Note:** Words and expressions used in this clause have the same meaning as they have in Part 16C of the Environmental Planning and Assessment Regulation 2000.

**Loose-Fill Asbestos Register**

Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.

**Site verification certificates**

Council is not aware of whether there is a current site verification certificate in respect of the land.

**Affected Building Notices and Building Product Rectification Orders**

Council is not aware of whether there is any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in respect of the land.

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

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

**Note: This does not constitute a Complying Development Certificate under section 4.27 of the Environmental Planning and Assessment Act 1979**

The following information only addresses whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of **Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is not a statement that complying development is permissible on the land.



Other land exemptions within of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 may also apply. Furthermore, other provisions within the relevant Local Environmental Plan or a State Environmental Planning Policy which restrict complying development on the land may also apply.

**It is your responsibility to ensure that you comply with the relevant complying development provisions for the land. Failure to comply with these provisions may mean that a Complying Development Certificate is invalid.**

### **Housing Code; Low Rise Housing Diversity Code; Rural Housing Code**

Complying Development pursuant to the Housing Code, Low Rise Housing Diversity Code and Rural Housing Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- Part of the land comprises, or on which there is, a draft heritage item (Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument), (Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land is identified by an environmental planning Instrument as being within environmentally sensitive land. (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land is identified by an environmental planning Instrument as being within a riverfront area. (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

### **Commercial and Industrial (New Buildings and Additions) Code**

Complying Development pursuant to Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- Part of the land comprises, or on which there is, a draft heritage item (Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage



order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument),  
(Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is identified by an environmental planning Instrument as being within environmentally sensitive land.  
(Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land is identified by an environmental planning Instrument as being within a riverfront area.  
(Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

**Housing Alterations Code; General Development Code; General Commercial and Industrial (Alterations) Code; Container Recycling Facilities Code; Subdivision Code; Demolition Code; Fire Safety Code**

Complying Development pursuant to the Housing Alterations Code, General Development Code, General Commercial and Industrial (Alterations) Code, Container Recycling Facilities Code, Subdivision Code, Demolition Code and Fire Safety Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- Part of the land comprises, or on which there is, a draft heritage item  
(Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)
- Part of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument),  
(Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

**SPECIAL NOTES**

The land is identified as Class 5 on the Acid Sulfate Soils map. Refer to Clause 6.1 of Parramatta Local Environmental Plan 2011.

Applicants for Sections 10.7 Certificates are advised that Council does not hold sufficient information to fully detail the effect of any encumbrances on the title of the subject land. The information available to Council is provided on the basis that neither Council nor its servants hold out advice or warrant to you in any way its accuracy, nor shall Council or its servants, be liable for any negligence in the preparation of that information. Further information should be sought from relevant Statutory Departments.

**SECTION C****The following additional information is issued under Section 10.7(5)**

Pursuant to S10.7(5) the Council supplies information as set out below on the basis that the Council takes no responsibility for the accuracy of the information. The information if material should be independently checked by the applicant.

**James Hardie Asbestos Waste Contamination Legacy Report**

The land is identified within a report published by the Department of Environment, Climate Change and Water (in April 2010) entitled 'James Hardie Asbestos Waste Contamination Legacy' (Report), or is similarly identified within a subsequent NSW Environment Protection Authority revision of that Report, as being within an area formerly used as an asbestos disposal site by James Hardie Industries.

The original Report, as published in April 2010, is available for inspection at the City of Parramatta Council's office at 126 Church Street, Parramatta, or on the NSW Environment Protection Authority's website at <https://www.epa.nsw.gov.au/-/media/75F0027999344061B0433A9ADFFB5465.ashx?la=en>

Copies of subsequent revisions to this Report can also be obtained on request from City of Parramatta Council's office at 126 Church Street, Parramatta ; file reference F2018/02696.

**Aboriginal Sensitivity Map - Parramatta Development Control Plan (DCP) 2011**

Aboriginal Heritage – low sensitivity – limited potential to contain items of Aboriginal heritage. Contact Council's Customer Service/Duty Planner (02) 9806 5050 for more information.

Aboriginal Heritage – High Sensitivity – potential to contain items of Aboriginal heritage. Contact Council's Customer Service/Duty Planner (02) 9806 5050 for more information.

Aboriginal Heritage – within proximity of a recorded site. May contain a registered site. Contact National Parks and Wildlife Service (02) 9585 6470.

**Flood Information**

The land is affected by a 100 year Average Recurrence Interval flood as indicated by Council's current flooding information. As such Council is required to take that into account when determining any development application made in respect of the land.

Further information is available at the Catchment Management Section within Council's City Assets and Environment Unit.

Additional advice should be also sought from an appropriately qualified person as to the extents and potential hazards associated with the likely flooding of the land. The names of qualified persons maybe obtained from the Institution of Engineers Australia.

**Note: Advisory Information regarding Combustible Cladding**

External combustible cladding on multi-storey buildings has been identified in local government areas including the City of Parramatta. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

Properties that have combustible cladding on buildings are listed in the NSW Government Combustible Cladding Register. Please refer to <https://www.claddingregistration.nsw.gov.au/> or call 1300 305 695 for further information regarding the NSW Government Combustible Cladding Register.

There is potential for combustible cladding to be present on buildings that are not listed on the Register.

**Note: Advisory Information regarding Loose-Fill asbestos Insulation**

Research undertaken by the Loose-Fill Asbestos Insulation Taskforce has determined that there is a potential for loose-fill asbestos insulation to be found in residential dwellings constructed prior to 1980 in 28 local government areas including the City of Parramatta.

Some residential homes located in the City of Parramatta may contain loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

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

Please Contact NSW Fair Trading for further information.

This information has been provided pursuant to section 10.7(5) of the Environmental Planning and Assessment Act, 1979 as amended.

Brett Newman  
Chief Executive Officer

**per**



**dated** 3 February 2021

## Appendix D NSW EPA Searches



## Public registers

### – POEO Public Register

[Licences, applications and notices search](#)[Penalty notices search](#)[Enforceable undertakings search](#)[Enforceable undertakings media releases](#)[Exemptions and approvals search](#)[Prosecutions or civil proceedings search](#)[Terms of use: POEO public register](#)[Licensing FAQs](#)[List of licences](#)[Unlicensed premises regulated by the EPA](#)

### + Contaminated land record of notices

[Dangerous goods licences](#)[Pesticide licences](#)[Radiation licences](#)[Home](#) [Public registers](#) [POEO Public Register](#) [Licences, applications and notices search](#)

## Search results

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

**Suburb** - Oatlands  
returned 0 result

[Search Again](#)

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
NOWRA	Former Gasworks Managers Residence	24 Osborne STREET	Gasworks	Regulation under CLM Act not required	-34.8708875	150.5992586
NOWRA	Fire Station	69 Bridge ROAD	Gasworks	Regulation under CLM Act not required	-34.87081582	150.6004881
NOWRA	Historically Filled Land	70 Bridge ROAD	Unclassified	Regulation under CLM Act not required	-34.87081809	150.6013231
NOWRA	Shell Coles Express Service Station	55 Kinghorne STREET	Service Station	Regulation under CLM Act not required	-34.87633757	150.6023481
NOWRA	Former gasworks	Lamonds LANE	Gasworks	Contamination currently regulated under CLM Act	-34.87111182	150.6000803
NOWRA	Former Hollingworth Scrap Yard	72-74 Jervis and 117 East STREET	Other Industry	Regulation under CLM Act not required	-34.88324216	150.6034361
NOWRA	Woolworths Service Station	60 North Street STREET	Service Station	Regulation under CLM Act not required	-34.87266278	150.6014052
NOWRA	Harry Sawkins Park	Bounded by Princes Hwy, Graham St & McGrath AVENUE	Gasworks	Regulation under CLM Act not required	-34.87093993	150.6037157
NOWRA EAST	Mobil Service Station	Lot 3 Kalandar STREET	Service Station	Contamination formerly regulated under the CLM Act	-34.88850535	150.6093504
NYNGAN	Caltex Service Station	39-41 Pangee STREET	Service Station	Regulation under CLM Act not required	-31.56101006	147.1914997
NYNGAN	Caltex Service Station	126 Pangee STREET	Service Station	Regulation under CLM Act not required	-31.56482841	147.2002892
NYNGAN	Main West Rail Line	Mitchell HIGHWAY	Other Industry	Under assessment	-31.641318	147.344745
OAK FLATS	Shellharbour City Works Depot	132 Industrial ROAD	Other Industry	Regulation under CLM Act not required	-34.56546013	150.8087225
OBERON	Caltex Service Station and Depot	Lowes Mount ROAD	Service Station	Regulation under CLM Act not required	-33.69509055	149.8570553
OBERON	Oberon Timber Complex	Lowes Mount ROAD	Other Industry	Regulation under CLM Act not required	-33.69264862	149.8564588



## Public registers

+ POEO Public Register

– Contaminated land record of notices

About the record of notices

List of notified sites

Tips for searching

Disclaimer

Dangerous goods licences

Pesticide licences

Radiation licences

[Home](#) [Public registers](#) [Contaminated land record of notices](#)

## Search results

Your search for: Suburb: OATLANDS

did not find any records in our database.

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

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

More information about particular sites may be available from:

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

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

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

Search Again

Refine Search

### Search TIP

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

... [more search tips](#)



# The NSW Government PFAS Investigation Program

View a map of the sites in NSW that may be contaminated with PFAS, learn how to reduce your exposure to these dangerous chemicals, and read about our investigation of the issue.

The EPA is leading an investigation program to assess the legacy of PFAS use across NSW. With the assistance of the NSW PFAS Technical Advisory Group, which includes NSW Health, Department of Primary Industries and the Office of Environment and Heritage, we provide impacted residents with tailored, precautionary dietary advice to help them reduce any exposure to PFAS.

Current investigations are focused on sites where it is likely that large quantities of PFAS have been used. The EPA is currently investigating PFAS at these sites:

[Map view](#)

[List view](#)

List view




























Clear filters

☐ Only show sites within current map view













Showing 49 of 49 sites










	Organisation	Address	Status
	<b>**filter by organisation*</b>	<b>**filter by address*</b>	<input checked="" type="checkbox"/> <b>PFAS investigation site</b>
	Albion Park Fire and Rescue NSW <a href="#">more information</a>	Airport Road, Albion Park, 2527	PFAS investigation site
	Alexandria Fire and Rescue NSW <a href="#">more information</a>	189 Wyndham Street Alexandria	PFAS investigation site

	Organisation	Address	Status
	<b>**filter by organisation*</b>	<b>**filter by address*</b>	<input checked="" type="checkbox"/> <b>PFAS investigation site</b>
	Argenton Mines Rescue Services <a href="#">more information</a>	533 Lake Road, Argenton NSW 2284	PFAS investigation site
	Armidale Fire and Rescue NSW <a href="#">more information</a>	10 Mann Street, Armidale, 2350	PFAS investigation site
	Bankstown Airport <a href="#">more information</a>	3 Avro St, Bankstown NSW 2200	PFAS investigation site
	Bathurst airport <a href="#">more information</a>	P J Moodie Memorial Dr, Raglan NSW 2795	PFAS investigation site
	Botany Bay area <a href="#">more information</a>		PFAS investigation site
	Botany Industrial Park <a href="#">more information</a>	Dent Street, Botany, 2019	PFAS investigation site
	Butler Street Reserve, Byron Bay <a href="#">more information</a>	Butler Street, Byron Bay, NSW 2481	PFAS investigation site
	Camden Airport <a href="#">more information</a>	Aerodrome Rd, Cobbitty NSW 2570	PFAS investigation site
	Currambene Creek <a href="#">more information</a>		PFAS investigation site
	Deniliquin Fire and Rescue NSW <a href="#">more information</a>		PFAS investigation site
	Dubbo groundwater investigation <a href="#">more information</a>		PFAS investigation site
	Fuchs <a href="#">more information</a>	2 Holland St, Wickham NSW 2293	PFAS investigation site

	Organisation	Address	Status
	<b>**filter by organisation*</b>	<b>**filter by address*</b>	<input checked="" type="checkbox"/> <b>PFAS investigation site</b>
	Gold Coast airport <a href="#">more information</a>	Eastern Avenue, Coolangatta, QLD 4225	PFAS investigation site
	Greenacre Fire and Rescue <a href="#">more information</a>	1 and 1A Amarina Avenue, Greenacre	PFAS investigation site
	Hawkesbury River <a href="#">more information</a>		PFAS investigation site
	Heatherbrae: Total Fire Solutions <a href="#">more information</a>	15 Giggins Rd, Heatherbrae NSW 2324	PFAS investigation site
	HMAS Albatross <a href="#">more information</a>	Nowra Hill, 2540	PFAS investigation site
	Holsworthy Barracks <a href="#">more information</a>	Macarthur Drive, Holsworthy, 2173	PFAS investigation site
	Jervis Bay range facility <a href="#">more information</a>	Jervis Bay Territory, 2540	PFAS investigation site
	Kapooka, Blamey Barracks <a href="#">more information</a>	Kapooka Dr, Kapooka NSW 2661	PFAS investigation site
	Kemps Creek NSW Rural Fire Service <a href="#">more information</a>	245 Devonshire Rd, Kemps Creek NSW 2178	PFAS investigation site
	Kurnell: Caltex <a href="#">more information</a>	2 Solander St, Kurnell, 2231	PFAS investigation site
	Lake Macquarie <a href="#">more information</a>		PFAS investigation site
	Lake Toolooma <a href="#">more information</a>	Heathcote National Park	PFAS investigation site
	Lithgow: Mines Rescue <a href="#">more information</a>	3 Proto Ave, Lithgow NSW 2790	PFAS investigation site



	Organisation	Address	Status
	<b>**filter by organisation*</b>	<b>**filter by address*</b>	<input checked="" type="checkbox"/> <b>PFAS investigation site</b>
	Londonderry TestSafe & Fire and Rescue NSW <a href="#">more information</a>	667 The Northern Road, Londonderry, 2753	PFAS investigation site
	Lord Howe Island <a href="#">more information</a>		PFAS investigation site
	Mulwala - Thales <a href="#">more information</a>	Bayly St, Mulwala NSW 2647	PFAS investigation site
	Munmorah and Colongra Power Stations <a href="#">more information</a>	Station Road, Colongra NSW 2262	PFAS investigation site
	Orange airport <a href="#">more information</a>	136 Aerodrome Road, Orange NSW 2800	PFAS investigation site
	Quirindi Airport <a href="#">more information</a>	Quirindi NSW 2343	PFAS investigation site
	Richmond RAAF Base <a href="#">more information</a>	Middleton Avenue, Richmond, 2753	PFAS investigation site
	Rutherford, Truegain <a href="#">more information</a>	62 Kyle St, Rutherford NSW 2320	PFAS investigation site
	Salt Ash weapons range <a href="#">more information</a>	Salt Ash NSW	PFAS investigation site
	Shoalhaven River <a href="#">more information</a>		PFAS investigation site
	Singleton Heights: Mines Rescue Services <a href="#">more information</a>	6 Lachland Avenue, Singleton Heights NSW 2330	PFAS investigation site
	Singleton military area <a href="#">more information</a>		PFAS investigation site

	Organisation	Address	Status
	<b>**filter by organisation*</b>	<b>**filter by address*</b>	<input checked="" type="checkbox"/> <b>PFAS investigation site</b>
	Singleton NSW Rural Fire Service <a href="#">more information</a>		PFAS investigation site
	South Nowra NSW Rural Fire Service <a href="#">more information</a>	92 Albatross Road, South Nowra	PFAS investigation site
	Springwood, St Columba's Catholic College <a href="#">more information</a>	168 Hawkesbury Rd, Springwood, 2777	PFAS investigation site
	Swanson Industries <a href="#">more information</a>	2 Georgetown Road, Broadmeadow, 2292	PFAS investigation site
	Tamworth Regional Airport <a href="#">more information</a>	Shand Cir, Tamworth, 2340	PFAS investigation site
	Tarro, Our Lady of Lourdes Primary School <a href="#">more information</a>	Anderson Drive Tarro, NSW 2322	PFAS investigation site
	Wagga Wagga RAAF Base <a href="#">more information</a>	Sturt Highway, Wagga Wagga, 2650	PFAS investigation site
	Wellington Fire and Rescue NSW <a href="#">more information</a>	67 Falls Road, Wellington, 2820	PFAS investigation site
	Westleigh NSW Rural Fire Service <a href="#">more information</a>	12 Warrigal Drive, Westleigh	PFAS investigation site
	Williamtown RAAF Base <a href="#">more information</a>	49 Medowie Road, Williamtown, 2314	PFAS investigation site

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## Sampling and analysis

The EPA is collecting samples of soils and/or waters for analysis for PFAS. The EPA is also looking for exposure pathways that may increase people's contact with the chemicals, such as bore and surface water usage.

If significant levels are detected and human or ecological exposure is likely, a more detailed assessment will be undertaken.

The EPA will work with the occupiers and owners of these sites, or the responsible parties, to clean-up the site, where necessary.

## Timeframes for the investigation

The initial investigations can take approximately six months, with further testing undertaken where required.

Test findings are made available throughout the investigations.

More information is available on the NSW EPA [PFAS investigation process](#) page.

## Release of the National Environmental Management Plan for PFAS version 2

[The PFAS National Environmental Management Plan version 2](#) has now been released by the Commonwealth Department of Agriculture Water and Environment. This is the current version of the PFAS NEMP. It was agreed by Heads of EPAs in October 2019. It has been endorsed by Environment Ministers and has been endorsed for implementation in NSW.

In those jurisdictions that have endorsed it, this version supersedes the first version of the NEMP published in 2018.

The PFAS NEMP establishes a practical basis for nationally consistent environmental guidance and standards for managing PFAS contamination. The plan has been developed by all jurisdictions and recognises the need for implementation of best practice regulation through individual jurisdictional mechanisms. It represents a how-to guide for the investigation and management of PFAS contamination and waste management.

The PFAS NEMP 2.0 provides new and revised guidance on four of the areas that were identified as urgent priorities in the first version of the NEMP

- Environmental guideline values
- Soil reuse
- Wastewater management
- On-site containment

This new guidance, as well as important clarifications regarding the intent of some of the PFAS NEMP 1.0 material, was developed by the National Chemicals Working Group across 2018 and considered by Heads of EPAs and Environment Ministers in late 2018.

## Consultation on version 2 of NEMP

The Heads of EPAs Australia and New Zealand (HEPA) and the Australian Government Department of Agriculture, Water and the Environment (DAWE) worked together to develop the PFAS NEMP 2.0. HEPA's National Chemicals Working Group led the development and consultation process.

The draft PFAS NEMP 2.0 was published on 28 February 2019 with comments due by Friday 21 June 2019. Environmental regulators in all states and territories hosted public consultation sessions in all capital cities across March and April 2019, with the Commonwealth presenting the work on behalf of the National Chemicals Working Group. Around 550 people attended the sessions.

All feedback received was considered by the National Chemicals Working Group and further changes were made in response to that feedback before the document was finalised in late 2019. An ancillary document summarising the feedback and the responses made is expected to be published soon by the Commonwealth Department of Agriculture Water and Environment.

## Working with our stakeholders

The NSW Government is committed to working closely with all relevant government agencies, to closely monitor the progress of investigations, and to keep local communities informed. Government agencies include local councils, NSW Department of Primary Industries, NSW Health, NSW Food Authority, and where necessary the Commonwealth Department of Defence, and Commonwealth Department of Health.

In NSW the polluter pays for and manages any clean-up required. Although the NSW Government cannot regulate Defence sites, it has outlined expectations that Defence will carry out investigations in a timely manner that is consistent with the EPA's requirements and processes.

## More information

- [PFAS investigation program fact sheet \(PDF 213KB\)](#)
- [PFAS investigation program FAQs](#) page
- [NSW Department of Health](#)
- For specific health inquiries call the NSW Department of Health on **1300 066 055**
- If you have any questions about the EPA's PFAS investigation program, please call the Environment Line on **131 555** or email [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)

*Page last updated 14 July 2021*

Please consider the environment before printing.



[Home \(https://www.fairtrading.nsw.gov.au\)](https://www.fairtrading.nsw.gov.au)

# Loose-fill asbestos insulation register

Listen

([https://app-oc.readspeaker.com/cgi-bin/rsent?customerid=7371&lang=en\\_au&readid=page-content&url=https://www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register](https://app-oc.readspeaker.com/cgi-bin/rsent?customerid=7371&lang=en_au&readid=page-content&url=https://www.fairtrading.nsw.gov.au/loose-fill-asbestos-insulation-register))

## Look up the premises address

Please enter exact address information (including street type) of the address you wish to search (Note, the search fields are not case sensitive).

If a match is found, the premises has been identified as containing loose-fill asbestos insulation.

Results will only appear if an exact match of an address is found.

(The fields marked with \* are required.)

**No Match Found** - A search match was not found in the Loose-fill Asbestos Insulation Register

Address searched: 94 Bettington Road Oatlands 2117

**This information is correct at the time of the search**

Unit

Street number\*

Street name\*

Street type\*

Suburb\*

Postcode

Submit

[Site map](#)

[Privacy](#)



(<https://www.fairtrading.nsw.gov.au/site-map>) (<https://www.fairtrading.nsw.gov.au/privacy>) (<https://www.facebook.com/FairTradingNSW/>) (<https://www.youtube.com/user/NSWOfFairTrading>)

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## Appendix E Historical Land Tiltes





ABN: 36 092 724 251  
Ph: 02 9099 7400  
(Ph: 0412 199 304)

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

**Report**

**Address: - Oatlands**

**Description: - Part of Lot 100 D.P. 1243044**

As regards the part numbered (1) on the attached charting map extract.

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
05.07.1926 (1926 to 1938)	Robert Goldrick (Nurseryman)	Book 1434 No. 31
16.03.1938 (1938 to date)	# Oatlands Golf Club Limited	Book 1823 No. 917 Now 100/1243044 (Intervening titles not investigated)

# Denotes current registered proprietor

As regards the part numbered (2) on the attached charting map extract.

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
05.07.1926 (1926 to 1935)	William Goldrick (Nurseryman)	Book 1434 No. 32
08.07.1935 (1935 to 1943)	Sarah Ann Goldrick (Widow)	Book 1723 No. 641
08.05.1943 (1943 to 1947)	Sydney Alfred Goldrick (Tobacconist) Frances Goldrick (Married Woman)	Book 1929 No. 947 Now Vol 5470 Fol's 223 & 224
12.11.1947 (1947 to 1960)	Beth Securities Pty Limited	Vol 5470 Fol's 223 & 224
01.06.1960 (1960 to date)	# Oatlands Golf Club Limited	Vol 5470 Fol's 223 & 224 Now 100/1243044 (Intervening titles not investigated)

# Denotes current registered proprietor



ABN: 36 092 724 251  
Ph: 02 9099 7400  
(Ph: 0412 199 304)

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

As regards the part numbered (3) on the attached charting map extract.

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
31.05.1928 (1928 to 1960)	Albert Clyde Berk (Importer) Vida Davis Berk (Married Woman) Victor Bernard Audette (Investor) – Died 07.03.1933 Vivienne Berk Audette (Married Woman) Now Vivienne Berk Hauslaib (Married Woman)	Book 1521 No. 987 Now Vol 7922 Fol's 215 to 217
01.07.1960 (1960 to 1960)	William Russell Hauslaib (Company Director) Vivienne Berk Hauslaib (Married Woman) Robert Berk Audette (Company Director)	Vol 7922 Fol's 215 to 217
01.06.1960 (1960 to date)	# Oatlands Golf Club Limited	Vol 7922 Fol's 215 to 217 Now 100/1243044 (Intervening titles not investigated)

# Denotes current registered proprietor

**Easements: - NIL Affecting**

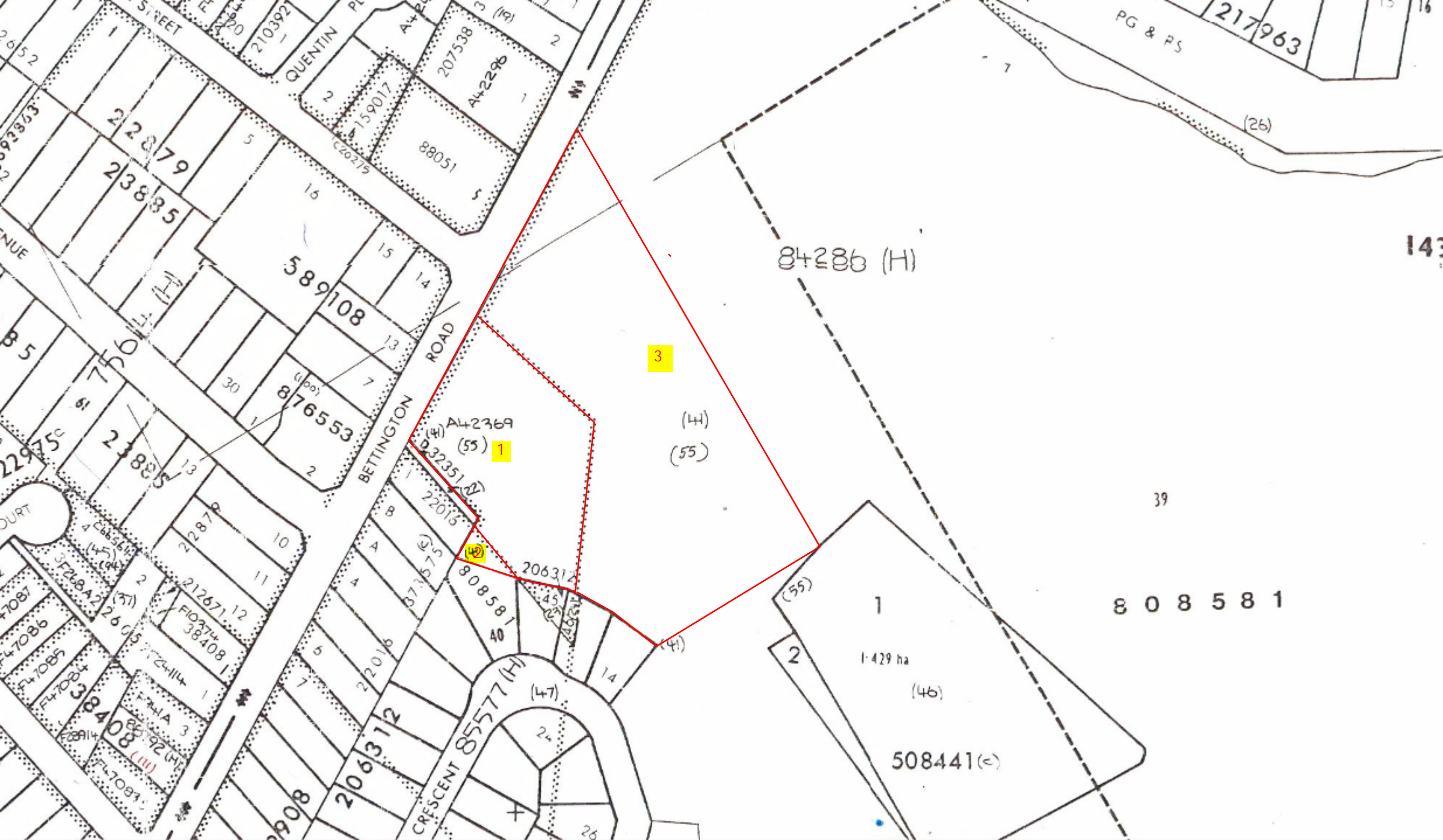
**Leases: -**

- Communications Leases were found to affect the current title – not investigated.

Yours Sincerely,  
Mark Grolls  
25 October 2021







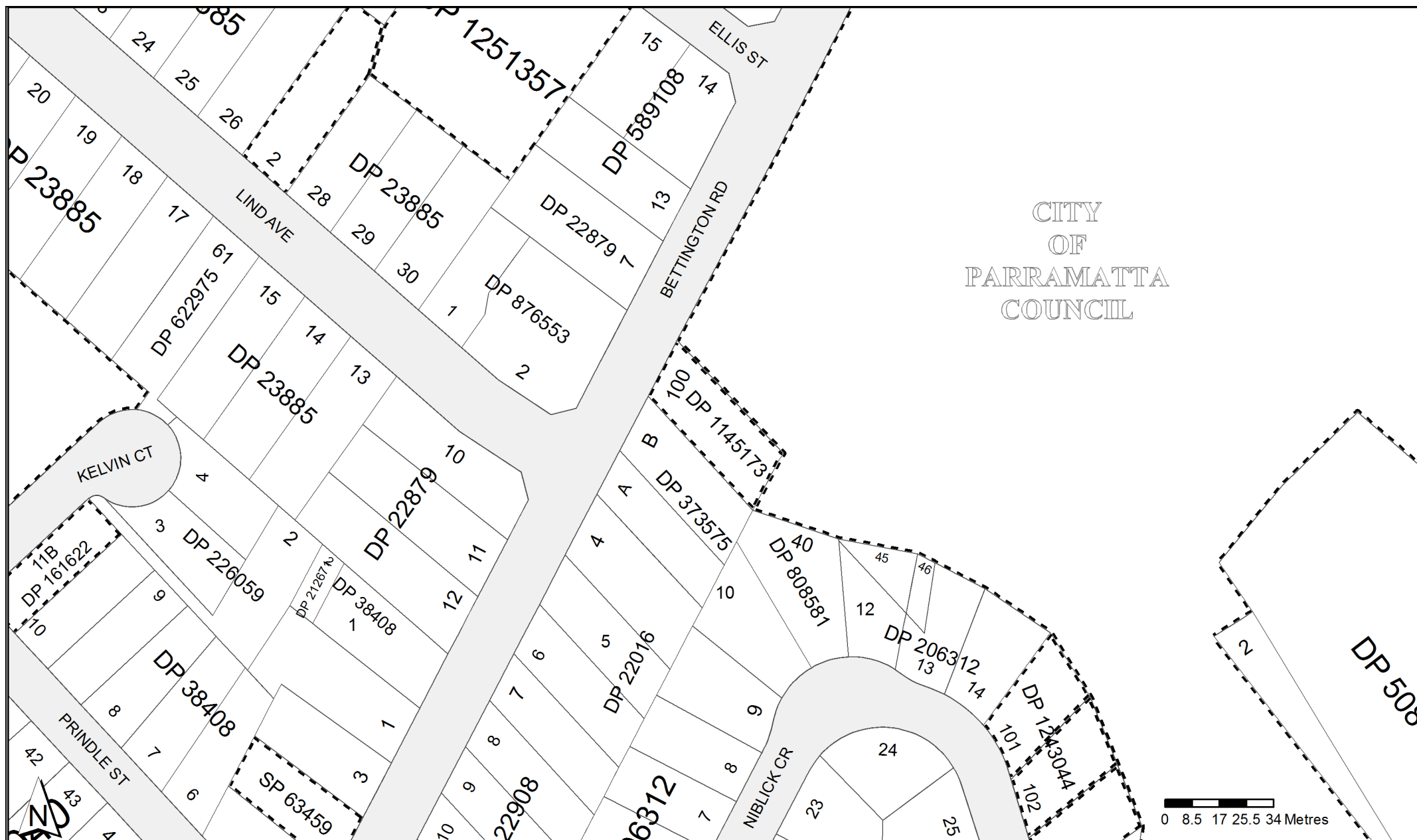
## Cadastral Records Enquiry Report : Lot 100 DP 1145173

**Locality :** OATLANDS

Parish : FIELD OF MARS

**LGA : CITY OF PARRAMATTA**

**County : CUMBERLAND**



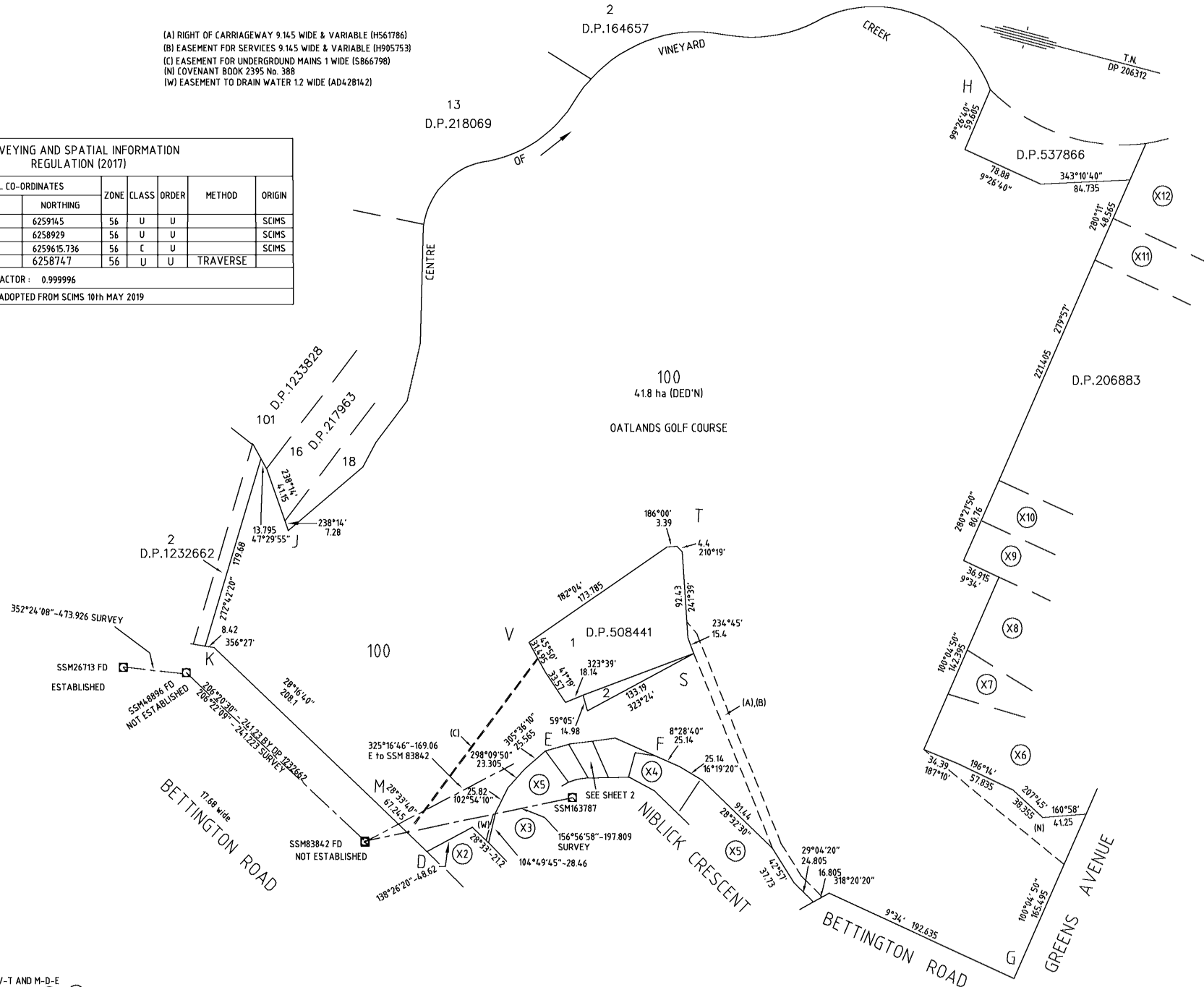


InfoTrack

- (X2) D.P.1145173  
 (X3) D.P.808581  
 (X4) D.P.607561  
 (X5) D.P.206312  
 (X6) D.P.509372  
 (X7) D.P.31581  
 (X8) D.P.238965  
 (X9) D.P.238611  
 (X10) D.P.216465  
 (X11) D.P.858767  
 (X12) D.P.206883

(A) RIGHT OF CARRIAGEWAY 9.145 WIDE & VARIABLE (H561786)  
 (B) EASEMENT FOR SERVICES 9.145 WIDE & VARIABLE (H905753)  
 (C) EASEMENT FOR UNDERGROUND MAINS 1 WIDE (S866798)  
 (N) COVENANT BOOK 2395 No. 388  
 (W) EASEMENT TO DRAIN WATER 1.2 WIDE (AD428142)

SURVEYING AND SPATIAL INFORMATION REGULATION (2017)						
MARK	M.G.A. CO-ORDINATES		ZONE	CLASS	ORDER	METHOD
	EASTING	NORTHING				
SSM48896	317523	6259145	56	U	U	SCIMS
SSM83842	317420	6258929	56	U	U	SCIMS
SSM 26713	317452.781	6259615.736	56	C	U	SCIMS
SSM 163787	317497	6258747	56	U	U	TRAVERSE
COMBINED SEA LEVEL & SCALE FACTOR : 0.999996						
SOURCE : M.G.A. COORDINATES ADOPTED FROM SCIMS 10th MAY 2019						



THAT PART OF LOT 100 BETWEEN MARKS F-G-H-J-K-M AND S-V-T AND M-D-E  
 HAVE BEEN COMPILED FROM DP 1232662, DP 508441, ADJOINING PLANS AND (X2) TO (X12) AS DESIGNATED ON THIS PLAN

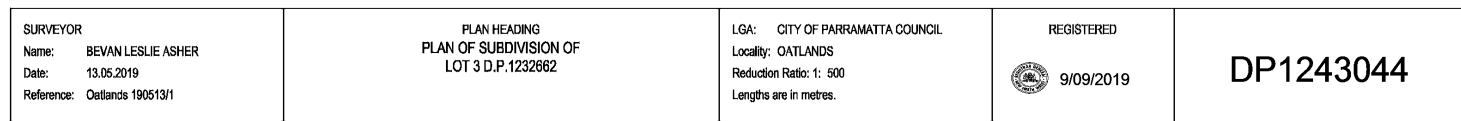
SURVEYOR  
 Name: BEVAN LESLIE ASHER  
 Date: 13.06.19  
 Reference: Oatlands 1905131

PLAN HEADING  
 PLAN OF SUBDIVISION OF  
 LOT 3 D.P.1232662


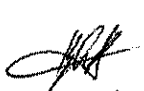
LGA: CITY OF PARRAMATTA COUNCIL  
 Locality: OATLANDS  
 Reduction Ratio: 1: 2500  
 Lengths are in metres.

REGISTERED  
 9/09/2019

DP1243044




ePlan

PLAN FORM 6 (2017)		DEPOSITED PLAN ADMINISTRATION SHEET		Sheet 1 of 3 sheet(s)	
<p>Office Use Only</p> <p>Registered:  9/09/2019</p> <p>Title System: TORRENS</p>		<p>Office Use Only</p> <p><b>DP1243044</b></p>			
<p>PLAN OF SUBDIVISION OF</p> <p>LOT 3 DP <del>4236226</del> 1232662</p> <p></p>		<p>LGA: CITY OF PARRAMATTA COUNCIL</p> <p>Locality: OATLANDS</p> <p>Parish: FIELD OF MARS</p> <p>County: CUMBERLAND</p>			
<p><b>Survey Certificate</b></p> <p>I, Bevan Leslie Asher .....            of PO Box 376 Coogee NSW 2033 .....            a surveyor registered under the <i>Surveying and Spatial Information Act 2002</i>, certify that:</p> <p><i>*(a) The land shown in the plan was surveyed in accordance with the Surveying and Spatial Information Regulation 2017, is accurate and the survey was completed on ..... of</i></p> <p><i>*(b) The part of the land shown in the plan (*being/*excluding **</i>            .....            That part of lot 100 between mark F-G-H-J-K-M AND S-V-T            ..... <b>AND M-D-E</b> .....            was surveyed in accordance with the <i>Surveying and Spatial Information Regulation 2017</i>, the part surveyed is accurate and the survey was completed on, ... 13 May 2019 ..... and ..... the part not surveyed was compiled in accordance with that Regulation, or</p> <p><i>*(c) The land shown in this plan was compiled in accordance with the Surveying and Spatial Information Regulation 2017.</i></p> <p>Datum Line: P-Q .....</p> <p>Type: *Urban/*Rural</p> <p>The terrain is *Level-Undulating / *Steep-Mountainous</p> <p>Signature: <i>B L Asher</i> ..... Dated: 1/6/2019 .....</p> <p>Surveyor Identification No: 381 .....</p> <p>Surveyor registered under the <i>Surveying and Spatial Information Act 2002</i></p> <p>*Strike out inappropriate words.</p> <p>**Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.</p>		<p><b>Crown Lands NSW/Western Lands Office Approval</b></p> <p>I, ..... (Authorised Officer) in            approving this plan certify that all necessary approvals in regard to the            allocation of the land shown herein have been given.</p> <p>Signature: .....</p> <p>Date: .....</p> <p>File Number: .....</p> <p>Office: .....</p>			
<p>Plans used in the preparation of survey/compilation.</p> <p>DP 1145173, DP 808581, DP 607561, DP 206312, DP 509373</p> <p>DP 31581, DP 238965, DP 238611, DP 216465, DP 858767</p> <p>DP 206883, DP 1232662, DP 217963, DP 218069, DP 164657</p> <p>DP 537865 DP 508441</p>		<p><b>Subdivision Certificate</b></p> <p>I, <b>MARK LEOTTA</b> .....            *Authorised Person/*General Manager/*Accredited Certifier, certify that            the provisions of s.109J of the <i>Environmental Planning and Assessment Act 1979</i> have been satisfied in relation to the proposed            subdivision, new road or reserve set out herein.</p> <p>Signature: <i>Mark Leotta</i> .....</p> <p>Accreditation number: .....</p> <p>Consent Authority: CITY OF PARRAMATTA COUNCIL .....</p> <p>Date of endorsement: <i>5/8/2019</i> .....</p> <p>Subdivision Certificate number: <i>SC/109/2019</i> .....</p> <p>File number: .....</p> <p>*Strike through if inapplicable.</p>			
<p>Surveyor's Reference: Oatlands 190513/1</p>		<p>Statements of intention to dedicate public roads, create public reserves            and drainage reserves, acquire/resume land.</p>			
		<p>Signatures, Seals and Section 88B Statements should appear on            PLAN FORM 6A</p>			

ePlan


PLAN FORM 6A (2017) DEPOSITED PLAN ADMINISTRATION SHEET Sheet 2 of 3 sheet(s)

Office Use Only		Office Use Only	
Registered:  9/09/2019	DP1243044		
PLAN OF SUBDIVISION OF LOT 3 DP 1232662			
Subdivision Certificate number: <u>50/109/2019</u>		<p>This sheet is for the provision of the following information as required:</p> <ul style="list-style-type: none"><li>• A schedule of lots and addresses - See 60(c) SSI Regulation 2017</li><li>• Statements of intention to create and release affecting interests in accordance with section 88B Conveyancing Act 1919</li><li>• Signatures and seals- see 195D Conveyancing Act 1919</li><li>• Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.</li></ul>	
Date of Endorsement: <u>8/8/2019</u>			

LOT	STREET NUMBER	STREET NAME	STREET TYPE	LOCALITY
100	94	BETTINGTON	ROAD	OATLANDS
101	19C	NIBLICK	CRESCENT	OATLANDS
102	19B	NIBLICK	CRESCENT	OATLANDS
103	19A	NIBLICK	CRESCENT	OATLANDS

Pursuant to Section 88B of The Conveyancing Act 1919 it is intended to create:

- 1 Restriction on use of land to Construct On-Site Detention System
- 2 Restriction on use of land

  
.....

Approved by City of Parramatta Council

Authorised Officer as Delegate of City of Parramatta Council Pursuant to Section 377 of Local Government Act 1993

Name of Delegate MARK LEOTTA  
Position of Delegate GROUP MANAGER-DEVELOPMENT & TRAFFIC  
Name of Witness EVA LOSENTINO Eva LoSentino  
Signature of Witness




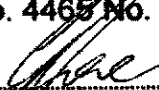
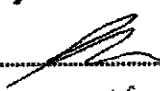




126 CHAUACH ST  
PARRAMATTA  
Address of Witness

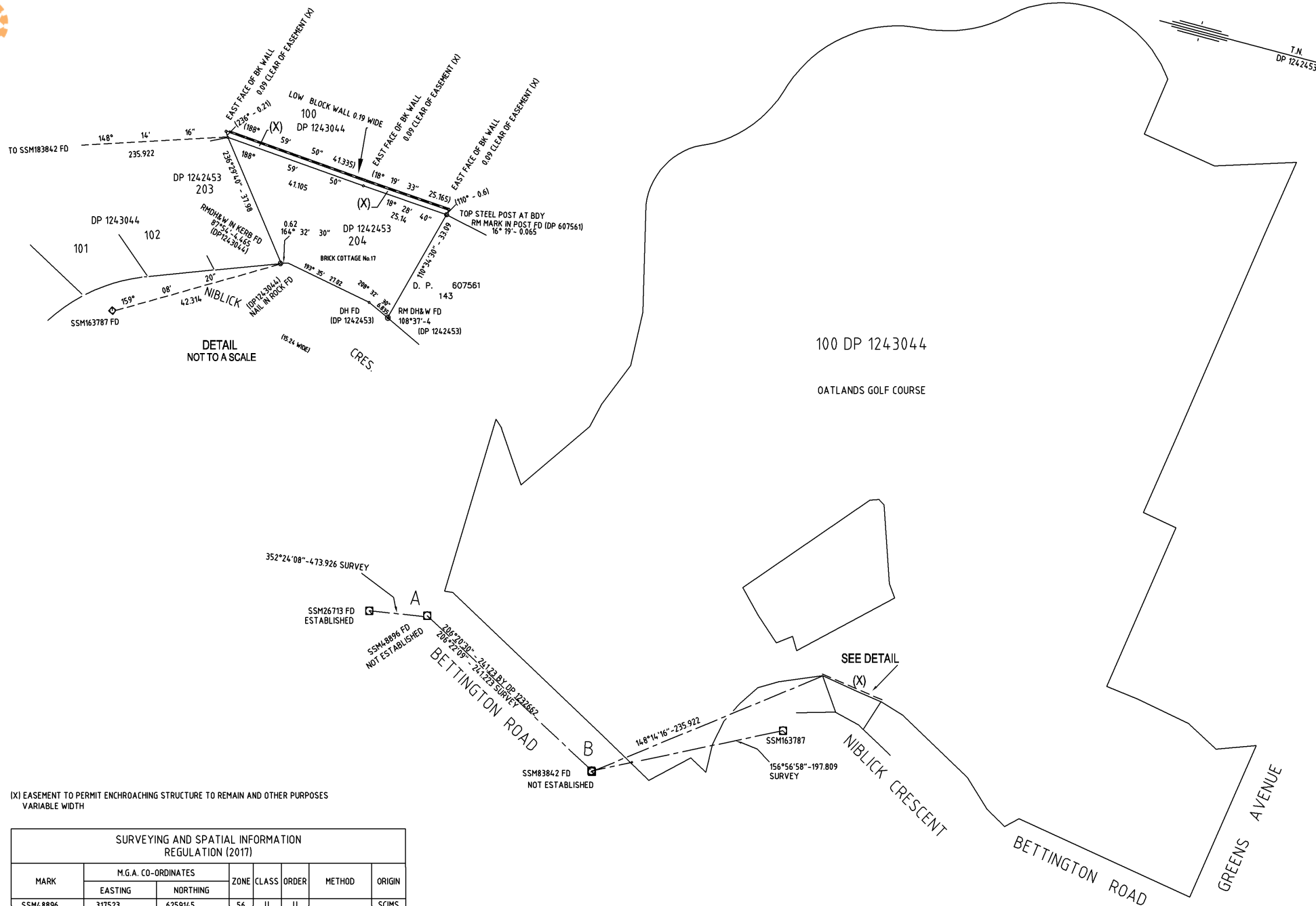
If space is insufficient use additional annexure sheet

Surveyor's Reference: Oatlands 190513/1



ePlan

PLAN FORM 6A (2017) DEPOSITED PLAN ADMINISTRATION SHEET		Sheet 3 of 3 sheet(s)		
Office Use Only		Office Use Only		
Registered:  9/09/2019	<b>DP1243044</b>			
PLAN OF SUBDIVISION OF LOT 3 DP 1232662		<p>This sheet is for the provision of the following information as required:</p> <ul style="list-style-type: none"><li>• A schedule of lots and addresses - See 60(c) SSI Regulation 2017</li><li>• Statements of intention to create and release affecting interests in accordance with section 88B Conveyancing Act 1919</li><li>• Signatures and seals- see 195D Conveyancing Act 1919</li><li>• Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.</li></ul>		
Subdivision Certificate number: ..... 50/109/2019 Date of Endorsement: ..... 8/8/2019				
<p>EXECUTED BY OATLANDS GOLF CLUB LIMITED (ACN 000 026 531) PERSUANT TO S127 OF THE CORPORATIONS ACT 2000 BY ITS AUTHORISED PERSONS WHOSE SIGNATURES ARE BELOW</p> <table><tbody><tr><td> ..... DIRECTOR</td><td> ..... DIRECTOR</td></tr></tbody></table>  <p>AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED ABN 11 005 357 522 by its Attorney under Power of Attorney Book No. 4465 No. 246</p> <p>Sign .....  Name ..... Gary John Prouse</p> <p>Witnessed by:</p> <p>Sign .....  Name ..... Ben Keating</p> <p>If space is insufficient use additional annexure sheet</p> <p>Surveyor's Reference: Oatlands 190513/1</p>			 ..... DIRECTOR	 ..... DIRECTOR
 ..... DIRECTOR	 ..... DIRECTOR			



(X) EASEMENT TO PERMIT ENCHROACHING STRUCTURE TO REMAIN AND OTHER PURPOSES  
VARIABLE WIDTH

SURVEYING AND SPATIAL INFORMATION REGULATION (2017)						
MARK	M.G.A. CO-ORDINATES		ZONE	CLASS	ORDER	METHOD
	EASTING	NORTHING				
SSM48896	317523	6259145	56	U	U	SCIMS
SSM83842	317420	6258929	56	U	U	SCIMS
SSM 26713	317452.781	6259615.736	56	C	U	SCIMS
SSM 163787	317497	6258747	56	U	U	TRAVERSE
COMBINED SEA LEVEL & SCALE FACTOR : 0.999996						
SOURCE : M.G.A. COORDINATES ADOPTED FROM SCIMS 10th MAY 2019						


SURVEYOR  
Name: BEVAN LESLIE ASHER  
Date: 13.05.19  
Reference: Oatlands 190513eas

PLAN HEADING  
PLAN OF EASEMENT WITHIN  
LOT 100 D.P.1243044

LGA: CITY OF PARRAMATTA  
Locality: OATLANDS  
Reduction Ratio: 1: 2500  
Lengths are in metres.

REGISTERED  
19.12.2019

DP1259239

PLAN FORM 6 (2017)	DEPOSITED PLAN ADMINISTRATION SHEET	Sheet 1 of 2 sheet(s)
<p>Registered:  19.12.2019</p> <p>Title System: TORRENS</p>	<p>Office Use Only</p> <p style="text-align: center; font-size: 2em;"><b>DP1259239</b></p>	
<p><b>PLAN OF</b></p> <p>EASEMENT WITHIN LOT 100 DP 1243044</p>	<p>LGA: CITY OF PARRAMATTA COUNCIL</p> <p>Locality: OATLANDS</p> <p>Parish: FIELD OF MARS</p> <p>County: CUMBERLAND</p>	
<p style="text-align: center;">Survey Certificate</p> <p>I, Bevan Leslie Asher .....        of PO Box 376 Coogee NSW 2033 .....        a surveyor registered under the <i>Surveying and Spatial Information Act 2002</i>, certify that:</p> <p>*(a) The land shown in the plan was surveyed in accordance with the <i>Surveying and Spatial Information Regulation 2017</i>, is accurate and the survey was completed on 13 May 2019 ....., or</p> <p>*(b) The part of the land shown in the plan (*        .....)        was surveyed in accordance with the <i>Surveying and Spatial Information Regulation 2017</i>, the part surveyed is accurate and the survey was completed on,..... and..... the part not surveyed was compiled in accordance with that Regulation, or</p> <p>*(c) The land shown in this plan was compiled in accordance with the <i>Surveying and Spatial Information Regulation 2017</i>.</p> <p>Datum Line: A-B .....</p> <p>Type: *Urban/*Rural</p> <p>The terrain is *Level-Undulating / *Steep-Mountainous.</p> <p>Signature: <i>B L Asher</i> ..... Dated: 19/9/2019 .....</p> <p>Surveyor Identification No: 381.....</p> <p>Surveyor registered under the <i>Surveying and Spatial Information Act 2002</i></p> <p>*Strike out inappropriate words.</p> <p>**Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.</p>	<p style="text-align: center;">Crown Lands NSW/Western Lands Office Approval</p> <p>I, ..... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.</p> <p>Signature: .....</p> <p>Date: .....</p> <p>File Number: .....</p> <p>Office: .....</p>	
<p>Plans used in the preparation of survey/compilation.</p> <p>DP 1243044, DP 1242453</p>	<p style="text-align: center;">Subdivision Certificate</p> <p>I, .....        *Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of s.109J of the <i>Environmental Planning and Assessment Act 1979</i> have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.</p> <p>Signature: .....</p> <p>Accreditation number: .....</p> <p>Consent Authority: .....</p> <p>Date of endorsement: .....</p> <p>Subdivision Certificate number: .....</p> <p>File number: .....</p> <p>*Strike through if inapplicable.</p>	
<p>Surveyor's Reference: Oatlands 190513ease</p>	<p>Statements of intention to dedicate public roads, create public reserves and drainage reserves, acquire/resume land.</p> <p style="text-align: center;">Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A</p>	

PLAN FORM 6A (2017) <b>DEPOSITED PLAN ADMINISTRATION SHEET</b> Sheet 2 of 2 sheet(s)	
<div style="display: flex; justify-content: space-between;"><div>Registered:  19.12.2019</div><div style="text-align: right;">Office Use Only</div></div> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"><b>PLAN OF EASEMENT WITHIN LOT 100 DP 1243044</b></div> <div style="margin-top: 5px;">Subdivision Certificate number: .....</div> <div style="margin-top: 5px;">Date of Endorsement: .....</div>	<div style="text-align: center; font-size: 24pt; font-weight: bold; margin-bottom: 10px;">DP1259239</div> <div style="font-size: 10pt;">Office Use Only</div> <div style="font-size: 10pt; margin-top: 10px;">This sheet is for the provision of the following information as required:</div> <ul style="list-style-type: none"><li>A schedule of lots and addresses - See 60(c) SS/ Regulation 2017</li><li>Statements of intention to create and release affecting interests in accordance with section 88B Conveyancing Act 1919</li><li>Signatures and seals- see 195D Conveyancing Act 1919</li><li>Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.</li></ul>
<p>Pursuant to Section 88B of The Conveyancing Act 1919 it is intended to create:</p> <p>1 Easement to permit encroaching structure to remain and other purposes variable width (X)</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"><div style="width: 45%;">Signed by Judith Florence Royan in the presence of</div><div style="width: 50%; text-align: center;"> .....</div></div> <div style="display: flex; justify-content: space-between; align-items: flex-end;"><div style="width: 45%; text-align: center;"> .....</div><div style="width: 50%;"></div></div> <p>Signature of Witness</p> <div style="display: flex; justify-content: space-between; align-items: flex-end;"><div style="width: 45%; text-align: center;"> .....</div><div style="width: 50%;"></div></div> <p>Name and address of witness ( please print)</p> <p>31 Sedgwick Rd, Kenthurst. 2156.</p> <div style="font-size: 10pt; margin-top: 10px;">EXECUTED BY OATLANDS GOLF CLUB LIMITED (ACN 000 026 531) PURSUANT TO S127 OF THE CORPORATIONS ACT 2000 BY ITS AUTHORISED PERSONS WHOSE SIGNATURES ARE BELOW</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"><div style="text-align: center;"> ..... William MITCHELL DIRECTOR</div><div style="text-align: center;"> ..... GEORGE ISAAC DIRECTOR</div></div> <div style="text-align: center; margin-top: 20px;"><b>AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED ABN 11 005 357 522 by its Attorney under Power of Attorney Book No. 4465 No. 246</b></div> <div style="display: flex; justify-content: space-between; align-items: flex-end;"><div style="width: 45%;">Sign:  .....</div><div style="width: 50%;"></div></div> <p>Name: Gary John Prowse</p> <div style="margin-top: 10px;">Witnessed by:</div> <div style="display: flex; justify-content: space-between; align-items: flex-end;"><div style="width: 45%;">Sign:  .....</div><div style="width: 50%; text-align: right;">ANZ F129 - 24/32 LEXINGTON DR Bella Vista NSW 2153</div></div> <p>Name: Ben Keating</p> <div style="text-align: center; font-size: 10pt; margin-top: 10px;">If space is insufficient use additional annexure sheet</div>	
Surveyor's Reference: Oatlands 190513ease	



Plan Form 2

Plan Drawing only to appear in this space.

DP607561

\*OFFICE USE ONLY

SIGNATURES AND SEALS ONLY

*R. V. Stubbell*  
C. J. Stubbell  
Joint Proprietors

*J. B. Brooks J.P.*  
J. B. Brooks J.P.

*S. Keyan*  
S. Keyan

*K. Ryeisford*  
K. Ryeisford

*M. Masale*  
M. Masale

Attest: Under the provisions of the Real Estate and Business Agents Act, 1938, I, the undersigned, being a duly qualified and licensed Valuer-General, do hereby certify that the above is a true and correct copy of the original plan as filed in the office of the Registrar-General, New South Wales, on the 23rd day of May, 1979.

Valuer-General

DP607561

Council Clerk's Certificate.

I hereby certify that—

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

(b) the requirements of section 34B of the Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, Hunter District Water, Sewerage, and Drainage Act, 1938, as amended,

have been complied with by the applicant in relation to the proposed

Subdivision

(insert "new road", "subdivision" or "consolidated lot") set out herein.

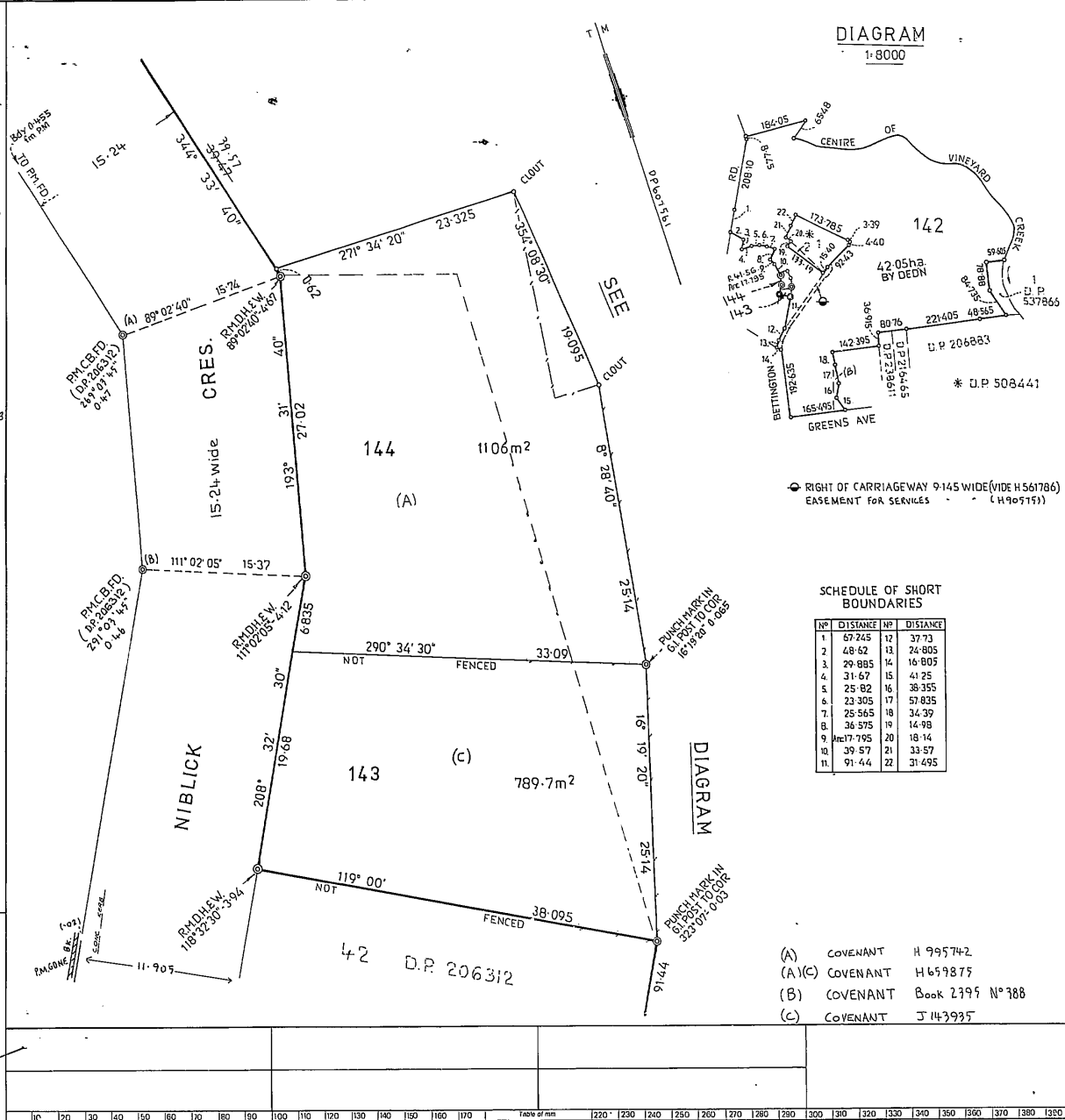
Subdivision No. 3447/2905/1/2/3427

Date 23rd May 1979

(Signature) *M. Masale*

Council Clerk

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



WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

AMENDMENTS AND/OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 18th day of August, 1980

D.P. 607561

Registered: 12-8-1980

CA: N° 3447/2905/1/2/3427 of 23-5-1979

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: U.0052 - 23/12/14/21

Last Plan: 20612 (32351)

937866

PLAN

OF SUBDIVISION OF LOT 2  
D.P. 537866 & LOTS 43 & 44  
D.P. 206312

Reduction Ratio 1: 250  
Lengths are in metres.

Mun./Shire: PARRAMATTA  
City: DUNDAS  
Parish: FIELD OF MARS  
County: CUMBERLAND

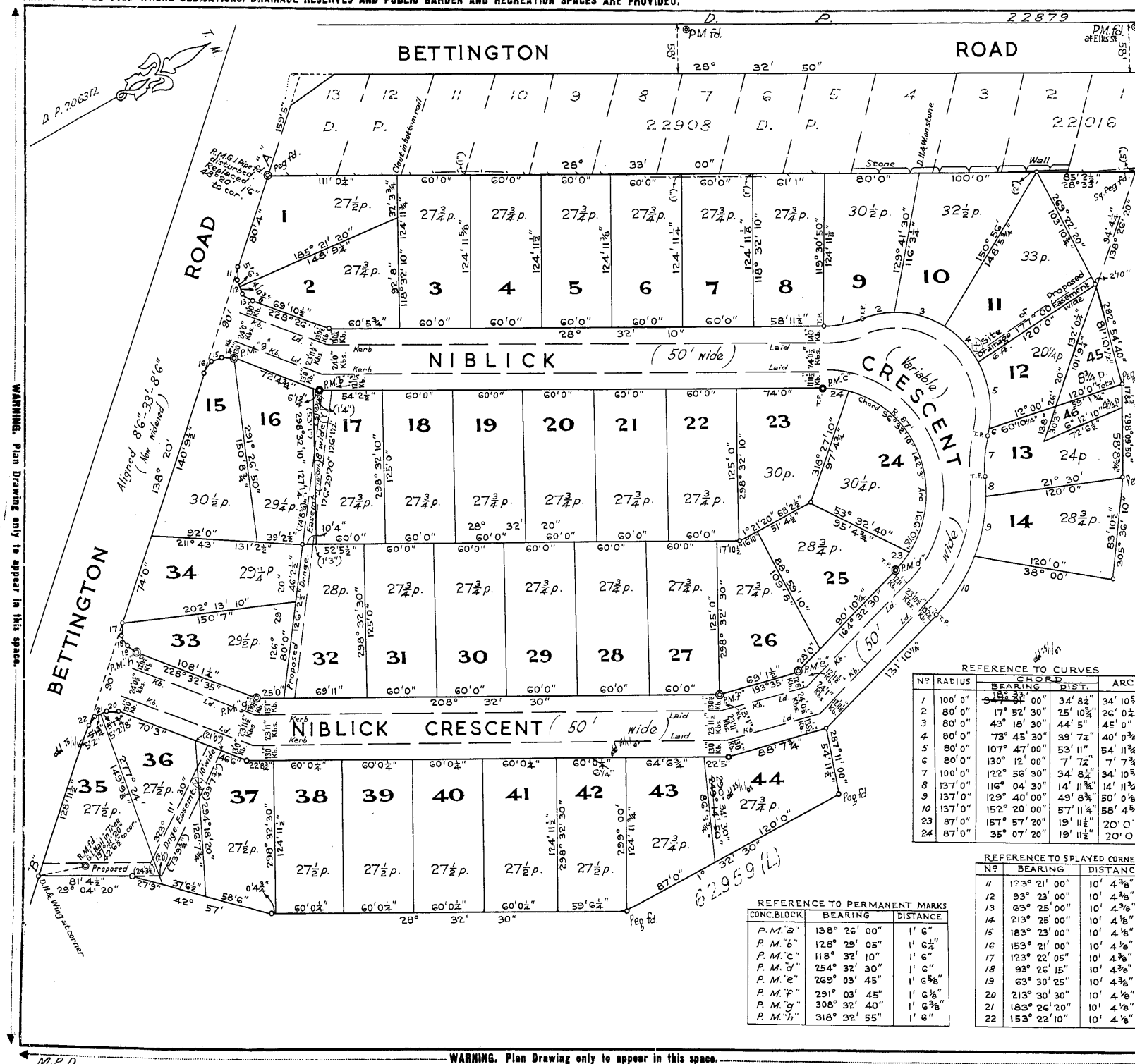
This is sheet 1 of my plan in sheets.  
(delete if inapplicable)

WILLIAM LAURENCE REIN OF  
COLWELLARCOMBE & REIN  
104 BATHURST ST. SYDNEY  
as  
a surveyor registered under the Surveyors Act, 1929, as  
amended, hereby certify that the survey represented in this  
plan, IN RESPECT OF LOTS 143 & 144 ONLY  
is accurate and has been made (1) by me (2) under my  
immediate supervision in accordance with the Survey  
Practise Regulations, 1932, and was completed on 1  
14-7-77

Signature *W. L. Rein*  
Surveyor registered under the Surveyors Act, 1929, as amended  
Datum Line of Assumed "A" "B" "C"  
Strike out either (1) or (2) as appropriate of survey

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

Surveyor's Reference: R522/77333



DP206312 (E)

Registered: 1/2/62  
C.A.: 1552/2309/1/32/637. of B.8.61.  
Title System: Torrens, & Div. System  
Purpose: Subdivision  
Ref. Map: Dundas Sh.10. #  
Last Plan MPS(R) 115666 & MPS(OS) 14165

**PLAN OF** subdivision of land  
comprised in Certificate of Title  
Volume 8080 Folio 159  
and whole of the land described in  
Conveyance N° 215 Bk.2548  
being part of lot A in MPS (R.F.)  
115666 & part of lot A in MPS (OS)  
14165

Scale: 60 Feet to an inch

Men. Shire: Parramatta  
City: Dundas  
Parish: Field of Mars  
County: Cumberland

of Aubrey Ayres  
of Foxall & Lines, Sydney  
a surveyor registered under the Surveyors Act, 1929, as amended,  
hereby certify that the survey represented in this plan  
is accurate and has been made (1) by me & (2) by my assistants  
in accordance with the Survey Practice  
Regulations, 1933, and was completed on 1.2.62.  
Signature: A. Ayres  
Surveyor registered under Surveyors Act, 1929, as amended.  
Datum Line of Azimuth: A-B.

Statements of Dedications, Easements,  
(Signatures and Seals to appear in panel provided.)

It is intended to create an Easement  
for Drainage 8 feet wide in favour  
of the City Council of Parramatta  
over part of lots 16, 17 and 32,  
appurtenant to new road, Niblick Crescent.

It is intended to create an Easement  
for Drainage 10 feet wide in favour  
of the Council of the City of Parramatta  
over part of lots 35, 36 and 37,  
appurtenant to new road, Niblick Crescent.

It is intended to create an  
Easement for Drainage 6 feet wide  
over part of Lot 11 in favour of  
the Council of the City of  
Parramatta, appurtenant to new road,  
Niblick Crescent.

It is intended to dedicate the  
new road, Niblick Crescent to the  
Public for Road purposes.

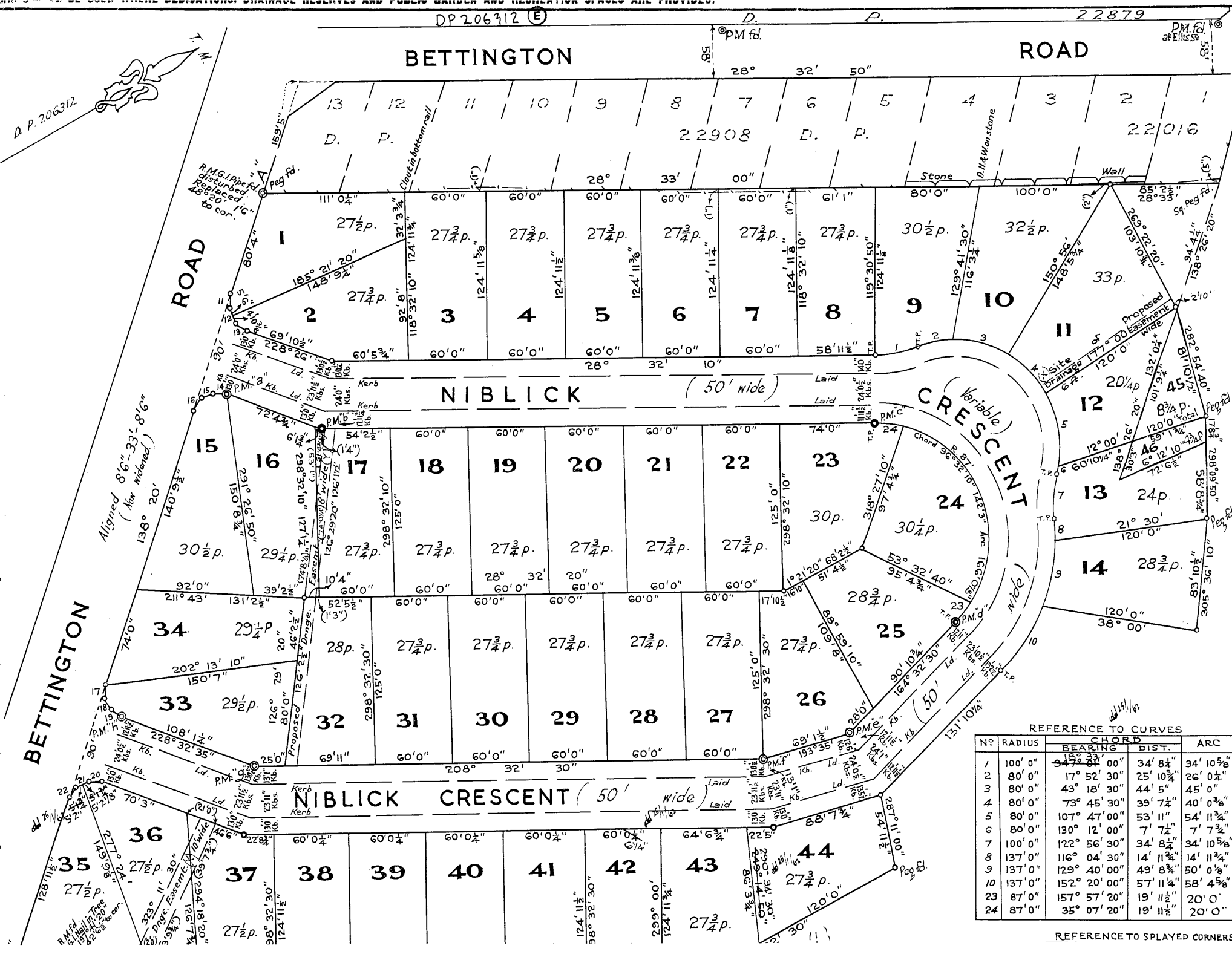
It is intended to consolidate Lot 12  
with Lot 45.

It is intended to consolidate Lot 13  
with Lot 46.

REFERENCE TO CURVES			
N°	RADIUS	BEARING	ARC
1	100' 0"	34° 32' 00"	34' 10 1/2"
2	80' 0"	17° 52' 30"	25' 10 1/2"
3	80' 0"	43° 18' 30"	44' 5' 45"
4	80' 0"	73° 45' 30"	39' 7 1/2"
5	80' 0"	107° 47' 00"	53' 11"
6	80' 0"	130° 12' 00"	7' 7 1/2"
7	100' 0"	122° 56' 30"	34' 10 1/2"
8	137' 0"	116° 04' 30"	14' 11 1/2"
9	137' 0"	129° 40' 00"	49' 8 1/2"
10	137' 0"	152° 20' 00"	57' 11 1/2"
23	87' 0"	157° 57' 20"	19' 11 1/2"
24	87' 0"	35° 07' 20"	19' 11 1/2"

REFERENCE TO SPICED CORNERS		
N°	BEARING	DISTANCE
11	123° 21' 00"	10' 4 3/8"
12	93° 23' 00"	10' 4 3/8"
13	63° 25' 00"	10' 4 3/8"
14	213° 25' 00"	10' 4 3/8"
15	163° 23' 00"	10' 4 3/8"
16	153° 21' 00"	10' 4 3/8"
17	123° 22' 05"	10' 4 3/8"
18	93° 26' 15"	10' 4 3/8"
19	63° 30' 25"	10' 4 3/8"
20	213° 30' 30"	10' 4 3/8"
21	183° 26' 20"	10' 4 3/8"
22	153° 22' 10"	10' 4 3/8"

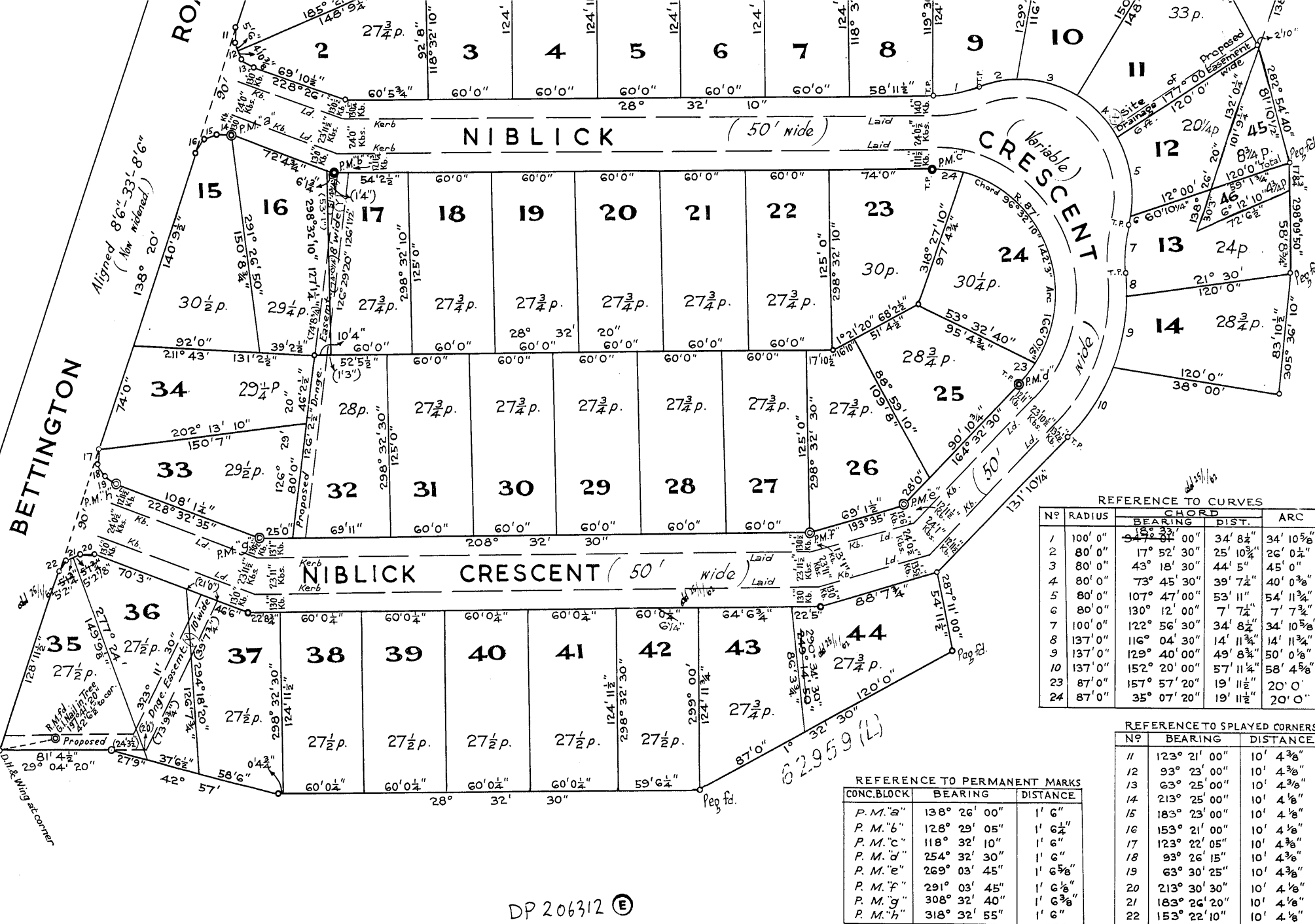
REFERENCE TO PERMANENT MARKS		
CONC. BLOCK	BEARING	DISTANCE
P.M. 'a'	138° 26' 00"	1' 6"
P.M. 'b'	128° 29' 05"	1' 6 1/2"
P.M. 'c'	118° 32' 10"	1' 6"
P.M. 'd'	254° 32' 30"	1' 6"
P.M. 'e'	269° 03' 45"	1' 6 5/8"
P.M. 'f'	291° 03' 45"	1' 6 5/8"
P.M. 'g'	308° 32' 40"	1' 6 5/8"
P.M. 'h'	318° 32' 55"	1' 6"



REFERENCE TO CURVES				
N <sup>o</sup>	RADIUS	CHORD		ARC
		BEARING	DIST.	
1	100' 0"	54° 31' 00"	34' 8½"	34' 10½"
2	80' 0"	71° 52' 30"	25' 10 3/4"	26' 0 1/4"
3	80' 0"	43° 18' 30"	44' 5"	45' 0"
4	80' 0"	73° 45' 30"	39' 7½"	40' 0 3/8"
5	80' 0"	107° 47' 00"	53' 11"	54' 1 1/2"
6	80' 0"	130° 12' 00"	7' 7¼"	7' 7 3/4"
7	100' 0"	122° 56' 30"	34' 8½"	34' 10½"
8	137' 0"	116° 04' 30"	14' 1 1/4"	14' 1 1/4"
9	137' 0"	129° 40' 00"	49' 8 3/8"	50' 0 3/8"
10	137' 0"	152° 20' 00"	57' 11 1/4"	58' 4 5/8"
23	87' 0"	155° 57' 20"	19' 11½"	20' 0"
24	87' 0"	137° 07' 20"	19' 11½"	20' 0"

### REFERENCE TO SPLAYED CORNERS

Reg:	C.A.
Title	
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REFERENCE TO CURVES			
Nº	RADIUS	CHORD	
		BEARING	DIST.
1	100' 0"	34° 33' 00"	34' 8 1/2"
2	80' 0"	17° 52' 30"	25' 10 3/4"
3	80' 0"	43° 18' 30"	44' 5"
4	80' 0"	73° 45' 30"	39' 7 1/2"
5	80' 0"	107° 47' 00"	53' 11"
6	80' 0"	130° 12' 00"	7' 7 1/2"
7	100' 0"	122° 56' 30"	34' 8 1/2"
8	137' 0"	116° 04' 30"	14' 11 3/4"
9	137' 0"	129° 40' 00"	49' 8 3/4"
10	137' 0"	152° 20' 00"	57' 11 1/4"
23	87' 0"	157° 57' 20"	19' 11 1/2"
24	87' 0"	35° 07' 20"	19' 11 1/2"

REFERENCE TO SPLAYED CORNERS		
Nº	BEARING	DISTANCE
11	123° 21' 00"	10' 4 3/8"
12	93° 23' 00"	10' 4 3/8"
13	63° 25' 00"	10' 4 3/8"
14	213° 25' 00"	10' 4 1/8"
15	183° 23' 00"	10' 4 1/8"
16	153° 21' 00"	10' 4 1/8"
17	123° 22' 05"	10' 4 3/8"
18	93° 26' 15"	10' 4 3/8"
19	63° 30' 25"	10' 4 3/8"
20	213° 30' 30"	10' 4 1/8"
21	183° 26' 20"	10' 4 1/8"
22	153° 22' 10"	10' 4 1/8"

REFERENCE TO PERMANENT MARKS		
CONC.BLOCK	BEARING	DISTANCE
P.M."a"	138° 26' 00"	1' 6"
P.M."b"	128° 29' 05"	1' 6 1/2"
P.M."c"	118° 32' 10"	1' 6"
P.M."d"	254° 32' 30"	1' 6"
P.M."e"	269° 03' 45"	1' 6 5/8"
P.M."f"	291° 03' 45"	1' 6 5/8"
P.M."g"	308° 32' 40"	1' 6 3/8"
P.M."h"	318° 32' 55"	1' 6"

WARNING. Plan Drawing only to appear in this space.

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**DP206312 (E)**

Registered: *15/2/2009*

C.A.: *1552/2309/1/22/637. of B:8-61.*

Title System: *Taccas & D.D. System*

Purpose: *Subdivision*

Ref. Map: *Dundas Sh. 10. #*

Last Plan *MPS(RP)15666 & MPS(OS) 14165*

**PLAN OF subdivision of land**  
 comprised in Certificate of Title  
 Volume 8080 folio 159  
 and whole of the land described in  
 Conveyance N° 215 Bk.2548  
 being part of lot A in MPS(RP)  
 15666 & part of lot A in MPS(OS)  
 14165

Scale: 60 Feet to an inch

Man-Shire: *Parramatta*

City: *Parramatta*

Locality: *Dundas*

Parish: *Field of Mars*

County: *Cumberland*

*L. Aubrey Ayres*

of *Foxall & Lines Sydney*

a surveyor registered under the Surveyors Act, 1929, as amended,  
 hereby certify that the survey represented in this plan  
 is accurate and has been made (1) by me (2) under my  
 immediate supervision in accordance with the Survey Practice  
 Regulations, 1933, and was completed on 1.8.8-61.

Signature: *A. Aubrey Ayres*

Surveyor registered under the Surveyors Act, 1929, as amended,  
 Derive Line of Adjoining A-B.

Statements of Dedications, Easements,  
 (Signatures and Seals to appear in panel provided.)

*It is intended to create an Easement  
 in Drainage 8 feet wide in favour  
 of the City Council of Parramatta  
 over part of lots 16, 17 and 32  
 pursuant to new road, Niblick Crescent.*

*It is intended to create an Easement  
 in Drainage 10 feet wide in favour  
 of the Council of the City of Parramatta  
 over part of lots 35, 36 and 37  
 pursuant to new road, Niblick Crescent.*

*It is intended to create an  
 easement for Drainage 6 feet wide  
 over part of lot 11 in favour of  
 the Council of the City of  
 Parramatta, appurtenant to new road,  
 Niblick Crescent.*

*It is intended to dedicate the  
 new road, Niblick Crescent to the  
 public for Road purposes.*

*It is intended to consolidate Lot 12  
 with Lot 45.*


*It is intended to consolidate Lot 13  
 with Lot 46.*

OFFICE USE ONLY.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.

*noted*

**SIGNATURES AND SEALS ONLY.**



*R. P. ...*

*...*

I hereby certify that the requirements of the Local Government Act, 1919 (other than the requirements  
 for registration of plans), have been complied with by the applicant in relation to the proposed sub-  
 division and new road(s) set out herein.

Subdivision No. *1552/2409/K/22/637* Date: *8-8-61*

Council Clerk: *L. J. ...*

Approved by Council:  
 The Common Seal of The Council of the *City of Parramatta*

was hereunto affixed on *August 8 1961* pursuant to a resolution  
 of Council passed on *August 7 1961*

Council Clerk: *L. J. ...*

Mayor/Minister: *...*

CONVERSION TABLE ADDED IN  
 REGISTRAR GENERAL'S DEPARTMENT

DP 206312

FEET	INCHES	METRES
-	1 3/4	0.025
-	2	0.044
-	4 3/4	0.051
-	5	0.121
1	3	0.127
1	4	0.381
1	6	0.406
1	6 1/8	0.457
1	6 1/4	0.460
1	6 3/8	0.464
1	6 5/8	0.467
2	6	0.473
2	2 3/4	0.610
2	10	0.679
2	11	0.684
3	-	0.889
3	-	0.914
3	10 1/2	1.181
3	11	1.194
4	4 3/4	1.340
4	10 3/8	1.483
5	2	1.575
5	2 1/8	1.578
5	6	1.676
6	-	1.829
6	1 3/4	1.873
7	7 1/4	2.318
7	7 3/4	2.330
7	11 1/4	2.419
8	-	2.438
8	6	2.591
10	-	3.048
10	4	3.150
10	4 1/8	3.153
10	4 3/8	3.159
11	6 1/4	3.512
11	11 1/2	3.645
12	-	3.658
12	6	3.810
12	11	3.937
12	11 1/2	3.950
12	11 3/4	3.956
13	-	3.962
13	0 1/2	3.975
13	1	3.988
13	2 1/2	4.026
13	5 1/2	4.102
14	-	4.267
14	4 1/8	4.372
14	4 3/8	4.378
14	11 3/4	4.966
16	10	5.131
17	8 3/4	5.404
17	10 1/2	5.448
19	2 3/8	5.852
19	11 1/2	6.083
20	-	6.096
21	-	6.401
22	5	6.833
22	8 3/4	6.928
23	10 1/2	7.277
23	11	7.290
23	11 1/2	7.303
24	-	7.315
24	0 1/2	7.328
24	1	7.341
24	3 1/2	7.404
25	-	7.620
25	10 3/4	7.893
26	0 1/4	7.931
28	-	8.534
30	3	9.220
32	3 3/4	9.849
33	-	10.058
34	0 1/2	10.376
34	8 1/4	10.573
34	10 3/8	10.627

CONVERSION TABLE ADDED IN  
 REGISTRAR GENERAL'S DEPARTMENT

DP 206312 CONTINUED

FEET	INCHES	METRES
34	10 5/8	10.633
37	6 1/2	11.443
39	2 1/2	11.951
39	7 1/4	12.071
39	7 3/4	12.084
40	0 3/8	12.202
42	6 1/2	12.967
44	5	13.538
45	-	13.716
46	2 1/2	14.084
46	6	14.173
49	8 3/4	15.157
50	-	15.240
50	0 1/8	15.243
51	4 1/2	15.659
51	4 3/4	15.665
52	5 1/2	15.989
53	1	16.180
53	11	16.434
54	2 1/2	16.523
54	11 1/2	16.751
54	11 3/4	16.758
57	11 1/4	17.659
58	-	17.678
58	4 5/8	17.796
58	6	17.831
58	8 3/4	17.901
58	11 1/2	17.971
59	1 3/4	18.028
59	6 1/4	18.142
60	-	18.288
60	0 1/4	18.294
60	5 3/4	18.434
60	6 1/4	18.447
60	10 1/4	18.548
61	1	18.618
64	6 3/4	19.679
66	1 3/4	20.161
68	2 1/2	20.790
69	1 1/2	21.069
69	10 1/2	21.298
69	11	21.311
70	3	21.412
72	4 3/4	22.066
72	6 1/2	22.111
73	7 3/4	22.447
73	9 3/4	22.498
74	-	22.555
74	0 1/4	22.562
74	8 3/4	22.777
80	-	24.384
80	4	24.486
81	4 1/2	24.803
81	10 1/2	24.956
83	10 1/2	25.565
85	2 1/2	25.972
86	3 3/4	26.308
87	-	26.518
88	7 3/4	27.019
90	-	27.432
90	10 3/4	27.705
92	-	28.042
92	8	28.245
94	4 1/4	28.759
95	4 3/4	29.077
97	4 3/4	29.686
100	-	30.480
101	9 1/4	31.020
103	10 3/4	31.667
108	1 1/4	32.950
109	8	33.426
110	-	33.528
110	4	33.630
111	0 1/4	33.839
113	-	34.442
113	0 1/4	34.449
113	0 1/2	34.455

CONVERSION TABLE ADDED IN  
 REGISTRAR GENERAL'S DEPARTMENT

DP 206312 CONTINUED

FEET	INCHES	METRES
116	3 1/4	35.439
120	-	36.576
124	11 1/8	38.078
124	11 1/4	38.081
124	11 3/8	38.084
124	11 1/2	38.087
124	11 5/8	38.090
124	11 3/4	38.094
125	-	38.100
126	1 1/2	38.443
126	2 1/2	38.468
126	7 3/4	38.602
126	11 1/2	38.697
127	1 1/4	38.741
128	11 1/2	39.307
131	2 1/2	39.992
131	10 1/4	40.189
132	0 1/4	40.240
137	-	41.758
140	9 1/2	42.913
142	3	43.358
148	5 3/4	45.256
148	9 1/4	45.345
149	9 1/8	45.647
150	7	45.898
150	8 3/4	45.942
159	5	48.590
166	0 1/8	50.600
224	-	68.275
225	-	68.580
225	10 3/4	68.853
234	8 1/4	71.533
337	6 1/2	102.883
444	5	135.458
446	6	136.093
550	-	167.640
554	2 1/2	168.923
558	6	170.231
559	6 1/4	170.542
660	-	201.168
880	-	268.224
887	-	270.358
992	8	302.565
1100	-	335.280
1108	1 1/4	337.750
1124	11 1/2	342.887
1124	11 3/4	342.894
1126	1 1/2	343.243
1126	2 1/2	343.268
1126	7 3/4	343.402
1140	9 1/2	347.713
1150	7	350.698

AC	RD	P	SQ M
-	-	4 3/4	120.1
-	-	8 3/4	221.3
-	-	20 1/4	512.2
-	-	24	607
-	-	26 1/4	663.9
-	-	27 1/2	695.6
-	-	27 3/4	701.9
-	-	28	708.2
-	-	28 3/4	727.2
-	-	29 1/4	739.8
-	-	29 1/2	746.1
-	-	30	758.8
-	-	30 1/4	765.1
-	-	30 1/2	771.4
-	-	32 1/2	822
-	-	33	834.7

Strike out either (1) or (2). f. insert date of survey.



FOLIO: 100/1243044

SEARCH DATE	TIME	EDITION NO	DATE
25/10/2021	6:32 PM	2	19/12/2019

LAND

LOT 100 IN DEPOSITED PLAN 1243044  
AT OATLANDS  
LOCAL GOVERNMENT AREA CITY OF PARRAMATTA  
PARISH OF FIELD OF MARS COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP1243044

FIRST SCHEDULE

OATLANDS GOLF CLUB LIMITED

SECOND SCHEDULE (18 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 BK 2395 NO 388 COVENANT AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM.
- 3 H561786 RIGHT OF CARRIAGEWAY 9.145 METRE(S) WIDE AND VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 4 H905753 EASEMENT FOR SERVICES 9.145 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 5 S866798 EASEMENT FOR UNDERGROUND MAINS 1 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 6 7001875 LEASE TO HUTCHISON TELECOMMUNICATIONS (AUSTRALIA) LIMITED OF PREMISES AT OATLANDS GOLF CLUB, AT BETTINGTON ROAD, OATLANDS AND SHOWN HATCHED IN PLAN WITH 7001875. COMMENCES 5/5/2015. EXPIRES: 4/5/2020.  
AE282264 TRANSFER OF LEASE 7001875 LESSEE NOW CROWN CASTLE AUSTRALIA PTY LIMITED
- 7 8122517 LEASE TO OPTUS MOBILE PTY LIMITED OF PART SHOWN HATCHED IN PLAN(PAGE 18) WITH 8122517 COMMENCES 5/5/2015. EXPIRES: 4/5/2020.  
AC975603 VARIATION OF LEASE 8122517
- 8 AD428142 EASEMENT TO DRAIN WATER 1.2 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 9 AG162144 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
- 10 AH526913 EASEMENT TO DRAIN WATER 1.2 WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE DESIGNATED (B) IN PLAN WITH AH526913

END OF PAGE 1 - CONTINUED OVER

oatlands golf

PRINTED ON 25/10/2021

FOLIO: 100/1243044

PAGE 2

## SECOND SCHEDULE (18 NOTIFICATIONS) (CONTINUED)

- 11 AI298849 LEASE TO VODAFONE HUTCHISON AUSTRALIA PTY LIMITED OF THE PART SHOWN HATCHED IN PLAN (PAGE 9) WITH 9665811. COMMENCES: 5/5/2015. EXPIRES: 4/5/2020.
- 12 AP128530 LEASE TO AXICOM PTY LTD OF LEASE AREA SHOWN HATCHED IN PLAN WITH AP128530 COMMENCES 5/5/2020. EXPIRES: 4/5/2025.
- 13 AP133425 LEASE TO AXICOM PTY LTD OF LEASE AREA SHOWN HATCHED IN PLAN WITH AP133425 COMMENCES 5/5/2025. EXPIRES: 4/5/2030.
- 14 AP133426 LEASE TO AXICOM PTY LTD OF LEASE AREA SHOWN HATCHED IN PLAN WITH AP133426 COMMENCES 5/5/2030. EXPIRES: 4/5/2035.
- 15 AP133427 LEASE TO AXICOM PTY LTD OF LEASE AREA SHOWN HATCHED IN PLAN WITH AP133427 COMMENCES 5/5/2035. EXPIRES: 4/5/2040.
- 16 AP258974 RESTRICTION(S) ON THE USE OF LAND
- 17 AP258975 POSITIVE COVENANT
- ~~18 DP1259239 EASEMENT TO PERMIT ENCROACHING STRUCTURE TO REMAIN AND OTHER PURPOSES VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN DP1259239~~

## NOTATIONS

UNREGISTERED DEALINGS: L AR465970 L AR465971 L AR465972  
L AR465973.

\*\*\* END OF SEARCH \*\*\*

oatlands golf

PRINTED ON 25/10/2021

\* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

## **Appendix F NSW and Australian Heritage Searches**



# Search Results

1 result found.

<a href="#">Burnside Homes</a> Pennant Hills Rd	North Parramatta, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
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Report Produced: Mon Oct 25 11:26:38 2021

## Item Details

### Name

Oatlands House

### Other/Former Names

### Address

42 Bettington Road OATLANDS NSW 2117

### Local Govt Area

City of Parramatta

### Group Name

### Item Classification

#### Item Type

Built

#### Item Group

Residential buildings (private)

#### Item Category

House

### Statement Of Significance

(Godden Mackay Logan CMP 2006): Oatlands House, including its associated outbuildings such as the servants' quarters, remains a significant early survivor of Australian domestic colonial architecture and an important element of Parramatta's development. Built by Percy Simpson for his family home, Oatlands House is a reminder of the vital role Parramatta played in Sydney's early development and survival, through the provision of productive farming land supplying food to the growing colony. Orchards and vineyards were a dominant feature of the surrounding district of Dundas and remained a function of the Oatlands Estate until the turn of the twentieth century. The vineyard at Oatlands, established by the 1840s, was an early example of a successful vineyard. The employment of professional wine makers and vine tenders, and the award of prizes in Europe, gives some indication of the quality of the enterprise and its place in the early stages of the Australian wine industry. James Brindley Bettington, who purchased the house from Simpson, was a prominent colonial entrepreneur and one of the leading figures in the establishment of the merino sheep industry on a large scale. Oatlands House was the family home of the Bettington family over two generations from 1839 until 1924. The extension of the house in the 1840s by Ambrose Hallen, at one time the Colonial Architect, is a significant indicator of Hallen's work in private practice and one of the few surviving examples of his domestic work remaining. The survival on site of the former servants' quarters is an important feature once common in colonial homesteads, but now fast disappearing. The retention of original fittings and furniture, such as cedar joinery, doors and fireplaces, are also important contributors to the house's integrity. The position of the house on the high ground has meant it has long been a landmark in the Dundas area and a prominent feature of the landscape since its construction in the 1830s. Its setting, surrounded on all sides by the open fairways of Oatlands Park Golf Course, has meant that its traditional rural setting has been stylistically retained, with the golf course occupying the 90 acres of the original estate and allowing for an interpretation of the original homestead and farm's setting and size. Although the overall integrity of Oatlands House has been impacted by the fundamental requirements associated with its current use as a function centre, it retains an ability to appreciate its essential colonial characteristics, form, fabric and setting. The significance of the built heritage is enhanced by the potential (albeit generally low) for the survival of archaeological relics at the site. These relics would have research potential principally at the site-specific level.

### Assessed Significance Type

### Endorsed Significance

Unknown

### Date Significance Updated

Listings

Listing Name	Listing Date	Instrument Name	Instrument No.	Plan No.	Gazette Page	Gazette Number
Local Environmental Plan	7/0/2011	Parramatta Local Environmental Plan 2011	1451			

Heritage Item ID	Source
2242781	Local Government

Location

Addresses

Records Retrieved: 1

Street No	Street Name	Suburb/Town/Postcode	Local Govt. Area	LALC	Parish	County	Electorate	Address Type
42	Bettington Road	OATLANDS/NSW/2117	City of Parramatta	Unknown			Unknown	Primary Address

Description

Designer	Builder/Maker	
Construction Year Start & End	Circa	Period
1833	YES	1788 to 1850
Physical Description	Updated	

(Godden Mackay Logan CMP 2006): The property of Oatlands House is located at 42 Bettington Road, Oatlands, within the Parramatta Local Government Area and approximately three kilometres northeast of Parramatta City centre. Comprising Lot 1 in DP 508441, it is accessed by means of a surfaced 250m right-of-way from Bettington Road, and is surrounded on all sides by the grounds of the Oatlands Golf Club. The property area contains a main building of one and two storeys set within landscaped grounds. The site includes several storage sheds. The building itself is a former homestead comprising the remains of an 1830s sandstone cottage and external kitchen, extended in c1840 with a two storey addition joining the earlier buildings. Further works, particularly associated with Oatlands House’s use as a wedding reception and conference centre, have been carried out since the 1960s. The building also features roofs clad with slate and Marseille tiles, and a timber post verandah over sandstone flagging along much of its western and southern facades. The site context, once a rural area used for grazing and crops, is now an intensely suburban area, covered by low-density housing of one to two storeys located two kilometres north of the Parramatta CBD. Due to its location within the grounds of the Oatlands Golf Club, however, the site retains some of its original aspect as a dominant building set within landscaped grounds. The original entrance of the building faces approximately southwest. However, for ease of reference, a nominal north point has been defined for the study area, such that the original entrance and cottage face directly ‘west’.

Physical Condition

Updated

National Trust (Parramatta Branch): Excellent.

Modifications And Dates

National Trust (Parramatta Branch) supplied Year Started.

Further Comments

History

Historical Notes or Provenance

Updated

Historic Themes

Records Retrieved: 0

National Theme	State Theme	Local Theme
No Results Found		



## Assessment

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<b>Criteria a)</b>		
<b>Historical Significance</b>	<b>Include</b>	<b>Exclude</b>
This item is historically significant		
<b>Criteria b)</b>		
<b>Historical Association Significance</b>	<b>Include</b>	<b>Exclude</b>
This item has a significant level of association		
<b>Criteria c)</b>		
<b>Aesthetic/Technical Significance</b>	<b>Include</b>	<b>Exclude</b>
This item is aesthetically significant		
<b>Criteria d)</b>		
<b>Social/Cultural Significance</b>	<b>Include</b>	<b>Exclude</b>
<b>Criteria e)</b>		
<b>Research Potential</b>	<b>Include</b>	<b>Exclude</b>
This item is of research significance		
<b>Criteria f)</b>		
<b>Rarity</b>	<b>Include</b>	<b>Exclude</b>
This item is rare		
<b>Criteria g)</b>		
<b>Representative</b>	<b>Include</b>	<b>Exclude</b>
<b>Integrity/Intactness</b>		<b>Updated</b> 08/22/2011

## References

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This report was produced using the State Heritage Inventory managed by Heritage NSW. Check with your relevant local council or NSW government agency for the most up-to-date information. This report does not replace a Section 167 certificate or a Section 10.7 Certificate (formerly Section 149).

25/10/2021 11:26 AM 4 of 6

## References

Records Retrieved: 0

Title	Author	Year	Link	Type
No Results Found				

## Heritage Studies

Records Retrieved: 0

Title	Year	Item Number	Author	Inspected By	Guidelines Used
No Results Found					

## Procedures / Workflows / Notes

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Records Retrieved: 0

Application ID / Procedure ID	Section of Act	Description	Title	Officer	Date Received	Status	Outcome
No Results Found							

## Management

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### Management

Records Retrieved: 0

Management Category	Management Name	Date Updated
No Results Found		

### Management Summary



## **Appendix G Bore Logs**



# BOREHOLE LOG

**CLIENT:**  
**PROJECT:**  
**LOCATION:** 94 Bettington Rd, Oatlands

**SURFACE LEVEL:** 67.9 AHD  
**EASTING:** 317465.8  
**NORTHING:** 6258966.5  
**DIP/AZIMUTH:** 90°/-

**BORE No:** BH01  
**PROJECT No:** 200032.00  
**DATE:** 11/2/2021  
**SHEET** 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type
		FILL/Silty SAND: fine to coarse, dark brown, trace rootlets near surface, moist, apparently moderately compacted																A			9,11,14 N = 25
	1.1	Below 0.9m: trace fine ironstone gravel																A			
	1.6	CLAY CI-CH: medium to high plasticity, orange brown mottled pale grey, with ironstone bands, trace fine siltstone and ironstone gravel, W<PL, very stiff to hard, residual																S			
	2	SILTSTONE: pale grey and brown, medium and medium to high strength, moderately weathered, slightly fractured, Ashfield Shale																			
	2.95	SILTSTONE: pale grey and brown, low and medium strength with very low and high strength bands and clay seams, highly weathered to moderately weathered, highly fractured to slightly fractured, Ashfield Shale																C	97	88	PL(A) = 0.6  PL(A) = 1.1
	3.42																				
	4																	C	90	28	
	4.5																				
	5																				
	5.52-5.75m	sheared zone																C	100	75	PL(A) = 0.3  PL(A) = 0.4  PL(A) = 0.2
	6.22	SILTSTONE: dark grey, medium strength, slightly weathered, fractured to slightly fractured, Ashfield Shale																			PL(A) = 0.3
	7																	C	100	59	
	8																				
	8.0	SILTSTONE: dark grey, medium to high strength, fresh, slightly fractured, Ashfield Shale																			PL(A) = 0.5  PL(A) = 1.1
	9																				
	9.6	Bore discontinued at 9.6m - Target Depth Reached																			

**RIG:** Explora 140

**DRILLER:** LC

**LOGGED:** LHS

**CASING:** HW and HQ to 1.3m

**TYPE OF BORING:** Solid Flight Auger (TC-bit) to 1.0m; Wash Bore (water) to 1.6m, NMLC Coring to 9.6m

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:**

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



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# BOREHOLE LOG

**CLIENT:**  
**PROJECT:**  
**LOCATION:** 94 Bettington Rd, Oatlands

**SURFACE LEVEL:** 67.8 AHD  
**EASTING:** 317488.2  
**NORTHING:** 6258891.5  
**DIP/AZIMUTH:** 90°/-

**BORE No:** BH03  
**PROJECT No:** 200032.00  
**DATE:** 9/2/2021  
**SHEET** 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering				Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing				
			EW	HW	MW	SW		FS	FR	Ex Low	Very Low	Low			Medium	High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type
	0.08	ASPHALTIC CONCRETE																A			6,25,30/100mm refusal
	0.3	FILL/Gravelly SAND: fine to coarse, dark brown and dark grey, fine gravel, dry																A			
	0.7	FILL/CLAY: medium to high plasticity, dark brown and brown, trace sand and gravel, w~PL, apparently moderately compacted																A			
	1	CLAY CI-CH: medium to high plasticity, orange brown mottled pale grey, with ironstone bands, trace fine siltstone gravel and carbonaceous inclusions, w>PI, hard, residual																S			
	1.57	CLAY CI-CH: medium to high plasticity, orange brown mottled pale grey, with ironstone bands, trace fine siltstone gravel and carbonaceous inclusions, w>PI, hard, residual																			PL(A) = 1.2  PL(A) = 0.6
	1.81	SILTSTONE: pale grey and brown, very low to low strength, highly weathered, fractured, Ashfield Shale																			
	2	SILTSTONE: pale grey and brown, very low to low strength, highly weathered, fractured, Ashfield Shale																C	100	91	
	2.43-2.62m																				
	2.98m																				PL(A) = 0.5
	3.0-3.2m																				
	3.1-3.55m																				
	3.59m																				
	3.66-4.01m																				
	4.06m																				
	4.24m																				
	4.25m																				
	4.53m																				
	5.25-5.38m																				
	5.46-5.63m																				
	6	SILTSTONE: dark grey, 10% fine grained sandstone laminations, high strength, slightly weathered to fresh stained, slightly fractured, Ashfield Shale																			
	6.1																				
	7																				
	7.29m																				
	8																				
	8.0	SILTSTONE: dark grey, high strength, fresh, unbroken, Ashfield Shale																			
	8.54m																				
	9																				
	9.56																				

**RIG:** Explora 140      **DRILLER:** LC      **LOGGED:** LHS      **CASING:** HW and HQ to 1.1m  
**TYPE OF BORING:** Solid Flight Auger (TC-bit) to 1.0m; Wash Bore (water) to 1.53m, NMLC Coring to 10.53m  
**WATER OBSERVATIONS:** No free groundwater observed whilst augering  
**REMARKS:** GW well constructed: blank PVC to 0-1.5m; screen 1.5-10.53m; backfill 0-0.3m; bentonite 0.3-1.0m; filter gravel 1.0-10.53m; gatic at surface

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	G Gas sample	PID Photo ionisation detector (ppm)	
B Bulk sample	P Piston sample	PL(A) Point load axial test Is(50) (MPa)	
BLK Block sample	U Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	
C Core drilling	W Water sample	pp Pocket penetrometer (kPa)	
D Disturbed sample	> Water seep	S Standard penetration test	
E Environmental sample	≡ Water level	V Shear vane (kPa)	

# BOREHOLE LOG

**CLIENT:**  
**PROJECT:**  
**LOCATION:** 94 Bettington Rd, Oatlands

**SURFACE LEVEL:** 67.8 AHD  
**EASTING:** 317488.2  
**NORTHING:** 6258891.5  
**DIP/AZIMUTH:** 90°/--

**BORE No:** BH03  
**PROJECT No:** 200032.00  
**DATE:** 9/2/2021  
**SHEET 2 OF 2**

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)				Discontinuities		Sampling & In Situ Testing										
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium		High	Very High	Ex High	0.01	0.05	0.10	0.50	1.00	B - Bedding S - Shear	J - Joint F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments			
	10.53	SILTSTONE: dark grey, high strength, fresh, unbroken, Ashfield Shale <i>(continued)</i>																									9.9m: 9.9-10.08m: J80°,pl,ro,cln	C	100	100	PL(A) = 1
		Bore discontinued at 10.53m - Target Depth Reached																													
	11																														
	12																														
	13																														
	14																														
	15																														
	16																														
	17																														
	18																														
	19																														

**RIG:** Explora 140

**DRILLER:** LC

**LOGGED:** LHS

**CASING:** HW and HQ to 1.1m

**TYPE OF BORING:** Solid Flight Auger (TC-bit) to 1.0m; Wash Bore (water) to 1.53m, NMLC Coring to 10.53m

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:** GW well constructed: blank PVC to 0-1.5m; screen 1.5-10.53m; backfill 0-0.3m; bentonite 0.3-1.0m; filter gravel 1.0-10.53m; gatic at surface

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



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# BOREHOLE LOG

**CLIENT:**  
**PROJECT:**  
**LOCATION:** 94 Bettington Rd, Oatlands

**SURFACE LEVEL:** 66.6 AHD  
**EASTING:** 317419.5  
**NORTHING:** 6258879.3  
**DIP/AZIMUTH:** 90°/-

**BORE No:** BH04  
**PROJECT No:** 200032.00  
**DATE:** 10/2/2021  
**SHEET 1 OF 2**

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing				
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type	Core Rec. %
66	0.3	FILL/Silty CLAY: low to medium plasticity, dark brown, trace fine to medium sand, rootlets near surface, w<PL apparently moderately compacted																A			19,25/60mm refusal	
66	0.7																	A				
1																		S				
65	1.5	FILL/CLAY: medium plasticity, brown, w<PL, apparently moderately compacted																				
1.58		CLAY CI-CH: medium to high plasticity, orange brown, with ironstone bands, trace fine to medium siltstone gravel, w<PL, very stiff to hard, residual																				
2		SILTSTONE: dark grey and brown, 10% fine grained sandstone laminations, medium strength, moderately and slightly weathered, fractured, Ashfield Shale																			PL(A) = 0.4	
64																		C	95	87	PL(A) = 0.7	
3																					PL(A) = 0.9	
63																					PL(A) = 0.5	
4																					PL(A) = 0.4	
62																			C	100	89	PL(A) = 0.7
5			5.06-5.18m: sheared zone																			PL(A) = 0.7
61																						PL(A) = 1
6																						PL(A) = 1.2
6.37			SILTSTONE: dark grey and brown, 5% fine grained sandstone laminations, medium to high strength, slightly weathered to fresh, slightly fractured to unbroken, Ashfield Shale																C	100	98	PL(A) = 1
7																					PL(A) = 1.2	
59																					PL(A) = 1	
8		7.85m: becoming dark grey																			PL(A) = 0.9	
58																						
9																		C	100	100		
57																						

**RIG:** Explora 140 **DRILLER:** LC **LOGGED:** LHS **CASING:** HW and HQ to 1.1m  
**TYPE OF BORING:** Solid Flight Auger (TC-bit) to 1.0m; Rotary Wash Bore to 1.5m, NMLC Coring to 10.76m  
**WATER OBSERVATIONS:** No free groundwater observed whilst augering  
**REMARKS:** GW Well constructed: blank PVC 0-1.5m; screen 1.5-10.76m; backfill 0-0.5m; bentonite 0.5-1.0m; filter gravel 1.0-10.76m; gatic at surface

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	G Gas sample	PID Photo ionisation detector (ppm)	
B Bulk sample	P Piston sample	PL(A) Point load axial test Is(50) (MPa)	
BLK Block sample	U Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	
C Core drilling	W Water sample	pp Pocket penetrometer (kPa)	
D Disturbed sample	> Water seep	SP Standard penetration test	
E Environmental sample	≡ Water level	V Shear vane (kPa)	

# BOREHOLE LOG

**CLIENT:**  
**PROJECT:**  
**LOCATION:** 94 Bettington Rd, Oatlands

**SURFACE LEVEL:** 66.6 AHD  
**EASTING:** 317419.5  
**NORTHING:** 6258879.3  
**DIP/AZIMUTH:** 90°/--

**BORE No:** BH04  
**PROJECT No:** 200032.00  
**DATE:** 10/2/2021  
**SHEET** 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)				Discontinuities		Sampling & In Situ Testing																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium		High	Very High	Ex High	0.01	0.05	0.10	0.50	1.00	B - Bedding S - Shear	J - Joint F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
56	10.76	SILTSTONE: as above																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

**RIG:** Explora 140

**DRILLER:** LC

**LOGGED:** LHS

**CASING:** HW and HQ to 1.1m

**TYPE OF BORING:** Solid Flight Auger (TC-bit) to 1.0m; Rotary Wash Bore to 1.5m, NMLC Coring to 10.76m

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:** GW Well constructed: blank PVC 0-1.5m; screen 1.5-10.76m; backfill 0-0.5m; bentonite 0.5-1.0m; filter gravel 1.0-10.76m; gatic at surface

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)




<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b>	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b>	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b>	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b>	<b>COORD SOURCE</b>
	<b>DIAMETER</b>	<b>LOGGED BY</b>

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
				Fill	Fill - Bitumen				Bitumen
		0.2		Fill	Fill - Sandy silty GRAVEL, brown/sandy, gravelly, poorly graded, heterogeneous, with inclusions of angular road base (igneous), crushed concrete, shale, dry, coarse gravel		BH3_0.08-0.18	0.3	Ashphalt/chemical odour. No staining or asbestos
		0.4		Fill	Fill - Sandy silty CLAY, reduced gravel, soft, medium to high plasticity, damp, small gravel				No odour, staining or asbestos
		0.6							
		0.8		CLAY	CLAY, red/grey, heterogeneous, medium plasticity, with inclusions of iron stone/shale.				No odour, staining or asbestos
		1							End of hole. SPT by DP to 10m
		1.2							
		1.4							
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							
		3							
		3.2							
		3.4							
		3.6							
		3.8							


<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b>	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b>	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b>	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b>	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b>	<b>LOGGED BY</b>

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.2		Fill	Fill - Sandy Silty CLAY - Brown - Heterogeneous, dry, loose, non plastic, poorly sorted, Inclusions of angular igneous gravel, grass roots and bitumen		HA01_0-0.1	9.5	No odour, staining or asbestos
		0.4		Fill	Fill - Gravelly Silty CLAY - Light Brown - Heterogeneous, Inclusions of angular igneous gravel		HA01_0.2-0.4	6.3	No odour, staining or asbestos. QA/QC
		0.6		Fill	Fill - Crushed Shale Gravel, heterogeneous				No odour, staining or asbestos
		0.8							End of hole. Refusal on shale gravel
		1.0							
		1.2							
		1.4							
		1.6							
		1.8							
		2.0							
		2.2							
		2.4							
		2.6							
		2.8							
		3.0							
		3.2							
		3.4							
		3.6							
		3.8							


<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b>	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b>	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b>	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b>	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b>	<b>LOGGED BY</b>

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.2		Fill	Fill - Sandy Gravelly Clay - Dark Brown - Heterogeneous, Damp, non plastic, Inclusions of gravel, roots plastic and concrete		HA02_0-0.1	2.4	No odour, staining or asbestos
		0.4							End of Hole. PVC pipe from adjacent Telstra pit
		0.6							
		0.8							
		1							
		1.2							
		1.4							
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							
		3							
		3.2							
		3.4							
		3.6							
		3.8							


<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b>	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b>	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b>	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b>	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b>	<b>LOGGED BY</b>

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.2		Fill	Fill - Silty SAND - Light Brown / Grey - Heterogeneous, damp, medium grain, inclusions of roots and small gravels				No odour, staining or asbestos
		0.4		Fill	Fill - Clayey SAND - Dark Brown - Heterogeneous, damp, inclusions moderate to highly plastic material, inclusions of clay, slag				No odour, staining or asbestos
		0.6		Fill	Fill - Clayey SAND - Dark Brown - Heterogeneous, damp, overall low plasticity,				No odour, staining or asbestos
		0.8		Fill	Fill - SAND - Beige - homogenous Medium grain, damp,				No odour, staining or asbestos
		1.0		Fill	Fill - CLAY - Gray / Red - Inclusions of shale gravels (potential natural material)				No odour, staining or asbestos
		1.2							End of hole. Program depth
		1.4							
		1.6							
		1.8							
		2.0							
		2.2							
		2.4							
		2.6							
		2.8							
		3.0							
		3.2							
		3.4							
		3.6							
		3.8							

<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b>	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b>	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b>	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b>	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b>	<b>LOGGED BY</b>




**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
		0.2		Fill	Fill - Silty Gravelly CLAY - Light Brown - Heterogeneous, dry, inclusions of blue metal Coarse gravel and shale		H04_0-0.1	1.8	No odour, staining or asbestos
		0.4		Fill	Fill - Silty Gravelly CLAY - Dark Brown - Heterogeneous, dry, inclusions of small gravels and shale fragments		H04_0.4-0.5	1.7	No odour, staining or asbestos
		0.6							End on hole. Refusal on coarse gravel
		0.8							
		1							
		1.2							
		1.4							
		1.6							
		1.8							
		2							
		2.2							
		2.4							
		2.6							
		2.8							
		3							
		3.2							
		3.4							
		3.6							
		3.8							





<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b> Terratest	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b> 30-Nov-20	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b> Bucket Excavation	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b> Bucket Excavation	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b> 500 mm	<b>LOGGED BY</b> JS

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.2		Fill	Fill - Gravelly Silty CLAY - Dark Brown - Heterogeneous, damp, loose, soft Dark Brown, Inclusions of ash / charcoal and shale		TP01_0.1-0.2	5.4	No odour, staining or asbestos
		0.4		CL-GM-ML	CLAY - Gravelly Silty CLAY - Grey - Heterogeneous, damp, firm, soft Dark Brown, Inclusions of shale		TP01_0.3-0.4	2.1	No odour, staining or asbestos
		0.6		CL-GM-ML	CLAY - Gravelly Silty CLAY - Red - Heterogeneous, damp, firm, soft Dark Brown, Inclusions of shale, weathered shale and plastic		TP01_0.5-0.6	2.2	No odour, staining or asbestos
		0.8							End on hole. Refusal on shale
		1.0							
		1.2							
		1.4							
		1.6							
		1.8							
		2.0							
		2.2							
		2.4							
		2.6							
		2.8							
		3.0							
		3.2							
		3.4							
		3.6							
		3.8							



<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b> Terratest	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b> 30-Nov-20	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b> Bucket Excavation	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b> Bucket Excavation	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b> 500 mm	<b>LOGGED BY</b> JS

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.2		Fill	Fill - Gravelly Silty CLAY - Light Brown / Grey - Heterogeneous, Dark Brown, Inclusions of gravel and black organics		TP02_0.04-0.06	2.1	No odour, staining or asbestos
		0.4		Fill	Fill - Gravelly Silty CLAY - Light Brown / Grey - Heterogeneous, Dark Brown, Inclusions of shale, demolitions debris (tile/concrete), slag and ACM				No odour or staining. Bonded ACM identified
		0.6		CL-GM-ML	CLAY - Gravelly Silty CLAY - Grey / Red - Heterogeneous, dry, non-plastic, Firm, Inclusions of shale and potential coal		TP02_1.1-1.2	10.9	No odour, staining or asbestos
		0.8							End of hole. Program depth
		1.0							
		1.2							
		1.4							
		1.6							
		1.8							
		2.0							
		2.2							
		2.4							
		2.6							
		2.8							
		3.0							
		3.2							
		3.4							
		3.6							
		3.8							

<b>PROJECT NUMBER</b> 60383	<b>DRILLING COMPANY</b> Terratest	<b>EASTING</b> N/A
<b>PROJECT NAME</b> Oatlands Golf Course	<b>DRILLING DATE</b> 30-Nov-20	<b>NORTHING</b> N/A
<b>CLIENT</b>	<b>DRILL RIG</b> Bucket Excavation	<b>COORD SYS</b> GDA94_MGA_zone_56
<b>ADDRESS</b> 94 Bettington Road, Oatlands, NSW	<b>DRILLING METHOD</b> Bucket Excavation	<b>COORD SOURCE</b> Map Approximation
	<b>DIAMETER</b> 500 mm	<b>LOGGED BY</b> JS

**COMMENTS**

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.2		Fill	Fill - Gravelly Silty CLAY - Light Brown - Heterogeneous, damp, Inclusions of demolition debris (whole brick/concrete), two asbestos fragments, rusted metal and slag		TP03_0-0.01	0.7	No odour or staining. ACM
		0.4							
		0.6					TP03_0.5-0.6	3.2	
		0.8							
		1.0					TP03_1.0-1.1	0.6	
		1.2							
		1.4							
		1.6					TP03_1.5-1.6	1.2	
		1.8							
		2.0					TP03_1.8-1.9	0.8	
		2.2		CL-ML	CLAY - Silty Clay - Red / Yellow / Brown - Heterogeneous, Mottled Colour, Inclusions of shale fragments				No odour or staining. ACM
		2.4							
		2.6							
		2.8							
		3.0							
		3.2							
		3.4							
		3.6							
		3.8							
		4.0							
		4.2							End of hole. Program depth
		4.4							
		4.6							
		4.8							
		5.0							
		5.2							
		5.4							
		5.6							
		5.8							
		6.0							

## Appendix H Analytical Summary Tables





2



**Table A: Soil Analytical Results**  
Project Number: 60383  
Project Name: Oatlands Golf Course

[illegible]

Table A: Soil Analytical Results  
Project Number: 60383  
Project Name: Oatlands Golf Course



	Asbestos - Eurofins										Asbestos - Envirolab			Chlorinated Hydrocarbons	Moisture Content	Other			
	Approximate Sample Mass	Asbestos Sample Dimensions	Mass ACM	Mass Asbestos in ACM	Asbestos from ACM in Soil	Mass FA	Mass Asbestos in FA	Mass AF	Mass asbestos in AF	Asbestos from FA & AF in Soil	Mass Asbestos in FA & AF	Asbestos ID in Soil	Total Asbestos	Asbestos (ACM >7mm) Estimation	Asbestos in soil (<2mm AF/FA) [%w/w]			Moisture Content (dried @ 103 °C)	3,5-Dichlorobenzoic acid
	mg	Comment	mg	% (w/w)	mg	mg	mg	mg	% (w/w)	% (w/w)	g/kg	g/kg	% (w/w)	% (w/w)	mg/kg	%	%	mg/kg	mg/kg
EQL															1	0.1	1	0.5	0.5
NEPM 2013 Table 1A(1) HILs Res A Soil																			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																			
0-1m																			
1-2m																			
2-4m																			
>4m																			
NEPM 2013 Table 1B(1-5) Generic EIL - Urban Residential and Public Open Space																			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																			
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil				0.01					0.001					0.01	0.001				
PFAS NEMP 2020 Table 2 Health Residential accessible soil																			

Location_Code	Field_ID	Lab_Report_Number	Sampled_Date_Time																
BH3	BH3-0.08-0.18	774154	10/02/2021	713	-	0	0	0	0	0	0	0	0	-	-	-	-	4.9	-
HA01	HA01-0.2-0.4	774154	9/02/2021	786	-	0	0	0	0	0	0	0	0	-	-	-	-	9.9	-
HA01	HA01-0-0.1	774154	9/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-
HA01	QA#01	261849	9/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
HA01	QCH01	774154	9/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.7	-
HA03	HA03-0.4-0.5	774154	9/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-
TP01	TP01-0.1-0.2	774154	10/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-
TP02	TP02-0.7-0.8	774154	10/02/2021	517	-	0	0	0	0	0	0	0	0	-	-	-	-	17	-
TP02	TP02-0.7-0.8_FRAG	774154	10/02/2021	5	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-
TP03	TP03-0.0-0.1	774154	10/02/2021	597	-	0	0	0	0	0	0	0	0	-	-	-	-	-	-
TP03	TP03-0.0-0.1_FRAG	774154	10/02/2021	23	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-
TP03	TP03-0.5-0.6_FRAG	774154	10/02/2021	25	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-
TP03	TP03-1.5-1.6	774154	10/02/2021	609	-	0	0	0	0	0	0	0	0	-	-	-	-	-	-
TP03	TP03-1-1.1	774154	10/02/2021	718	-	0	0	0	0	0	0	0	0	-	-	-	-	15	-
TP03	TP03-1-1.1_FRAG	774154	10/02/2021	9	1	0	0	0	0	0	0	0	0	-	-	-	-	-	-

Statistical Summary																					
Number of Results	10	4	10	10	10	10	10	10	10	10	10	0	0	0	0	0	1	8	0	3	0
Number of Detects	10	4	10	10	10	10	10	10	10	10	10	0	0	0	0	0	1	8	0	0	0
Minimum Concentration	5	1	0	0	0	0	0	0	0	0	0	####	99999	99999	99999	99999	13	4.9	99999	<0.5	99999
Minimum Detect	5	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	4.9	ND	ND	ND
Maximum Concentration	786	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	23	0	<0.5	0
Maximum Detect	786	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	23	ND	ND	ND
Average Concentration	400	1	0	0	0	0	0	0	0	0	0						12		0.25		
Median Concentration	557	1	0	0	0	0	0	0	0	0	0						13	10	0.25		
Standard Deviation	339	0	0	0	0	0	0	0	0	0	0							5.7	0		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table B: Groundwater Analytical Results  
Project Number: 60383  
Project Name: Oatlands Golf Course



														TPHs (NEPC 1999)										TRHs (NEPC 2013)										BTEXN										PAH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	GS-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum of Total)	GS-C10	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	F1 (GS-C10 minus BTEX)	F2 (C10-C16 less Naphthalene)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Naphthalene - MAH	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Benzo(a)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene - PAH	Phenanthrene	Pyrene	PAHs (Sum of total)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L

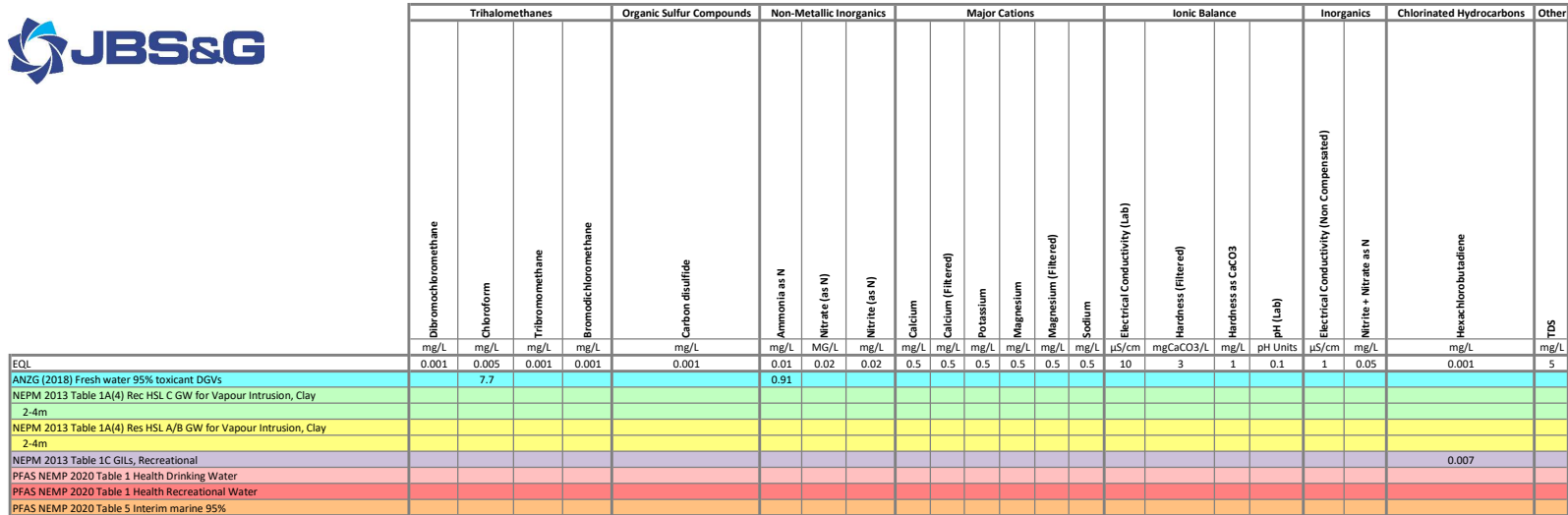


Project Name: Oatlands Golf Course

[illegible]

[illegible]

Project Number: 60383  
Project Name: Oatlands Golf Course

[illegible][illegible]

## **Appendix I Detailed Laboratory Certificates**

## CERTIFICATE OF ANALYSIS 262004

### Client Details

<b>Client</b>	JBS & G (NSW & WA) Pty Ltd
<b>Attention</b>	C Kauffman, M Linz
<b>Address</b>	Level 1, 50 Margaret St, Sydney, NSW, 2000

### Sample Details

<b>Your Reference</b>	<b>60383</b>
<b>Number of Samples</b>	1 water
<b>Date samples received</b>	17/02/2021
<b>Date completed instructions received</b>	17/02/2021

### 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

<b>Date results requested by</b>	24/02/2021
<b>Date of Issue</b>	24/02/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. <b>Tests not covered by NATA are denoted with *</b>	

#### Results Approved By

Alexander Mitchell Maclean, Senior Chemist  
 Dragana Tomas, Senior Chemist  
 Giovanni Agosti, Group Technical Manager  
 Jaimie Loa-Kum-Cheung, Metals Supervisor  
 Priya Samarawickrama, Senior Chemist

#### Authorised By



Nancy Zhang, Laboratory Manager



VOCs in water		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date extracted	-	18/02/2021
Date analysed	-	18/02/2021
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	<1
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Bromoform	µg/L	<1
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	94

vTRH(C6-C10)/BTEXN in Water		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date extracted	-	18/02/2021
Date analysed	-	18/02/2021
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	<10
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	<10
TRH C <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	104
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	94

svTRH (C10-C40) in Water		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date extracted	-	18/02/2021
Date analysed	-	19/02/2021
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	<50
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	<100
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	<100
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	<50
TRH >C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	µg/L	<50
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	<100
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	<100
Surrogate o-Terphenyl	%	100

PFAS in Waters Extended		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date prepared	-	22/02/2021
Date analysed	-	22/02/2021
Perfluorobutanesulfonic acid	µg/L	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01
Perfluorodecanesulfonic acid	µg/L	<0.02
Perfluorobutanoic acid	µg/L	<0.02
Perfluoropentanoic acid	µg/L	0.02
Perfluorohexanoic acid	µg/L	0.03
Perfluoroheptanoic acid	µg/L	0.03
Perfluorooctanoic acid PFOA	µg/L	0.09
Perfluorononanoic acid	µg/L	<0.01
Perfluorodecanoic acid	µg/L	<0.02
Perfluoroundecanoic acid	µg/L	<0.02
Perfluorododecanoic acid	µg/L	<0.05
Perfluorotridecanoic acid	µg/L	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5
4:2 FTS	µg/L	<0.01
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
10:2 FTS	µg/L	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05
N-Ethyl perfluorooctanesulfonamide	µg/L	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02
Surrogate <sup>13</sup> C <sub>8</sub> PFOS	%	98
Surrogate <sup>13</sup> C <sub>2</sub> PFOA	%	108
Extracted ISTD <sup>13</sup> C <sub>3</sub> PFBS	%	97
Extracted ISTD <sup>18</sup> O <sub>2</sub> PFHxS	%	100
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFOS	%	80
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFBA	%	108



PFAS in Waters Extended		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Extracted ISTD <sup>13</sup> C <sub>3</sub> PFPeA	%	92
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFHxA	%	95
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFHpA	%	96
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFOA	%	90
Extracted ISTD <sup>13</sup> C <sub>5</sub> PFNA	%	126
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFDA	%	98
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFUnDA	%	120
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFDoDA	%	73
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFTeDA	%	77
Extracted ISTD <sup>13</sup> C <sub>2</sub> 4:2FTS	%	102
Extracted ISTD <sup>13</sup> C <sub>2</sub> 6:2FTS	%	104
Extracted ISTD <sup>13</sup> C <sub>2</sub> 8:2FTS	%	91
Extracted ISTD <sup>13</sup> C <sub>8</sub> FOSA	%	114
Extracted ISTD d <sub>3</sub> N MeFOSA	%	98
Extracted ISTD d <sub>5</sub> N EtFOSA	%	91
Extracted ISTD d <sub>7</sub> N MeFOSE	%	131
Extracted ISTD d <sub>9</sub> N EtFOSE	%	122
Extracted ISTD d <sub>3</sub> N MeFOSAA	%	86
Extracted ISTD d <sub>5</sub> N EtFOSAA	%	76
Total Positive PFHxS & PFOS	µg/L	0.01
Total Positive PFOA & PFOS	µg/L	0.10
Total Positive PFAS	µg/L	0.19

PAHs in Water		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date extracted	-	18/02/2021
Date analysed	-	19/02/2021
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	69

HM in water - dissolved		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date prepared	-	19/02/2021
Date analysed	-	21/02/2021
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	3
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	8
Zinc-Dissolved	µg/L	51

Cations in water Dissolved		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date digested	-	18/02/2021
Date analysed	-	18/02/2021
Calcium - Dissolved	mg/L	8.2
Magnesium - Dissolved	mg/L	7.8
Hardness	mgCaCO <sub>3</sub> /L	53

Miscellaneous Inorganics		
Our Reference		262004-1
Your Reference	UNITS	QA20210216
Date Sampled		16/02/2021
Type of sample		water
Date prepared	-	17/02/2021
Date analysed	-	17/02/2021
pH	pH Units	5.7
Electrical Conductivity	µS/cm	470
Total Dissolved Solids (grav)	mg/L	330
Ammonia as N in water	mg/L	0.012
Nitrate as N in water	mg/L	<0.005
Nitrite as N in water	mg/L	<0.005



Method ID	Methodology Summary
<b>Inorg-001</b>	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.
<b>Inorg-002</b>	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
<b>Inorg-018</b>	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C.
<b>Inorg-055</b>	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
<b>Inorg-055</b>	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
<b>Inorg-057</b>	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
<b>Metals-020</b>	Determination of various metals by ICP-AES.
<b>Metals-021</b>	Determination of Mercury by Cold Vapour AAS.
<b>Metals-022</b>	Determination of various metals by ICP-MS.
<b>Org-020</b>	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.
<b>Org-022/025</b>	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
<b>Org-023</b>	Water samples are analysed directly by purge and trap GC-MS.
<b>Org-023</b>	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)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
<b>Org-029</b>	<p>Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3.</p> <p>Analysis is undertaken with LC-MS/MS.</p> <p>PFAS results include the sum of branched and linear isomers where applicable.</p> <p>Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.3 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components.</p> <p>Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.</p>

QUALITY CONTROL: VOCs in water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Date analysed	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Date analysed	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
TRH C <sub>6</sub> - C <sub>9</sub>	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C <sub>6</sub> - C <sub>10</sub>	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	91	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-BFB	%		Org-023	93	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Date analysed	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
TRH C <sub>10</sub> - C <sub>14</sub>	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	78	[NT]
TRH C <sub>15</sub> - C <sub>28</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	72	[NT]
TRH C <sub>29</sub> - C <sub>36</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C <sub>10</sub> - C <sub>16</sub>	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	78	[NT]
TRH >C <sub>16</sub> - C <sub>34</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	72	[NT]
TRH >C <sub>34</sub> - C <sub>40</sub>	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate o-Terphenyl	%		Org-020	70	[NT]	[NT]	[NT]	[NT]	74	[NT]



QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/02/2021	1	22/02/2021	22/02/2021		22/02/2021	[NT]
Date analysed	-			22/02/2021	1	22/02/2021	22/02/2021		22/02/2021	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	94	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	84	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.01	0.02	67	99	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	108	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	90	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	0.02	0.02	0	102	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	0.03	0.03	0	89	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	0.03	0.03	0	92	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	0.09	0.08	12	98	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	84	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	80	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	95	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	91	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	98	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	86	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	85	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	91	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	92	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	109	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	82	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	99	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	95	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	81	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	83	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	106	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	106	[NT]
Surrogate <sup>13</sup> C <sub>8</sub> PFOS	%		Org-029	104	1	98	103	5	98	[NT]
Surrogate <sup>13</sup> C <sub>2</sub> PFOA	%		Org-029	106	1	108	112	4	103	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD <sup>13</sup> C <sub>3</sub> PFBS	%		Org-029	95	1	97	91	6	97	[NT]
Extracted ISTD <sup>18</sup> O <sub>2</sub> PFHxS	%		Org-029	98	1	100	96	4	99	[NT]
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFOS	%		Org-029	74	1	80	73	9	78	[NT]
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFBA	%		Org-029	109	1	108	103	5	108	[NT]
Extracted ISTD <sup>13</sup> C <sub>3</sub> PFPeA	%		Org-029	86	1	92	88	4	86	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFHxA	%		Org-029	94	1	95	92	3	96	[NT]
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFHpA	%		Org-029	96	1	96	96	0	93	[NT]
Extracted ISTD <sup>13</sup> C <sub>4</sub> PFOA	%		Org-029	88	1	90	89	1	90	[NT]
Extracted ISTD <sup>13</sup> C <sub>5</sub> PFNA	%		Org-029	107	1	126	125	1	110	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFDA	%		Org-029	90	1	98	96	2	95	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFUnDA	%		Org-029	90	1	120	99	19	112	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFDoDA	%		Org-029	65	1	73	60	20	85	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> PFTeDA	%		Org-029	73	1	77	56	32	100	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> 4:2FTS	%		Org-029	101	1	102	99	3	101	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> 6:2FTS	%		Org-029	99	1	104	104	0	101	[NT]
Extracted ISTD <sup>13</sup> C <sub>2</sub> 8:2FTS	%		Org-029	94	1	91	92	1	105	[NT]
Extracted ISTD <sup>13</sup> C <sub>8</sub> FOSA	%		Org-029	99	1	114	113	1	106	[NT]
Extracted ISTD d <sub>3</sub> N MeFOSA	%		Org-029	101	1	98	91	7	102	[NT]
Extracted ISTD d <sub>5</sub> N EtFOSA	%		Org-029	98	1	91	83	9	103	[NT]
Extracted ISTD d <sub>7</sub> N MeFOSE	%		Org-029	106	1	131	124	5	130	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
<i>Extracted ISTD d<sub>9</sub> N EtFOSE</i>	%		Org-029	94	1	122	112	9	120	[NT]
<i>Extracted ISTD d<sub>3</sub> N MeFOSAA</i>	%		Org-029	93	1	86	83	4	92	[NT]
<i>Extracted ISTD d<sub>5</sub> N EtFOSAA</i>	%		Org-029	75	1	76	75	1	87	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Date analysed	-			19/02/2021	[NT]	[NT]	[NT]	[NT]	19/02/2021	[NT]
Naphthalene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Acenaphthylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	65	[NT]
Fluorene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	75	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	67	[NT]
Pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Benzo(a)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	92	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			19/02/2021	[NT]	[NT]	[NT]	[NT]	19/02/2021	[NT]
Date analysed	-			21/02/2021	[NT]	[NT]	[NT]	[NT]	21/02/2021	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Date analysed	-			18/02/2021	[NT]	[NT]	[NT]	[NT]	18/02/2021	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]



QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/02/2021	[NT]	[NT]	[NT]	[NT]	17/02/2021	[NT]
Date analysed	-			17/02/2021	[NT]	[NT]	[NT]	[NT]	17/02/2021	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	[NT]	[NT]	[NT]	[NT]	104	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	109	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	95	[NT]

## Result Definitions

<b>NT</b>	Not tested
<b>NA</b>	Test not required
<b>INS</b>	Insufficient sample for this test
<b>PQL</b>	Practical Quantitation Limit
<b>&lt;</b>	Less than
<b>&gt;</b>	Greater than
<b>RPD</b>	Relative Percent Difference
<b>LCS</b>	Laboratory Control Sample
<b>NS</b>	Not specified
<b>NEPM</b>	National Environmental Protection Measure
<b>NR</b>	Not Reported

## Quality Control Definitions

<b>Blank</b>	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.
<b>Duplicate</b>	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.
<b>Matrix Spike</b>	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.
<b>LCS (Laboratory Control Sample)</b>	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.
<b>Surrogate Spike</b>	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.

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

For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

IMSO Forms013 - Chain of Custody - Generic

## SAMPLE RECEIPT ADVICE

### Client Details

<b>Client</b>	JBS & G (NSW & WA) Pty Ltd
<b>Attention</b>	C Kauffman, M Linz

### Sample Login Details

<b>Your reference</b>	60383
<b>Envirolab Reference</b>	262004
<b>Date Sample Received</b>	17/02/2021
<b>Date Instructions Received</b>	17/02/2021
<b>Date Results Expected to be Reported</b>	24/02/2021

### Sample Condition

<b>Samples received in appropriate condition for analysis</b>	Yes
<b>No. of Samples Provided</b>	1 water
<b>Turnaround Time Requested</b>	Standard
<b>Temperature on Receipt (°C)</b>	8
<b>Cooling Method</b>	Ice
<b>Sampling Date Provided</b>	YES

### Comments

Nil

Please direct any queries to:

#### Aileen Hie

**Phone:** 02 9910 6200  
**Fax:** 02 9910 6201  
**Email:** ahie@envirolab.com.au

#### Jacinta Hurst

**Phone:** 02 9910 6200  
**Fax:** 02 9910 6201  
**Email:** jhurst@envirolab.com.au

*Analysis Underway, details on the following page:*





**EnviroLab Services Pty Ltd**

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12 Ashley St Chatswood NSW 2067

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customerservice@envirolab.com.au

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Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PFAS in Waters Extended	PAHs in Water	HM in water - dissolved	Cations in water Dissolved	pH	Electrical Conductivity	Total Dissolved Solids(grav)	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water
QA20210216	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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.



2/2

## CHAIN OF CUSTODY

24277



PROJECT NO.: 0383				LABORATORY BATCH NO.:			
PROJECT NAME: Oatley Creek				SAMPLERS: MS/CK			
DATE NEEDED BY: STD				QC LEVEL: NEPM (2013)			
PHONE: Sydney: 02 8245 0300   Perth: 08 9488 0100   Brisbane: 07 3112 2688							
SEND REPORT & INVOICE TO: (1) admin@jbsg.com.au; (2) <i>CKaiff</i> @jbsg.com.au; (3) <i>masterkey</i> @jbsg.com.au							
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:							

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	HM	TRH/vol	PAH	OCPs	PCB	Herbicides	PFAS	Asbestos	MS 10	BTEL	TYPE OF ASBESTOS ANALYSIS	IDENTIFICATION NEPM/WA	NOTES:	
TP05-05-0.6	Soil	10/2/21		J+B+PFA5 + 100															
TP05-05-1				J															
TP05-1.2-1.3				J															
HA01-0-0.1		9/2/21		J+B		X	X		X										
HA01-0.2-0.4				J+B+PFA5		X	X	X	X										
HA01-0.45-0.5				J															
HA02-0-0.1				J+B+PFA5															
HA03-0-0.1				J+B															
HA03-0.4-0.5				J+B															
HA03-0.6-0.7				J+B+PFA5		X	X												
HA03-0.9-1				J+B															
HA04-0-0.1		10/2/21		J+B															
HA04-0.4-0.5				J+B+PFA5															
HA05-0-0.1				J+B															
HA05-0.5-0.6				J+B															
HA05-0.7-0.8	ERAC Building			J+B+PFA5															
HA05-0.3-0.4	Soil			J															
TS/TB	H2O	9/2/21		2x J+B															
RELINQUISHED BY:	DATE: 10/2/21			METHOD OF SHIPMENT:				RECEIVED BY:				DATE: 11/1/21				COOLER SEAL - Yes..... No..... Intact..... Broken.....			
NAME:	DATE:			METHOD OF SHIPMENT:				RECEIVED BY:				DATE:				COOLER SEAL - Yes..... No..... Intact..... Broken.....			
OF: JBS&G	DATE:			METHOD OF SHIPMENT:				RECEIVED BY:				DATE:				COOLER SEAL - Yes..... No..... Intact..... Broken.....			
NAME:	DATE:			METHOD OF SHIPMENT:				RECEIVED BY:				DATE:				COOLER SEAL - Yes..... No..... Intact..... Broken.....			
OF:	DATE:			METHOD OF SHIPMENT:				RECEIVED BY:				DATE:				COOLER SEAL - Yes..... No..... Intact..... Broken.....			

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presv.; C = Sodium Hydroxide Presv.; VC = Hydrochloric Acid Presv. Vial; VS = Sulfuric Acid Presv. Vial; S = Sulfuric Acid Presv.; Z = Zinc Presv.; E = EDTA Presv.; ST = Sterile Bottle; O = Other

INISO Form SO1.3 - Chain of Custody - Generic

74454

## CHAIN OF CUSTODY

24278



# 774154

**Australia**
**Melbourne**

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

**Sydney**

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

**Brisbane**

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NATA # 1261 Site # 20794

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**Newcastle**

4/52 Industrial Drive  
Mayfield East NSW 2304  
PO Box 60 Wickham 2293  
Phone : +61 2 4968 8448

**New Zealand**
**Auckland**

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Penrose, Auckland 1061  
Phone : +64 9 526 45 51  
IANZ # 1327

**Christchurch**

43 Detroit Drive  
Rolleston, Christchurch 7675  
Phone : 0800 856 450  
IANZ # 1290

## Sample Receipt Advice

**Company name:** JBS & G Australia (NSW) P/L  
**Contact name:** Chris Kauffman  
**Project name:** OATLAND  
**Project ID:** 60383  
**Turnaround time:** 5 Day  
**Date/Time received:** Feb 11, 2021 1:41 PM  
**Eurofins reference:** 774154

## Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 1.1 degrees Celsius.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

## Notes

Samples QAH01 (PFAS, jar + bag) and QA02 (Jar + bag) forwarded to Envirolab. Samples TP03-0.0-0.1 and HA02-0.0-0.1 PFAS jar not received, analysis cancelled.

## Contact

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

**Ursula Long on phone : or by email: [UrsulaLong@eurofins.com](mailto:UrsulaLong@eurofins.com)**

Results will be delivered electronically via email to Chris Kauffman - [ckuffman@jbsg.com.au](mailto:ckuffman@jbsg.com.au).

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**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
  
**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - W/A guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																				
1	TP01-0.1-0.2	Feb 10, 2021		Soil	S21-Fe29988					X		X			X	X			X		X		X		
2	TP02-0.7-0.8	Feb 10, 2021		Soil	S21-Fe29989	X				X						X				X				X	
3	TP03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe29990	X																			
4	TP03-0.0-0.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29991		X																		
5	TP03-0.5-0.6_FRAG	Feb 10, 2021		Building Materials	S21-Fe29992		X																		
6	TP03-1-1.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29993		X																		
7	TP03-1-1.1	Feb 10, 2021		Soil	S21-Fe29994	X				X		X		X	X	X			X		X		X	X	



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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
8	TP03-1.5-1.6	Feb 10, 2021		Soil	S21-Fe29995	X																			
9	HA01-0-0.1	Feb 09, 2021		Soil	S21-Fe29996									X		X			X		X		X		
10	HA01-0.2-0.4	Feb 09, 2021		Soil	S21-Fe29997	X				X		X	X	X	X	X			X		X		X		
11	HA03-0.4-0.5	Feb 09, 2021		Soil	S21-Fe29998					X						X					X			X	
12	HA05-0-0.1	Feb 10, 2021		Soil	S21-Fe29999							X		X	X	X					X				
13	HA05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30000															X				X	
14	TP02-0.7-0.8_FRAG	Feb 10, 2021		Building Materials	S21-Fe30001		X																		
15	TS	Feb 09, 2021		Water	S21-Fe30002																				X
16	TB	Feb 09, 2021		Water	S21-Fe30003												X								
17	RIN01	Feb 09, 2021		Water	S21-Fe30004				X		X		X		X	X		X				X		X	

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**Received:** Feb 11, 2021 1:41 PM  
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**Contact Name:** Chris Kauffman

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Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
40	HA03-0.9-1	Feb 09, 2021		Soil	S21-Fe30080			X																	
41	HA04-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30081			X																	
42	HA04-0.4-0.5	Feb 10, 2021		Soil	S21-Fe30082			X																	
43	TP04-0.3-0.4A	Feb 10, 2021		Soil	S21-Fe30083			X																	
44	BH3-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30084			X																	
Test Counts						7	4	23	8	8	6	6	6	6	6	10	1	7	7	11	11	7	7	7	1

**JBS & G Australia (NSW) P/L**  
**Level 1, 50 Margaret St**  
**Sydney**  
**NSW 2000**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

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

**Attention:** Chris Kauffman  
**Report** 774154-AID  
**Project Name** OATLAND  
**Project ID** 60383  
**Received Date** Feb 11, 2021  
**Date Reported** Feb 22, 2021

### Methodology:

Asbestos Fibre  
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

*NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*

Unknown Mineral  
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

*NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*

Subsampling Soil  
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

*NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*

Bonded asbestos-  
 containing material  
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

*NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

*NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

**Project Name** OATLAND  
**Project ID** 60383  
**Date Sampled** Feb 09, 2021 to Feb 10, 2021  
**Report** 774154-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP02-0.7-0.8	21-Fe29989	Feb 10, 2021	Approximate Sample 517g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP03-0.0-0.1	21-Fe29990	Feb 10, 2021	Approximate Sample 597g Sample consisted of: Brown coarse-grained soil, bitumen, debris and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP03-0.0-0.1_FRAG	21-Fe29991	Feb 10, 2021	Approximate Sample 23g/70x45x4mm Sample consisted of: Grey fibre cement material	Chrysotile and amosite asbestos detected.
TP03-0.5-0.6_FRAG	21-Fe29992	Feb 10, 2021	Approximate Sample 25g/90x70x4mm Sample consisted of: Grey fibre cement material	Chrysotile asbestos detected.
TP03-1-1.1_FRAG	21-Fe29993	Feb 10, 2021	Approximate Sample 9g/50x34x4mm Sample consisted of: Grey fibre cement material	Chrysotile, amosite and crocidolite asbestos detected.
TP03-1-1.1	21-Fe29994	Feb 10, 2021	Approximate Sample 718g Sample consisted of: Brown fine-grained clayey soil, coal and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP03-1.5-1.6	21-Fe29995	Feb 10, 2021	Approximate Sample 609g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
HA01-0.2-0.4	21-Fe29997	Feb 09, 2021	Approximate Sample 786g Sample consisted of: Brown fine-grained clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.



Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP02-0.7-0.8_FRAG	21-Fe30001	Feb 10, 2021	Approximate Sample 5g/34x28x4mm Sample consisted of: Grey fibre cement material	Chrysotile, amosite and crocidolite asbestos detected.
QC02	21-Fe30009	Feb 10, 2021	Approximate Sample 579g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH3-0.08-0.18	21-Fe30010	Feb 10, 2021	Approximate Sample 713g Sample consisted of: Brown fine-grained clayey soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

**Sample History**

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Feb 16, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Feb 16, 2021	Indefinite

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																				
1	TP01-0.1-0.2	Feb 10, 2021		Soil	S21-Fe29988					X		X			X	X			X		X		X		
2	TP02-0.7-0.8	Feb 10, 2021		Soil	S21-Fe29989	X				X						X				X				X	
3	TP03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe29990	X																			
4	TP03-0.0-0.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29991		X																		
5	TP03-0.5-0.6_FRAG	Feb 10, 2021		Building Materials	S21-Fe29992		X																		
6	TP03-1-1.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29993		X																		
7	TP03-1-1.1	Feb 10, 2021		Soil	S21-Fe29994	X				X		X		X	X	X			X		X		X	X	

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IANZ # 1290

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
8	TP03-1.5-1.6	Feb 10, 2021		Soil	S21-Fe29995	X																			
9	HA01-0-0.1	Feb 09, 2021		Soil	S21-Fe29996									X		X			X		X		X		
10	HA01-0.2-0.4	Feb 09, 2021		Soil	S21-Fe29997	X				X		X	X	X	X	X			X		X		X		
11	HA03-0.4-0.5	Feb 09, 2021		Soil	S21-Fe29998					X						X					X			X	
12	HA05-0-0.1	Feb 10, 2021		Soil	S21-Fe29999							X		X	X	X					X				
13	HA05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30000															X				X	
14	TP02-0.7-0.8_FRAG	Feb 10, 2021		Building Materials	S21-Fe30001		X																		
15	TS	Feb 09, 2021		Water	S21-Fe30002																				X
16	TB	Feb 09, 2021		Water	S21-Fe30003												X								
17	RIN01	Feb 09, 2021		Water	S21-Fe30004				X		X		X		X	X		X				X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
18	BLANK	Feb 10, 2021		Water	S21-Fe30007																			X	
19	QCH01	Feb 09, 2021		Soil	S21-Fe30008															X				X	
20	QC02	Feb 10, 2021		Soil	S21-Fe30009	X			X		X		X	X	X	X		X		X		X			
21	BH3-0.08-0.18	Feb 10, 2021		Soil	S21-Fe30010	X			X							X		X		X		X			
22	TP01-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30062			X																	
23	TP01-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30063			X																	
24	TP02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30064			X																	
25	TP02-0.4-0.6	Feb 10, 2021		Soil	S21-Fe30065			X																	
26	TP02-1.1-1.2	Feb 10, 2021		Soil	S21-Fe30066			X																	
27	TP03-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30067			X																	
28	TP03-1.8-1.9	Feb 10, 2021		Soil	S21-Fe30068			X																	

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
29	TP04-0-0.1	Feb 10, 2021		Soil	S21-Fe30069			X																	
30	TP04-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30070			X																	
31	TP04-0.7-0.8	Feb 10, 2021		Soil	S21-Fe30071			X																	
32	TP05-0-0.1	Feb 10, 2021		Soil	S21-Fe30072			X																	
33	TP05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30073			X																	
34	TP05-0.9-1	Feb 10, 2021		Soil	S21-Fe30074			X																	
35	TP05-1.2-1.3	Feb 10, 2021		Soil	S21-Fe30075			X																	
36	HA01-0.45-0.5	Feb 10, 2021		Soil	S21-Fe30076			X																	
37	HA02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30077			X																	
38	HA03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30078			X																	
39	HA03-0.6-0.7	Feb 09, 2021		Soil	S21-Fe30079			X																	



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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
40	HA03-0.9-1	Feb 09, 2021		Soil	S21-Fe30080			X																	
41	HA04-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30081			X																	
42	HA04-0.4-0.5	Feb 10, 2021		Soil	S21-Fe30082			X																	
43	TP04-0.3-0.4A	Feb 10, 2021		Soil	S21-Fe30083			X																	
44	BH3-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30084			X																	
Test Counts						7	4	23	8	8	6	6	6	6	6	10	1	7	7	11	11	7	7	7	1

## Internal Quality Control Review and Glossary

### General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

### Holding Times

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

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

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

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

### Units

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

### Terms

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

## Comments

### Sample Integrity

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

### Qualifier Codes/Comments

Code	Description
N/A	Not applicable

### Asbestos Counter/Identifier:

Laxman Dias                      Senior Analyst-Asbestos (NSW)

### Authorised by:

Sayed Abu                      Senior Analyst-Asbestos (NSW)



**Glenn Jackson**  
**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

**JBS & G Australia (NSW) P/L**  
**Level 1, 50 Margaret St**  
**Sydney**  
**NSW 2000**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

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

**Attention:** **Chris Kauffman**

**Report** **774154-S**  
**Project name** **OATLAND**  
**Project ID** **60383**  
**Received Date** **Feb 11, 2021**

Client Sample ID			TP01-0.1-0.2	TP02-0.7-0.8	TP03-1-1.1	G01 HA01-0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29988	S21-Fe29989	S21-Fe29994	S21-Fe29996
Date Sampled			Feb 10, 2021	Feb 10, 2021	Feb 10, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	23	-	< 20	< 100
TRH C15-C28	50	mg/kg	59	-	< 50	< 250
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 250
TRH C10-C36 (Total)	50	mg/kg	82	-	< 50	< 250
<b>Volatile Organics</b>						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromoform	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			TP01-0.1-0.2	TP02-0.7-0.8	TP03-1-1.1	G01 HA01-0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29988	S21-Fe29989	S21-Fe29994	S21-Fe29996
Date Sampled			Feb 10, 2021	Feb 10, 2021	Feb 10, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
<b>Volatile Organics</b>						
Chlorobenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloroform	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Styrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Trichloroethene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	52	-	62	71
Toluene-d8 (surr.)	1	%	77	-	78	80
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 250
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	-	< 50	< 250
TRH >C16-C34	100	mg/kg	120	-	< 100	< 500
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 500
TRH >C10-C40 (total)*	100	mg/kg	120	-	< 100	< 500
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.9	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			TP01-0.1-0.2	TP02-0.7-0.8	TP03-1-1.1	G01 HA01-0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29988	S21-Fe29989	S21-Fe29994	S21-Fe29996
Date Sampled			Feb 10, 2021	Feb 10, 2021	Feb 10, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	1.2	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	0.6	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	1.1	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	3.4	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	104	57	89	-
p-Terphenyl-d14 (surr.)	1	%	87	79	82	-
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	0.1	mg/kg	< 0.1	-	< 0.1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	-	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	-	< 0.2	-
Dibutylchloroendate (surr.)	1	%	120	-	91	-
Tetrachloro-m-xylene (surr.)	1	%	118	-	113	-
<b>Acid Herbicides</b>						
2.4-D	0.5	mg/kg	< 0.5	-	< 0.5	-
2.4-DB	0.5	mg/kg	< 0.5	-	< 0.5	-
2.4.5-T	0.5	mg/kg	< 0.5	-	< 0.5	-
2.4.5-TP	0.5	mg/kg	< 0.5	-	< 0.5	-
Actril (loxynil)	0.5	mg/kg	< 0.5	-	< 0.5	-
Dicamba	0.5	mg/kg	< 0.5	-	< 0.5	-
Dichlorprop	0.5	mg/kg	< 0.5	-	< 0.5	-
Dinitro-o-cresol	0.5	mg/kg	< 0.5	-	< 0.5	-



Client Sample ID			TP01-0.1-0.2	TP02-0.7-0.8	TP03-1-1.1	G01 HA01-0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29988	S21-Fe29989	S21-Fe29994	S21-Fe29996
Date Sampled			Feb 10, 2021	Feb 10, 2021	Feb 10, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
<b>Acid Herbicides</b>						
Dinoseb	0.5	mg/kg	< 0.5	-	< 0.5	-
MCPA	0.5	mg/kg	< 0.5	-	< 0.5	-
MCPB	0.5	mg/kg	< 0.5	-	< 0.5	-
Mecoprop	0.5	mg/kg	< 0.5	-	< 0.5	-
Warfarin (surr.)	1	%	95	-	99	-
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	9.2	7.9	12	7.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	94	24	21	14
Copper	5	mg/kg	24	16	28	37
Lead	5	mg/kg	39	32	32	26
Mercury	0.1	mg/kg	0.4	< 0.1	0.2	< 0.1
Nickel	5	mg/kg	22	9.5	10	25
Zinc	5	mg/kg	39	29	57	63
% Moisture	1	%	23	17	15	10
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorononanoic acid (PFNA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
13C4-PFBA (surr.)	1	%	-	91	93	-
13C5-PFPeA (surr.)	1	%	-	95	93	-
13C5-PFHxA (surr.)	1	%	-	92	92	-
13C4-PFHpA (surr.)	1	%	-	84	88	-
13C8-PFOA (surr.)	1	%	-	84	84	-
13C5-PFNA (surr.)	1	%	-	105	104	-
13C6-PFDA (surr.)	1	%	-	118	114	-
13C2-PFUnDA (surr.)	1	%	-	116	124	-
13C2-PFDoDA (surr.)	1	%	-	89	90	-
13C2-PFTeDA (surr.)	1	%	-	95	101	-
<b>Perfluoroalkyl sulfonamido substances</b>						
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	10	ug/kg	-	< 10	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	10	ug/kg	-	< 10	< 10	-

Client Sample ID			TP01-0.1-0.2	TP02-0.7-0.8	TP03-1-1.1	G01 HA01-0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29988	S21-Fe29989	S21-Fe29994	S21-Fe29996
Date Sampled			Feb 10, 2021	Feb 10, 2021	Feb 10, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
<b>Perfluoroalkyl sulfonamido substances</b>						
13C8-FOSA (surr.)	1	%	-	92	97	-
D3-N-MeFOSA (surr.)	1	%	-	95	97	-
D5-N-EtFOSA (surr.)	1	%	-	105	108	-
D7-N-MeFOSE (surr.)	1	%	-	87	85	-
D9-N-EtFOSE (surr.)	1	%	-	69	74	-
D5-N-EtFOSAA (surr.)	1	%	-	96	98	-
D3-N-MeFOSAA (surr.)	1	%	-	99	89	-
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>						
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	5	ug/kg	-	< 5	< 5	-
13C3-PFBS (surr.)	1	%	-	103	94	-
18O2-PFHxS (surr.)	1	%	-	102	97	-
13C8-PFOS (surr.)	1	%	-	95	100	-
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	10	ug/kg	-	< 10	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	< 5	-
13C2-4:2 FTS (surr.)	1	%	-	90	93	-
13C2-6:2 FTSA (surr.)	1	%	-	94	92	-
13C2-8:2 FTSA (surr.)	1	%	-	120	124	-
13C2-10:2 FTSA (surr.)	1	%	-	119	118	-
<b>PFASs Summations</b>						
Sum (PFHxS + PFOS)*	5	ug/kg	-	< 5	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	< 5	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	< 5	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	< 10	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	-	< 50	< 50	-
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.5	mg/kg	-	-	< 0.5	< 1
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	< 1
Aroclor-1232	0.5	mg/kg	-	-	< 0.5	< 1
Aroclor-1242	0.5	mg/kg	-	-	< 0.5	< 1
Aroclor-1248	0.5	mg/kg	-	-	< 0.5	< 1
Aroclor-1254	0.5	mg/kg	-	-	< 0.5	< 1
Aroclor-1260	0.5	mg/kg	-	-	< 0.5	< 1
Total PCB*	0.5	mg/kg	-	-	< 0.5	< 1
Dibutylchloride (surr.)	1	%	-	-	91	INT
Tetrachloro-m-xylene (surr.)	1	%	-	-	113	119

Client Sample ID			HA01-0.2-0.4 Soil S21-Fe29997 Feb 09, 2021	HA03-0.4-0.5 Soil S21-Fe29998 Feb 09, 2021	HA05-0-0.1 Soil S21-Fe29999 Feb 10, 2021	HA05-0.5-0.6 Soil S21-Fe30000 Feb 10, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	-
<b>Volatile Organics</b>						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	-	-
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	-	-
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	-	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	-	-
Allyl chloride	0.5	mg/kg	< 0.5	-	-	-
Benzene	0.1	mg/kg	< 0.1	-	-	-
Bromobenzene	0.5	mg/kg	< 0.5	-	-	-
Bromochloromethane	0.5	mg/kg	< 0.5	-	-	-
Bromodichloromethane	0.5	mg/kg	< 0.5	-	-	-
Bromoform	0.5	mg/kg	< 0.5	-	-	-
Bromomethane	0.5	mg/kg	< 0.5	-	-	-
Carbon disulfide	0.5	mg/kg	< 0.5	-	-	-
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	-	-
Chlorobenzene	0.5	mg/kg	< 0.5	-	-	-
Chloroethane	0.5	mg/kg	< 0.5	-	-	-
Chloroform	0.5	mg/kg	< 0.5	-	-	-
Chloromethane	0.5	mg/kg	< 0.5	-	-	-
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	-
Dibromochloromethane	0.5	mg/kg	< 0.5	-	-	-
Dibromomethane	0.5	mg/kg	< 0.5	-	-	-
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
Iodomethane	0.5	mg/kg	< 0.5	-	-	-
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
Methylene Chloride	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			HA01-0.2-0.4	HA03-0.4-0.5	HA05-0-0.1	HA05-0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29997	S21-Fe29998	S21-Fe29999	S21-Fe30000
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit				
<b>Volatile Organics</b>						
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Styrene	0.5	mg/kg	< 0.5	-	-	-
Tetrachloroethene	0.5	mg/kg	< 0.5	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	-
Trichloroethene	0.5	mg/kg	< 0.5	-	-	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	-	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
Total MAH*	0.5	mg/kg	< 0.5	-	-	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	-	-
4-Bromofluorobenzene (surr.)	1	%	70	-	-	-
Toluene-d8 (surr.)	1	%	92	-	-	-
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
<b>Polycyclic Aromatic Hydrocarbons</b>						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	87	61	-	-
p-Terphenyl-d14 (surr.)	1	%	75	99	-	-

Client Sample ID			HA01-0.2-0.4	HA03-0.4-0.5	HA05-0-0.1	HA05-0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29997	S21-Fe29998	S21-Fe29999	S21-Fe30000
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4,4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4,4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4,4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Toxaphene	0.1	mg/kg	< 0.1	-	< 0.1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	-	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	-	< 0.2	-
Dibutylchloroendate (surr.)	1	%	55	-	87	-
Tetrachloro-m-xylene (surr.)	1	%	128	-	104	-
<b>Acid Herbicides</b>						
2,4-D	0.5	mg/kg	< 0.5	-	< 0.5	-
2,4-DB	0.5	mg/kg	< 0.5	-	< 0.5	-
2,4,5-T	0.5	mg/kg	< 0.5	-	< 0.5	-
2,4,5-TP	0.5	mg/kg	< 0.5	-	< 0.5	-
Actril (loxylin)	0.5	mg/kg	< 0.5	-	< 0.5	-
Dicamba	0.5	mg/kg	< 0.5	-	< 0.5	-
Dichlorprop	0.5	mg/kg	< 0.5	-	< 0.5	-
Dinitro-o-cresol	0.5	mg/kg	< 0.5	-	< 0.5	-
Dinoseb	0.5	mg/kg	< 0.5	-	< 0.5	-
MCPA	0.5	mg/kg	< 0.5	-	< 0.5	-
MCPB	0.5	mg/kg	< 0.5	-	< 0.5	-
Mecoprop	0.5	mg/kg	< 0.5	-	< 0.5	-
Warfarin (surr.)	1	%	99	-	95	-
<b>Heavy Metals</b>						
Arsenic	2	mg/kg	10	4.2	3.1	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	21	7.0	8.7	-
Copper	5	mg/kg	17	6.7	9.4	-
Lead	5	mg/kg	20	21	9.4	-
Mercury	0.1	mg/kg	< 0.1	2.6	< 0.1	-
Nickel	5	mg/kg	8.4	< 5	< 5	-
Zinc	5	mg/kg	26	18	26	-

Client Sample ID			HA01-0.2-0.4	HA03-0.4-0.5	HA05-0-0.1	HA05-0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29997	S21-Fe29998	S21-Fe29999	S21-Fe30000
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit				
% Moisture	1	%	9.9	10.0	10	26
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorononanoic acid (PFNA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
13C4-PFBA (surr.)	1	%	-	88	-	70
13C5-PFPeA (surr.)	1	%	-	88	-	78
13C5-PFHxA (surr.)	1	%	-	86	-	77
13C4-PFHpA (surr.)	1	%	-	84	-	71
13C8-PFOA (surr.)	1	%	-	79	-	73
13C5-PFNA (surr.)	1	%	-	97	-	86
13C6-PFDA (surr.)	1	%	-	117	-	85
13C2-PFUnDA (surr.)	1	%	-	111	-	91
13C2-PFDoDA (surr.)	1	%	-	81	-	64
13C2-PFTeDA (surr.)	1	%	-	98	-	80
<b>Perfluoroalkyl sulfonamido substances</b>						
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	10	ug/kg	-	< 10	-	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	10	ug/kg	-	< 10	-	< 10
13C8-FOSA (surr.)	1	%	-	82	-	70
D3-N-MeFOSA (surr.)	1	%	-	86	-	72
D5-N-EtFOSA (surr.)	1	%	-	99	-	81
D7-N-MeFOSE (surr.)	1	%	-	82	-	63
D9-N-EtFOSE (surr.)	1	%	-	62	-	55
D5-N-EtFOSAA (surr.)	1	%	-	88	-	87
D3-N-MeFOSAA (surr.)	1	%	-	90	-	75
<b>Perfluoroalkyl sulfonic acids (PFSAs)</b>						
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5



Client Sample ID			HA01-0.2-0.4	HA03-0.4-0.5	HA05-0-0.1	HA05-0.5-0.6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe29997	S21-Fe29998	S21-Fe29999	S21-Fe30000
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit				
<b>Perfluoroalkyl sulfonic acids (PFASs)</b>						
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	5	ug/kg	-	< 5	-	< 5
13C3-PFBS (surr.)	1	%	-	92	-	82
18O2-PFHxS (surr.)	1	%	-	96	-	79
13C8-PFOS (surr.)	1	%	-	92	-	85
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	10	ug/kg	-	< 10	-	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	5	ug/kg	-	< 5	-	< 5
13C2-4:2 FTS (surr.)	1	%	-	80	-	INT
13C2-6:2 FTSA (surr.)	1	%	-	88	-	101
13C2-8:2 FTSA (surr.)	1	%	-	116	-	91
13C2-10:2 FTSA (surr.)	1	%	-	108	-	87
<b>PFASs Summations</b>						
Sum (PFHxS + PFOS)*	5	ug/kg	-	< 5	-	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	< 5	-	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	< 5	-	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	< 10	-	< 10
Sum of PFASs (n=30)*	50	ug/kg	-	< 50	-	< 50
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PCB*	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibutylchloroendate (surr.)	1	%	55	-	87	-
Tetrachloro-m-xylene (surr.)	1	%	128	-	104	-

Client Sample ID			QCH01	QC02	G01 BH3-0.08-0.18
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Fe30008	S21-Fe30009	S21-Fe30010
Date Sampled			Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit			
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>					
TRH C6-C9	20	mg/kg	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 200
TRH C15-C28	50	mg/kg	-	< 50	< 500
TRH C29-C36	50	mg/kg	-	< 50	< 500
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 500

Client Sample ID			QCH01	QC02	G01
Sample Matrix			Soil	Soil	BH3-0.08-
Eurofins Sample No.			S21-Fe30008	S21-Fe30009	0.18
Date Sampled			Feb 09, 2021	Feb 10, 2021	Soil
Test/Reference	LOR	Unit			S21-Fe30010
					Feb 10, 2021
<b>Volatile Organics</b>					
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	< 0.5
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	< 0.5
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	< 0.5
2-Propanone (Acetone)	0.5	mg/kg	-	< 0.5	< 0.5
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	< 0.5
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	< 0.5
Allyl chloride	0.5	mg/kg	-	< 0.5	< 0.5
Benzene	0.1	mg/kg	-	< 0.1	< 0.1
Bromobenzene	0.5	mg/kg	-	< 0.5	< 0.5
Bromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5
Bromodichloromethane	0.5	mg/kg	-	< 0.5	< 0.5
Bromoform	0.5	mg/kg	-	< 0.5	< 0.5
Bromomethane	0.5	mg/kg	-	< 0.5	< 0.5
Carbon disulfide	0.5	mg/kg	-	< 0.5	< 0.5
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	< 0.5
Chlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5
Chloroethane	0.5	mg/kg	-	< 0.5	< 0.5
Chloroform	0.5	mg/kg	-	< 0.5	< 0.5
Chloromethane	0.5	mg/kg	-	< 0.5	< 0.5
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5
Dibromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5
Dibromomethane	0.5	mg/kg	-	< 0.5	< 0.5
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	< 0.5
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1
Iodomethane	0.5	mg/kg	-	< 0.5	< 0.5
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	< 0.5
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2
Methylene Chloride	0.5	mg/kg	-	< 0.5	< 0.5
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1
Styrene	0.5	mg/kg	-	< 0.5	< 0.5
Tetrachloroethene	0.5	mg/kg	-	< 0.5	< 0.5
Toluene	0.1	mg/kg	-	< 0.1	< 0.1
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5

Client Sample ID			QCH01	QC02	G01BH3-0.08-0.18
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Fe30008	S21-Fe30009	S21-Fe30010
Date Sampled			Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit			
<b>Volatile Organics</b>					
Trichloroethene	0.5	mg/kg	-	< 0.5	< 0.5
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	< 0.5
Vinyl chloride	0.5	mg/kg	-	< 0.5	< 0.5
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3
Total MAH*	0.5	mg/kg	-	< 0.5	< 0.5
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	< 0.5	< 0.5
4-Bromofluorobenzene (surr.)	1	%	-	72	80
Toluene-d8 (surr.)	1	%	-	111	107
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>					
Naphthalene <sup>N02</sup>	0.5	mg/kg	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	< 50	< 500
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	-	< 50	< 500
TRH >C16-C34	100	mg/kg	-	100	< 1000
TRH >C34-C40	100	mg/kg	-	< 100	< 1000
TRH >C10-C40 (total)*	100	mg/kg	-	100	< 1000
<b>Polycyclic Aromatic Hydrocarbons</b>					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	-	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	86	83
p-Terphenyl-d14 (surr.)	1	%	-	84	71
<b>Organochlorine Pesticides</b>					
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-
4,4'-DDD	0.05	mg/kg	-	< 0.05	-
4,4'-DDE	0.05	mg/kg	-	< 0.05	-
4,4'-DDT	0.05	mg/kg	-	< 0.05	-
a-BHC	0.05	mg/kg	-	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	-
b-BHC	0.05	mg/kg	-	< 0.05	-

Client Sample ID			QCH01	QC02	G01BH3-0.08-0.18
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Fe30008	S21-Fe30009	S21-Fe30010
Date Sampled			Feb 09, 2021	Feb 10, 2021	Feb 10, 2021
Test/Reference	LOR	Unit			
<b>Organochlorine Pesticides</b>					
d-BHC	0.05	mg/kg	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-
γ-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-
Methoxychlor	0.2	mg/kg	-	< 0.2	-
Toxaphene	0.1	mg/kg	-	< 0.1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.2	-
Dibutylchloroendate (surr.)	1	%	-	102	-
Tetrachloro-m-xylene (surr.)	1	%	-	112	-
<b>Acid Herbicides</b>					
2,4-D	0.5	mg/kg	-	< 0.5	-
2,4-DB	0.5	mg/kg	-	< 0.5	-
2,4,5-T	0.5	mg/kg	-	< 0.5	-
2,4,5-TP	0.5	mg/kg	-	< 0.5	-
Actril (loxylin)	0.5	mg/kg	-	< 0.5	-
Dicamba	0.5	mg/kg	-	< 0.5	-
Dichlorprop	0.5	mg/kg	-	< 0.5	-
Dinitro-o-cresol	0.5	mg/kg	-	< 0.5	-
Dinoseb	0.5	mg/kg	-	< 0.5	-
MCPA	0.5	mg/kg	-	< 0.5	-
MCPB	0.5	mg/kg	-	< 0.5	-
Mecoprop	0.5	mg/kg	-	< 0.5	-
Warfarin (surr.)	1	%	-	100	-
<b>Heavy Metals</b>					
Arsenic	2	mg/kg	-	3.3	< 2
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4
Chromium	5	mg/kg	-	9.8	14
Copper	5	mg/kg	-	12	66
Lead	5	mg/kg	-	13	< 5
Mercury	0.1	mg/kg	-	< 0.1	< 0.1
Nickel	5	mg/kg	-	< 5	41
Zinc	5	mg/kg	-	56	73
% Moisture	1	%	8.7	5.2	4.9

Client Sample ID			QCH01	QC02	G01
Sample Matrix			Soil	Soil	BH3-0.08-
Eurofins Sample No.			S21-Fe30008	S21-Fe30009	0.18
Date Sampled			Feb 09, 2021	Feb 10, 2021	Soil
Test/Reference	LOR	Unit			S21-Fe30010
					Feb 10, 2021
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>					
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorononanoic acid (PFNA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>	5	ug/kg	< 5	-	-
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	5	ug/kg	< 5	-	-
13C4-PFBA (surr.)	1	%	90	-	-
13C5-PFPeA (surr.)	1	%	93	-	-
13C5-PFHxA (surr.)	1	%	92	-	-
13C4-PFHpA (surr.)	1	%	87	-	-
13C8-PFOA (surr.)	1	%	86	-	-
13C5-PFNA (surr.)	1	%	99	-	-
13C6-PFDA (surr.)	1	%	108	-	-
13C2-PFUnDA (surr.)	1	%	110	-	-
13C2-PFDoDA (surr.)	1	%	90	-	-
13C2-PFTeDA (surr.)	1	%	105	-	-
<b>Perfluoroalkyl sulfonamido substances</b>					
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	5	ug/kg	< 5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	5	ug/kg	< 5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	10	ug/kg	< 10	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	10	ug/kg	< 10	-	-
13C8-FOSA (surr.)	1	%	92	-	-
D3-N-MeFOSA (surr.)	1	%	94	-	-
D5-N-EtFOSA (surr.)	1	%	107	-	-
D7-N-MeFOSE (surr.)	1	%	84	-	-
D9-N-EtFOSE (surr.)	1	%	70	-	-
D5-N-EtFOSAA (surr.)	1	%	109	-	-
D3-N-MeFOSAA (surr.)	1	%	106	-	-
<b>Perfluoroalkyl sulfonic acids (PFSA)</b>					
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	5	ug/kg	< 5	-	-
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	5	ug/kg	< 5	-	-
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	5	ug/kg	< 5	-	-
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	5	ug/kg	< 5	-	-
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	5	ug/kg	< 5	-	-
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	5	ug/kg	5.5	-	-
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	5	ug/kg	< 5	-	-

<b>Client Sample ID</b>			<b>QCH01</b>	<b>QC02</b>	<b>G01BH3-0.08-0.18</b>
<b>Sample Matrix</b>			<b>Soil</b>	<b>Soil</b>	<b>Soil</b>
<b>Eurofins Sample No.</b>			<b>S21-Fe30008</b>	<b>S21-Fe30009</b>	<b>S21-Fe30010</b>
<b>Date Sampled</b>			<b>Feb 09, 2021</b>	<b>Feb 10, 2021</b>	<b>Feb 10, 2021</b>
<b>Test/Reference</b>	<b>LOR</b>	<b>Unit</b>			
<b>Perfluoroalkyl sulfonic acids (PFASs)</b>					
13C3-PFBS (surr.)	1	%	99	-	-
18O2-PFHxS (surr.)	1	%	98	-	-
13C8-PFOS (surr.)	1	%	96	-	-
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	10	ug/kg	< 10	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	5	ug/kg	< 5	-	-
13C2-4:2 FTS (surr.)	1	%	97	-	-
13C2-6:2 FTSA (surr.)	1	%	93	-	-
13C2-8:2 FTSA (surr.)	1	%	117	-	-
13C2-10:2 FTSA (surr.)	1	%	117	-	-
<b>PFASs Summations</b>					
Sum (PFHxS + PFOS)*	5	ug/kg	5.5	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	5.5	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	5.5	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-
<b>Polychlorinated Biphenyls</b>					
Aroclor-1016	0.5	mg/kg	-	< 0.5	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-
Aroclor-1232	0.5	mg/kg	-	< 0.5	-
Aroclor-1242	0.5	mg/kg	-	< 0.5	-
Aroclor-1248	0.5	mg/kg	-	< 0.5	-
Aroclor-1254	0.5	mg/kg	-	< 0.5	-
Aroclor-1260	0.5	mg/kg	-	< 0.5	-
Total PCB*	0.5	mg/kg	-	< 0.5	-
Dibutylchlorendate (surr.)	1	%	-	102	-
Tetrachloro-m-xylene (surr.)	1	%	-	112	-



## Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	14 Days
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Sydney	Feb 16, 2021	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Feb 16, 2021	14 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Feb 16, 2021	14 Days
Acid Herbicides - Method: LTM-ORG-2180 Phenoxy Acid Herbicides	Melbourne	Feb 18, 2021	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 16, 2021	180 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Feb 16, 2021	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Brisbane	Feb 18, 2021	14 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
Perfluoroalkyl sulfonic acids (PFSAAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	180 Days

## Australia

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**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
  
**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - W/A guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																				
1	TP01-0.1-0.2	Feb 10, 2021		Soil	S21-Fe29988					X		X			X	X			X		X		X		
2	TP02-0.7-0.8	Feb 10, 2021		Soil	S21-Fe29989	X				X						X				X				X	
3	TP03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe29990	X																			
4	TP03-0.0-0.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29991		X																		
5	TP03-0.5-0.6_FRAG	Feb 10, 2021		Building Materials	S21-Fe29992		X																		
6	TP03-1-1.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29993		X																		
7	TP03-1-1.1	Feb 10, 2021		Soil	S21-Fe29994	X				X		X		X	X	X			X		X		X	X	

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**Project ID:** 60383

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**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
8	TP03-1.5-1.6	Feb 10, 2021		Soil	S21-Fe29995	X																			
9	HA01-0-0.1	Feb 09, 2021		Soil	S21-Fe29996									X		X			X		X		X		
10	HA01-0.2-0.4	Feb 09, 2021		Soil	S21-Fe29997	X				X		X		X	X	X			X		X		X		
11	HA03-0.4-0.5	Feb 09, 2021		Soil	S21-Fe29998					X						X					X			X	
12	HA05-0-0.1	Feb 10, 2021		Soil	S21-Fe29999							X		X	X	X					X				
13	HA05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30000															X				X	
14	TP02-0.7-0.8_FRAG	Feb 10, 2021		Building Materials	S21-Fe30001		X																		
15	TS	Feb 09, 2021		Water	S21-Fe30002																				X
16	TB	Feb 09, 2021		Water	S21-Fe30003												X								
17	RIN01	Feb 09, 2021		Water	S21-Fe30004				X		X		X		X	X		X				X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
18	BLANK	Feb 10, 2021		Water	S21-Fe30007																			X	
19	QCH01	Feb 09, 2021		Soil	S21-Fe30008															X				X	
20	QC02	Feb 10, 2021		Soil	S21-Fe30009	X			X		X		X	X	X	X		X		X		X	X		
21	BH3-0.08-0.18	Feb 10, 2021		Soil	S21-Fe30010	X			X							X		X		X		X	X		
22	TP01-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30062			X																	
23	TP01-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30063			X																	
24	TP02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30064			X																	
25	TP02-0.4-0.6	Feb 10, 2021		Soil	S21-Fe30065			X																	
26	TP02-1.1-1.2	Feb 10, 2021		Soil	S21-Fe30066			X																	
27	TP03-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30067			X																	
28	TP03-1.8-1.9	Feb 10, 2021		Soil	S21-Fe30068			X																	

## Australia

**Melbourne**  
6 Monterey Road  
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Site # 1254 & 14271

**Sydney**  
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NATA # 1261 Site # 18217

**Brisbane**  
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NATA # 1261 Site # 20794

**Perth**  
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Phone : +61 8 9251 9600  
NATA # 1261  
Site # 23736

**Newcastle**  
4/52 Industrial Drive  
Mayfield East NSW 2304  
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**Auckland**  
35 O'Rourke Road  
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Rolleston, Christchurch 7675  
Phone : 0800 856 450  
IANZ # 1290

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
  
**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
29	TP04-0-0.1	Feb 10, 2021		Soil	S21-Fe30069			X																	
30	TP04-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30070			X																	
31	TP04-0.7-0.8	Feb 10, 2021		Soil	S21-Fe30071			X																	
32	TP05-0-0.1	Feb 10, 2021		Soil	S21-Fe30072			X																	
33	TP05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30073			X																	
34	TP05-0.9-1	Feb 10, 2021		Soil	S21-Fe30074			X																	
35	TP05-1.2-1.3	Feb 10, 2021		Soil	S21-Fe30075			X																	
36	HA01-0.45-0.5	Feb 10, 2021		Soil	S21-Fe30076			X																	
37	HA02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30077			X																	
38	HA03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30078			X																	
39	HA03-0.6-0.7	Feb 09, 2021		Soil	S21-Fe30079			X																	

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Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
40	HA03-0.9-1	Feb 09, 2021		Soil	S21-Fe30080			X																	
41	HA04-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30081			X																	
42	HA04-0.4-0.5	Feb 10, 2021		Soil	S21-Fe30082			X																	
43	TP04-0.3-0.4A	Feb 10, 2021		Soil	S21-Fe30083			X																	
44	BH3-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30084			X																	
Test Counts						7	4	23	8	8	6	6	6	6	6	10	1	7	7	11	11	7	7	7	1



## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

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

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

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

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

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

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

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

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

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NC</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

### QC Data General Comments

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

## Quality Control Results

Test			Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>								
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>								
TRH C10-C14			mg/kg	< 20		20	Pass	
TRH C15-C28			mg/kg	< 50		50	Pass	
TRH C29-C36			mg/kg	< 50		50	Pass	
<b>Method Blank</b>								
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>								
TRH >C10-C16			mg/kg	< 50		50	Pass	
TRH >C16-C34			mg/kg	< 100		100	Pass	
TRH >C34-C40			mg/kg	< 100		100	Pass	
<b>Method Blank</b>								
<b>Acid Herbicides</b>								
2.4-D			mg/kg	< 0.5		0.5	Pass	
2.4-DB			mg/kg	< 0.5		0.5	Pass	
2.4.5-T			mg/kg	< 0.5		0.5	Pass	
2.4.5-TP			mg/kg	< 0.5		0.5	Pass	
Actril (loxynil)			mg/kg	< 0.5		0.5	Pass	
Dicamba			mg/kg	< 0.5		0.5	Pass	
Dichlorprop			mg/kg	< 0.5		0.5	Pass	
Dinitro-o-cresol			mg/kg	< 0.5		0.5	Pass	
Dinoseb			mg/kg	< 0.5		0.5	Pass	
MCPA			mg/kg	< 0.5		0.5	Pass	
MCPB			mg/kg	< 0.5		0.5	Pass	
Mecoprop			mg/kg	< 0.5		0.5	Pass	
<b>LCS - % Recovery</b>								
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>								
TRH C10-C14			%	103		70-130	Pass	
<b>LCS - % Recovery</b>								
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>								
TRH >C10-C16			%	99		70-130	Pass	
<b>LCS - % Recovery</b>								
<b>Acid Herbicides</b>								
2.4-D			%	93		70-130	Pass	
2.4-DB			%	79		70-130	Pass	
2.4.5-T			%	99		70-130	Pass	
2.4.5-TP			%	96		70-130	Pass	
Actril (loxynil)			%	89		70-130	Pass	
Dicamba			%	97		70-130	Pass	
Dichlorprop			%	97		70-130	Pass	
Dinitro-o-cresol			%	82		70-130	Pass	
Dinoseb			%	93		70-130	Pass	
MCPA			%	86		70-130	Pass	
MCPB			%	84		70-130	Pass	
Mecoprop			%	84		70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>								
<b>Heavy Metals</b>								
				Result 1				
Arsenic	S21-Fe29994	CP	%	100		75-125	Pass	
Cadmium	S21-Fe29994	CP	%	104		75-125	Pass	
Chromium	S21-Fe29994	CP	%	104		75-125	Pass	
Copper	S21-Fe29994	CP	%	99		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead	S21-Fe29994	CP	%	91			75-125	Pass	
Mercury	S21-Fe29994	CP	%	120			75-125	Pass	
Nickel	S21-Fe29994	CP	%	103			75-125	Pass	
Zinc	S21-Fe29994	CP	%	111			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1	Result 2	RPD			
TRH C6-C9	S21-Fe24825	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
<b>Duplicate</b>									
<b>Volatile Organics</b>				Result 1	Result 2	RPD			
1.1-Dichloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzene	S21-Fe24825	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Bromobenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S21-Fe24825	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Iodomethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	S21-Fe24825	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methylene Chloride	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
o-Xylene	S21-Fe24825	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
Styrene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Tetrachloroethene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Toluene	S21-Fe24825	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
trans-1,2-Dichloroethene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
trans-1,3-Dichloropropene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trichloroethene	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Trichlorofluoromethane	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Vinyl chloride	S21-Fe16450	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Xylenes - Total*	S21-Fe24825	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S21-Fe24825	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S21-Fe24825	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Acid Herbicides				Result 1	Result 2	RPD		
2,4-D	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-DB	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-T	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-TP	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Actril (loxynil)	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dicamba	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dichlorprop	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dinitro-o-cresol	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dinoseb	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPA	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPB	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Mecoprop	M21-Fe10309	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe29989	CP	mg/kg	7.9	7.9	1.0	30%	Pass
Cadmium	S21-Fe29989	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S21-Fe29989	CP	mg/kg	24	20	17	30%	Pass
Copper	S21-Fe29989	CP	mg/kg	16	18	13	30%	Pass
Lead	S21-Fe29989	CP	mg/kg	32	33	2.0	30%	Pass
Mercury	S21-Fe29989	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S21-Fe29989	CP	mg/kg	9.5	9.3	1.0	30%	Pass
Zinc	S21-Fe29989	CP	mg/kg	29	33	14	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30281	NCP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30281	NCP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30281	NCP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30281	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S21-Fe30010	CP	%	4.9	4.9	1.0	30%	Pass

## Comments

### Sample Integrity

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

### Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

### Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Joseph Edouard	Senior Analyst-Organic (VIC)
Sarah McCallion	Senior Analyst-PFAS (QLD)



**Glenn Jackson**  
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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**JBS & G Australia (NSW) P/L**  
**Level 1, 50 Margaret St**  
**Sydney**  
**NSW 2000**



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The results of the tests, calibrations and/or  
measurements included in this document are traceable  
to Australian/national standards.

**Attention:** **Chris Kauffman**

**Report** **774154-W**  
**Project name** **OATLAND**  
**Project ID** **60383**  
**Received Date** **Feb 11, 2021**

Client Sample ID			TS Water	TB Water	RIN01 Water	BLANK Water
Sample Matrix			S21-Fe30002	S21-Fe30003	S21-Fe30004	S21-Fe30007
Eurofins Sample No.			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 10, 2021
Date Sampled						
Test/Reference	LOR	Unit				
<b>BTEX</b>						
Benzene	1	%	81	-	-	-
Ethylbenzene	1	%	82	-	-	-
m&p-Xylenes	1	%	92	-	-	-
o-Xylene	1	%	77	-	-	-
Toluene	1	%	87	-	-	-
Xylenes - Total	1	%	82	-	-	-
4-Bromofluorobenzene (surr.)	1	%	101	-	-	-
<b>BTEX</b>						
Benzene	0.001	mg/L	-	< 0.001	-	-
Toluene	0.001	mg/L	-	< 0.001	-	-
Ethylbenzene	0.001	mg/L	-	< 0.001	-	-
m&p-Xylenes	0.002	mg/L	-	< 0.002	-	-
o-Xylene	0.001	mg/L	-	< 0.001	-	-
Xylenes - Total*	0.003	mg/L	-	< 0.003	-	-
4-Bromofluorobenzene (surr.)	1	%	-	103	-	-
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	-	-	< 0.02	-
TRH C10-C14	0.05	mg/L	-	-	< 0.05	-
TRH C15-C28	0.1	mg/L	-	-	< 0.1	-
TRH C29-C36	0.1	mg/L	-	-	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	-	-	< 0.1	-
<b>Volatile Organics</b>						
1.1-Dichloroethane	0.001	mg/L	-	-	< 0.001	-
1.1-Dichloroethene	0.001	mg/L	-	-	< 0.001	-
1.1.1-Trichloroethane	0.001	mg/L	-	-	< 0.001	-
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.001	-
1.1.2-Trichloroethane	0.001	mg/L	-	-	< 0.001	-
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	-	< 0.001	-
1.2-Dibromoethane	0.001	mg/L	-	-	< 0.001	-
1.2-Dichlorobenzene	0.001	mg/L	-	-	< 0.001	-
1.2-Dichloroethane	0.001	mg/L	-	-	< 0.001	-
1.2-Dichloropropane	0.001	mg/L	-	-	< 0.001	-
1.2.3-Trichloropropane	0.001	mg/L	-	-	< 0.001	-
1.2.4-Trimethylbenzene	0.001	mg/L	-	-	< 0.001	-
1.3-Dichlorobenzene	0.001	mg/L	-	-	< 0.001	-

Client Sample ID			TS Water S21-Fe30002 Feb 09, 2021	TB Water S21-Fe30003 Feb 09, 2021	RIN01 Water S21-Fe30004 Feb 09, 2021	BLANK Water S21-Fe30007 Feb 10, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Volatile Organics</b>						
1,3-Dichloropropane	0.001	mg/L	-	-	< 0.001	-
1,3,5-Trimethylbenzene	0.001	mg/L	-	-	< 0.001	-
1,4-Dichlorobenzene	0.001	mg/L	-	-	< 0.001	-
2-Butanone (MEK)	0.001	mg/L	-	-	< 0.001	-
2-Propanone (Acetone)	0.001	mg/L	-	-	< 0.001	-
4-Chlorotoluene	0.001	mg/L	-	-	< 0.001	-
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	-	-	< 0.001	-
Allyl chloride	0.001	mg/L	-	-	< 0.001	-
Benzene	0.001	mg/L	-	-	< 0.001	-
Bromobenzene	0.001	mg/L	-	-	< 0.001	-
Bromochloromethane	0.001	mg/L	-	-	< 0.001	-
Bromodichloromethane	0.001	mg/L	-	-	< 0.001	-
Bromoform	0.001	mg/L	-	-	< 0.001	-
Bromomethane	0.001	mg/L	-	-	< 0.001	-
Carbon disulfide	0.001	mg/L	-	-	< 0.001	-
Carbon Tetrachloride	0.001	mg/L	-	-	< 0.001	-
Chlorobenzene	0.001	mg/L	-	-	< 0.001	-
Chloroethane	0.001	mg/L	-	-	< 0.001	-
Chloroform	0.005	mg/L	-	-	< 0.005	-
Chloromethane	0.001	mg/L	-	-	< 0.001	-
cis-1,2-Dichloroethene	0.001	mg/L	-	-	< 0.001	-
cis-1,3-Dichloropropene	0.001	mg/L	-	-	< 0.001	-
Dibromochloromethane	0.001	mg/L	-	-	< 0.001	-
Dibromomethane	0.001	mg/L	-	-	< 0.001	-
Dichlorodifluoromethane	0.001	mg/L	-	-	< 0.001	-
Ethylbenzene	0.001	mg/L	-	-	< 0.001	-
Iodomethane	0.001	mg/L	-	-	< 0.001	-
Isopropyl benzene (Cumene)	0.001	mg/L	-	-	< 0.001	-
m&p-Xylenes	0.002	mg/L	-	-	< 0.002	-
Methylene Chloride	0.001	mg/L	-	-	< 0.001	-
o-Xylene	0.001	mg/L	-	-	< 0.001	-
Styrene	0.001	mg/L	-	-	< 0.001	-
Tetrachloroethene	0.001	mg/L	-	-	< 0.001	-
Toluene	0.001	mg/L	-	-	< 0.001	-
trans-1,2-Dichloroethene	0.001	mg/L	-	-	< 0.001	-
trans-1,3-Dichloropropene	0.001	mg/L	-	-	< 0.001	-
Trichloroethene	0.001	mg/L	-	-	< 0.001	-
Trichlorofluoromethane	0.001	mg/L	-	-	< 0.001	-
Vinyl chloride	0.001	mg/L	-	-	< 0.001	-
Xylenes - Total*	0.003	mg/L	-	-	< 0.003	-
Total MAH*	0.003	mg/L	-	-	< 0.003	-
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	-	< 0.005	-
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	-	< 0.005	-
4-Bromofluorobenzene (surr.)	1	%	-	-	90	-
Toluene-d8 (surr.)	1	%	-	-	111	-

Client Sample ID			TS Water S21-Fe30002 Feb 09, 2021	TB Water S21-Fe30003 Feb 09, 2021	RIN01 Water S21-Fe30004 Feb 09, 2021	BLANK Water S21-Fe30007 Feb 10, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	-	-	< 0.01	-
TRH C6-C10	0.02	mg/L	-	-	< 0.02	-
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	-	-	< 0.02	-
TRH >C10-C16	0.05	mg/L	-	-	< 0.05	-
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	-	-	< 0.05	-
TRH >C16-C34	0.1	mg/L	-	-	< 0.1	-
TRH >C34-C40	0.1	mg/L	-	-	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	-	-	< 0.1	-
<b>Polycyclic Aromatic Hydrocarbons</b>						
Acenaphthene	0.001	mg/L	-	-	< 0.001	-
Acenaphthylene	0.001	mg/L	-	-	< 0.001	-
Anthracene	0.001	mg/L	-	-	< 0.001	-
Benz(a)anthracene	0.001	mg/L	-	-	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	-	-	< 0.001	-
Benzo(b&j)fluoranthene <sup>N07</sup>	0.001	mg/L	-	-	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	-	-	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	-	-	< 0.001	-
Chrysene	0.001	mg/L	-	-	< 0.001	-
Dibenz(a,h)anthracene	0.001	mg/L	-	-	< 0.001	-
Fluoranthene	0.001	mg/L	-	-	< 0.001	-
Fluorene	0.001	mg/L	-	-	< 0.001	-
Indeno(1,2,3-cd)pyrene	0.001	mg/L	-	-	< 0.001	-
Naphthalene	0.001	mg/L	-	-	< 0.001	-
Phenanthrene	0.001	mg/L	-	-	< 0.001	-
Pyrene	0.001	mg/L	-	-	< 0.001	-
Total PAH*	0.001	mg/L	-	-	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	-	-	81	-
p-Terphenyl-d14 (surr.)	1	%	-	-	126	-
<b>Organochlorine Pesticides</b>						
Chlordanes - Total	0.002	mg/L	-	-	< 0.002	-
4,4'-DDD	0.0002	mg/L	-	-	< 0.0002	-
4,4'-DDE	0.0002	mg/L	-	-	< 0.0002	-
4,4'-DDT	0.0002	mg/L	-	-	< 0.0002	-
a-BHC	0.0002	mg/L	-	-	< 0.0002	-
Aldrin	0.0002	mg/L	-	-	< 0.0002	-
b-BHC	0.0002	mg/L	-	-	< 0.0002	-
d-BHC	0.0002	mg/L	-	-	< 0.0002	-
Dieldrin	0.0002	mg/L	-	-	< 0.0002	-
Endosulfan I	0.0002	mg/L	-	-	< 0.0002	-
Endosulfan II	0.0002	mg/L	-	-	< 0.0002	-
Endosulfan sulphate	0.0002	mg/L	-	-	< 0.0002	-
Endrin	0.0002	mg/L	-	-	< 0.0002	-
Endrin aldehyde	0.0002	mg/L	-	-	< 0.0002	-
Endrin ketone	0.0002	mg/L	-	-	< 0.0002	-
g-BHC (Lindane)	0.0002	mg/L	-	-	< 0.0002	-
Heptachlor	0.0002	mg/L	-	-	< 0.0002	-
Heptachlor epoxide	0.0002	mg/L	-	-	< 0.0002	-
Hexachlorobenzene	0.0002	mg/L	-	-	< 0.0002	-
Methoxychlor	0.0002	mg/L	-	-	< 0.0002	-

Client Sample ID			TS Water S21-Fe30002 Feb 09, 2021	TB Water S21-Fe30003 Feb 09, 2021	RIN01 Water S21-Fe30004 Feb 09, 2021	BLANK Water S21-Fe30007 Feb 10, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Organochlorine Pesticides</b>						
Toxaphene	0.001	mg/L	-	-	< 0.001	-
Aldrin and Dieldrin (Total)*	0.0002	mg/L	-	-	< 0.0002	-
DDT + DDE + DDD (Total)*	0.0002	mg/L	-	-	< 0.0002	-
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	-	-	< 0.002	-
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	-	-	< 0.002	-
Dibutylchloredate (surr.)	1	%	-	-	81	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	103	-
<b>Polychlorinated Biphenyls</b>						
Aroclor-1016	0.001	mg/L	-	-	< 0.001	-
Aroclor-1221	0.001	mg/L	-	-	< 0.001	-
Aroclor-1232	0.001	mg/L	-	-	< 0.001	-
Aroclor-1242	0.001	mg/L	-	-	< 0.001	-
Aroclor-1248	0.001	mg/L	-	-	< 0.001	-
Aroclor-1254	0.001	mg/L	-	-	< 0.001	-
Aroclor-1260	0.001	mg/L	-	-	< 0.001	-
Total PCB*	0.001	mg/L	-	-	< 0.001	-
Dibutylchloredate (surr.)	1	%	-	-	81	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	103	-
<b>Acid Herbicides</b>						
2,4-D	0.001	mg/L	-	-	< 0.001	-
2,4-DB	0.001	mg/L	-	-	< 0.001	-
2,4,5-T	0.001	mg/L	-	-	< 0.001	-
2,4,5-TP	0.001	mg/L	-	-	< 0.001	-
Actril (loxynil)	0.001	mg/L	-	-	< 0.001	-
Dicamba	0.001	mg/L	-	-	< 0.001	-
Dichlorprop	0.001	mg/L	-	-	< 0.001	-
Dinitro-o-cresol	0.001	mg/L	-	-	< 0.001	-
Dinoseb	0.001	mg/L	-	-	< 0.001	-
MCPA	0.001	mg/L	-	-	< 0.001	-
MCPB	0.001	mg/L	-	-	< 0.001	-
Mecoprop	0.001	mg/L	-	-	< 0.001	-
Warfarin (surr.)	0.001	%	-	-	99	-
<b>Heavy Metals</b>						
Arsenic	0.001	mg/L	-	-	< 0.001	-
Cadmium	0.0002	mg/L	-	-	< 0.0002	-
Chromium	0.001	mg/L	-	-	< 0.001	-
Copper	0.001	mg/L	-	-	< 0.001	-
Lead	0.001	mg/L	-	-	< 0.001	-
Mercury	0.0001	mg/L	-	-	< 0.0001	-
Nickel	0.001	mg/L	-	-	< 0.001	-
Zinc	0.005	mg/L	-	-	< 0.005	-
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01

Client Sample ID			TS Water S21-Fe30002 Feb 09, 2021	TB Water S21-Fe30003 Feb 09, 2021	RIN01 Water S21-Fe30004 Feb 09, 2021	BLANK Water S21-Fe30007 Feb 10, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTTrDA) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	-	-	172	129
13C5-PFPeA (surr.)	1	%	-	-	128	103
13C5-PFHxA (surr.)	1	%	-	-	140	105
13C4-PFHpA (surr.)	1	%	-	-	149	126
13C8-PFOA (surr.)	1	%	-	-	171	139
13C5-PFNA (surr.)	1	%	-	-	133	116
13C6-PFDA (surr.)	1	%	-	-	149	133
13C2-PFUnDA (surr.)	1	%	-	-	162	131
13C2-PFDoDA (surr.)	1	%	-	-	123	104
13C2-PFTeDA (surr.)	1	%	-	-	95	87
<b>Perfluoroalkyl sulfonamido substances</b>						
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	-	-	89	82
D3-N-MeFOSA (surr.)	1	%	-	-	63	61
D5-N-EtFOSA (surr.)	1	%	-	-	59	60
D7-N-MeFOSE (surr.)	1	%	-	-	78	71
D9-N-EtFOSE (surr.)	1	%	-	-	64	62
D5-N-EtFOSAA (surr.)	1	%	-	-	67	59
D3-N-MeFOSAA (surr.)	1	%	-	-	73	67
<b>Perfluoroalkyl sulfonic acids (PFSA)</b>						
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	-	-	161	116
18O2-PFHxS (surr.)	1	%	-	-	168	132
13C8-PFOS (surr.)	1	%	-	-	135	120

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	TS Water S21-Fe30002 Feb 09, 2021	TB Water S21-Fe30003 Feb 09, 2021	RIN01 Water S21-Fe30004 Feb 09, 2021	BLANK Water S21-Fe30007 Feb 10, 2021
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C2-4:2 FTS (surr.)	1	%	-	-	167	149
13C2-6:2 FTSA (surr.)	1	%	-	-	106	99
13C2-8:2 FTSA (surr.)	1	%	-	-	112	92
13C2-10:2 FTSA (surr.)	1	%	-	-	109	95
<b>PFASs Summations</b>						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	-	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	-	-	< 0.1	< 0.1



## Sample History

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

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

Description	Testing Site	Extracted	Holding Time
<b>BTEX</b>	Sydney	Feb 16, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
<b>Volatile Organics</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
<b>Polycyclic Aromatic Hydrocarbons</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
<b>Organochlorine Pesticides</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
<b>Polychlorinated Biphenyls</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
<b>Acid Herbicides</b>	Melbourne	Feb 18, 2021	14 Days
- Method: LTM-ORG-2180 Phenoxy Acid Herbicides			
<b>Metals M8</b>	Sydney	Feb 16, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
<b>Per- and Polyfluoroalkyl Substances (PFASs)</b>			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Feb 17, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Feb 17, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)	Brisbane	Feb 17, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Feb 17, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			

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**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - W/A guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																				
1	TP01-0.1-0.2	Feb 10, 2021		Soil	S21-Fe29988					X		X			X	X			X		X		X		
2	TP02-0.7-0.8	Feb 10, 2021		Soil	S21-Fe29989	X				X						X				X				X	
3	TP03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe29990	X																			
4	TP03-0.0-0.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29991		X																		
5	TP03-0.5-0.6_FRAG	Feb 10, 2021		Building Materials	S21-Fe29992		X																		
6	TP03-1-1.1_FRAG	Feb 10, 2021		Building Materials	S21-Fe29993		X																		
7	TP03-1-1.1	Feb 10, 2021		Soil	S21-Fe29994	X				X		X		X	X	X			X		X		X	X	

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Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
8	TP03-1.5-1.6	Feb 10, 2021		Soil	S21-Fe29995	X																			
9	HA01-0-0.1	Feb 09, 2021		Soil	S21-Fe29996									X		X			X		X		X		
10	HA01-0.2-0.4	Feb 09, 2021		Soil	S21-Fe29997	X				X		X		X	X	X			X		X		X		
11	HA03-0.4-0.5	Feb 09, 2021		Soil	S21-Fe29998					X						X					X			X	
12	HA05-0-0.1	Feb 10, 2021		Soil	S21-Fe29999							X		X	X	X					X				
13	HA05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30000															X				X	
14	TP02-0.7-0.8_FRAG	Feb 10, 2021		Building Materials	S21-Fe30001		X																		
15	TS	Feb 09, 2021		Water	S21-Fe30002																				X
16	TB	Feb 09, 2021		Water	S21-Fe30003												X								
17	RIN01	Feb 09, 2021		Water	S21-Fe30004				X		X		X		X	X		X				X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
18	BLANK	Feb 10, 2021		Water	S21-Fe30007																			X	
19	QCH01	Feb 09, 2021		Soil	S21-Fe30008															X				X	
20	QC02	Feb 10, 2021		Soil	S21-Fe30009	X			X		X		X	X	X	X		X		X		X			
21	BH3-0.08-0.18	Feb 10, 2021		Soil	S21-Fe30010	X			X							X		X		X		X			
22	TP01-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30062			X																	
23	TP01-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30063			X																	
24	TP02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30064			X																	
25	TP02-0.4-0.6	Feb 10, 2021		Soil	S21-Fe30065			X																	
26	TP02-1.1-1.2	Feb 10, 2021		Soil	S21-Fe30066			X																	
27	TP03-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30067			X																	
28	TP03-1.8-1.9	Feb 10, 2021		Soil	S21-Fe30068			X																	

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Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
29	TP04-0-0.1	Feb 10, 2021		Soil	S21-Fe30069			X																	
30	TP04-0.3-0.4	Feb 10, 2021		Soil	S21-Fe30070			X																	
31	TP04-0.7-0.8	Feb 10, 2021		Soil	S21-Fe30071			X																	
32	TP05-0-0.1	Feb 10, 2021		Soil	S21-Fe30072			X																	
33	TP05-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30073			X																	
34	TP05-0.9-1	Feb 10, 2021		Soil	S21-Fe30074			X																	
35	TP05-1.2-1.3	Feb 10, 2021		Soil	S21-Fe30075			X																	
36	HA01-0.45-0.5	Feb 10, 2021		Soil	S21-Fe30076			X																	
37	HA02-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30077			X																	
38	HA03-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30078			X																	
39	HA03-0.6-0.7	Feb 09, 2021		Soil	S21-Fe30079			X																	

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**Address:** Level 1, 50 Margaret St  
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**Project Name:** OATLAND  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774154  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 11, 2021 1:41 PM  
**Due:** Feb 18, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Asbestos - WA guidelines	Asbestos Absence / Presence	HOLD	Polyyclic Aromatic Hydrocarbons	Polyyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Organochlorine Pesticides	Polychlorinated Biphenyls	Polychlorinated Biphenyls	Acid Herbicides	Metals M8	BTEX	Volatile Organics	Volatile Organics	Moisture Set	Moisture Set	Total Recoverable Hydrocarbons	Total Recoverable Hydrocarbons	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX
Melbourne Laboratory - NATA Site # 1254 & 14271									X		X		X		X			X				X	X		
Sydney Laboratory - NATA Site # 18217						X	X	X		X		X		X		X	X		X	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794																				X	X			X	
Perth Laboratory - NATA Site # 23736																									
Mayfield Laboratory																									
External Laboratory																									
40	HA03-0.9-1	Feb 09, 2021		Soil	S21-Fe30080			X																	
41	HA04-0.0-0.1	Feb 10, 2021		Soil	S21-Fe30081			X																	
42	HA04-0.4-0.5	Feb 10, 2021		Soil	S21-Fe30082			X																	
43	TP04-0.3-0.4A	Feb 10, 2021		Soil	S21-Fe30083			X																	
44	BH3-0.5-0.6	Feb 10, 2021		Soil	S21-Fe30084			X																	
Test Counts						7	4	23	8	8	6	6	6	6	6	10	1	7	7	11	11	7	7	7	1



## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

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

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

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

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

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

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

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

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

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NC</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

### QC Data General Comments

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

## Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
<b>Method Blank</b>							
<b>Volatile Organics</b>							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1,2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1,3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Polychlorinated Biphenyls</b>							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Acid Herbicides</b>							
2,4-D	mg/L	< 0.001			0.001	Pass	
2,4-DB	mg/L	< 0.001			0.001	Pass	
2,4,5-T	mg/L	< 0.001			0.001	Pass	
2,4,5-TP	mg/L	< 0.001			0.001	Pass	
Actril (loxynil)	mg/L	< 0.001			0.001	Pass	
Dicamba	mg/L	< 0.001			0.001	Pass	
Dichlorprop	mg/L	< 0.001			0.001	Pass	
Dinitro-o-cresol	mg/L	< 0.001			0.001	Pass	
Dinoseb	mg/L	< 0.001			0.001	Pass	
MCPA	mg/L	< 0.001			0.001	Pass	
MCPB	mg/L	< 0.001			0.001	Pass	
Mecoprop	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>Heavy Metals</b>							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonamido substances</b>							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonic acids (PFSAs)</b>							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
<b>LCS - % Recovery</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	%	84			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	83			70-130	Pass	
Benz(a)anthracene	%	82			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(a)pyrene	%	100			70-130	Pass	
Benzo(b&j)fluoranthene	%	110			70-130	Pass	
Benzo(g,h,i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	116			70-130	Pass	
Chrysene	%	94			70-130	Pass	
Dibenz(a,h)anthracene	%	106			70-130	Pass	
Fluoranthene	%	98			70-130	Pass	
Fluorene	%	82			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	109			70-130	Pass	
Naphthalene	%	116			70-130	Pass	
Phenanthrene	%	111			70-130	Pass	
Pyrene	%	97			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Acid Herbicides</b>							
2,4-D	%	72			70-130	Pass	
2,4-DB	%	83			70-130	Pass	
2,4,5-T	%	97			70-130	Pass	
2,4,5-TP	%	94			70-130	Pass	
Actril (loxynil)	%	75			70-130	Pass	
Dicamba	%	97			70-130	Pass	
Dichlorprop	%	73			70-130	Pass	
Dinitro-o-cresol	%	86			70-130	Pass	
Dinoseb	%	77			70-130	Pass	
MCPA	%	73			70-130	Pass	
MCPB	%	81			70-130	Pass	
Mecoprop	%	74			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Heavy Metals</b>							
Arsenic	%	99			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	104			80-120	Pass	
Copper	%	103			80-120	Pass	
Lead	%	111			80-120	Pass	
Mercury	%	116			80-120	Pass	
Nickel	%	105			80-120	Pass	
Zinc	%	103			80-120	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	%	89			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	72			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	80			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	81			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	85			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	85			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	71			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	81			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	95			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	84			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	103			50-150	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl sulfonamido substances</b>							
Perfluorooctane sulfonamide (FOSA)	%	75			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	93			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	82			50-150	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)			%	93			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)			%	85			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)			%	85			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)			%	82			50-150	Pass	
<b>LCS - % Recovery</b>									
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>									
Perfluorobutanesulfonic acid (PFBS)			%	67			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)			%	88			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)			%	85			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)			%	75			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)			%	89			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)			%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)			%	89			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)			%	76			50-150	Pass	
<b>LCS - % Recovery</b>									
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>									
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	89			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)			%	89			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	101			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	84			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Arsenic	S21-Fe22775	NCP	%	118			75-125	Pass	
Cadmium	S21-Fe22775	NCP	%	108			75-125	Pass	
Chromium	S21-Fe22775	NCP	%	117			75-125	Pass	
Copper	S21-Fe22775	NCP	%	111			75-125	Pass	
Lead	S21-Fe22775	NCP	%	115			75-125	Pass	
Mercury	S21-Fe22775	NCP	%	117			75-125	Pass	
Nickel	S21-Fe22775	NCP	%	108			75-125	Pass	
Zinc	S21-Fe22775	NCP	%	111			75-125	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>				Result 1					
Perfluorobutanoic acid (PFBA)	S21-Fe30004	CP	%	88			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe30004	CP	%	98			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe30004	CP	%	105			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe30004	CP	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe30004	CP	%	100			50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe30004	CP	%	108			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe30004	CP	%	90			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30004	CP	%	98			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe30004	CP	%	113			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	S21-Fe30004	CP	%	111			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30004	CP	%	135			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonamido substances</b>				Result 1					
Perfluorooctane sulfonamide (FOSA)	S21-Fe30004	CP	%	98			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30004	CP	%	120			50-150	Pass	



Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30004	CP	%	134			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30004	CP	%	109			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30004	CP	%	117			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30004	CP	%	109			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30004	CP	%	100			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30004	CP	%	81			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-Fe30004	CP	%	96			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30004	CP	%	107			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30004	CP	%	87			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30004	CP	%	103			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30004	CP	%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30004	CP	%	106			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30004	CP	%	89			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30004	CP	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30004	CP	%	105			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30004	CP	%	107			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30004	CP	%	116			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>				Result 1					
Perfluorobutanoic acid (PFBA)	S21-Fe30007	CP	%	83			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe30007	CP	%	117			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe30007	CP	%	106			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe30007	CP	%	105			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe30007	CP	%	106			50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe30007	CP	%	113			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe30007	CP	%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30007	CP	%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe30007	CP	%	120			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-Fe30007	CP	%	129			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30007	CP	%	121			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonamido substances</b>				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorooctane sulfonamide (FOSA)	S21-Fe30007	CP	%	93			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30007	CP	%	110			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30007	CP	%	106			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30007	CP	%	107			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30007	CP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30007	CP	%	127			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30007	CP	%	105			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30007	CP	%	83			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-Fe30007	CP	%	110			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30007	CP	%	101			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30007	CP	%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30007	CP	%	111			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30007	CP	%	131			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30007	CP	%	119			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30007	CP	%	108			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30007	CP	%	113			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30007	CP	%	109			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30007	CP	%	114			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30007	CP	%	116			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Heavy Metals</b>				Result 1	Result 2	RPD			
Arsenic	S21-Fe22117	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S21-Fe22117	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S21-Fe22117	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S21-Fe22117	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	S21-Fe22117	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S21-Fe22117	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S21-Fe22117	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	S21-Fe22117	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30004	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30004	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTTrDA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30007	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30007	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

## Comments

### Sample Integrity

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

### Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

### Authorised by:

Ursula Long	Analytical Services Manager
John Nguyen	Senior Analyst-Metal (NSW)
Joseph Edouard	Senior Analyst-Organic (VIC)
Sarah McCallion	Senior Analyst-PFAS (QLD)
Vivian Wang	Senior Analyst-Volatile (VIC)



**Glenn Jackson**  
**General Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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## CHAIN OF CUSTODY

PROJECT NO.: 58238				LABORATORY BATCH NO.:																
PROJECT NAME: Prospect DSI				SAMPLERS: CRL MC KB																
DATE NEEDED BY: STAT				QC LEVEL: NEPM (2013)																
PHONE: Sydney: 02 8245 0300   Perth: 08 9488 0100   Brisbane: 07 3112 2688																				
SEND REPORT & INVOICE TO: (1) adminsw@jbsg.com.au; (2) charlman@jbsg.com.au; (3) charlman@jbsg.com.au																				
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:																				
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Heavy metals	ICP / VCS	PAHS	PFAS	Ammonia	Nitrate / Nitrite	OH	FC	TDS	Hardness	BTEX	IDENTIFICATION	NEPM/WA	TYPE OF ASBESTOS ANALYSIS	NOTES:
MW03	Water	16/2/21		Bottles + Ice + PFAS		x	x	x	x	x	x	x	x	x	x	x				774274
MW02						x	x	x	x	x	x	x	x	x	x	x				
MW01						x	x	x	x	x	x	x	x	x	x	x				
QA20210216						x	x	x	x	x	x	x	x	x	x	x				
QC20210216						x	x	x	x	x	x	x	x	x	x	x				
TSFB						x	x	x	x	x	x	x	x	x	x	x				
Blank						x	x	x	x	x	x	x	x	x	x	x				
Rinsate						x	x	x	x	x	x	x	x	x	x	x				

RELINQUISHED BY:		METHOD OF SHIPMENT:		RECEIVED BY:		FOR RECEIVING LAB USE ONLY:	
NAME:	DATE:	CONSIGNMENT NOTE NO.		NAME:	DATE:	COOLER SEAL - Yes..... No.....	Intact..... Broken.....
A-Line	16-2-21	Drop-off		AK	16/2/21 1:45 PM		
OF: JBS&G		TRANSPORT CO.		OF: Eurofins			
NAME:		CONSIGNMENT NOTE NO.		NAME:			
OF:		TRANSPORT CO.		OF:			

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presv; C = Sodium Hydroxide Presv; VC = Hydrochloric Acid Presv; Vial; VS = Sulfuric Acid Presv; Vial; S = Sulfuric Acid Presv; Z = Zinc Presv; E = EDTA Presv; ST = Sterile Bottle; O = Other

MSO Forms 013 - Chain of Custody - Generic



## #AU04\_Enviro\_Sample\_NSW

---

**From:** Christopher Kauffman <ckauffman@jbsg.com.au>  
**Sent:** Tuesday, 16 February 2021 6:06 PM  
**To:** #AU04\_Enviro\_Sample\_NSW  
**Cc:** Matthew Linz; Ursula Long  
**Subject:** Re: Eurofins Sample Receipt Advice - Report 774274 : Site OATLANDS GOLFCOURSE (60383)

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hello,

Noted for the rinsate.

Can I please request the same process be completed for MW03 for metals, that is: subsample and filter from the unpreserved inorganics bottle to ensure the right location/sample is analyzed.

Any issues let me know.  
Thanks  
Chris

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---

**From:** EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>  
**Sent:** Tuesday, February 16, 2021 5:50 pm  
**To:** Christopher Kauffman  
**Cc:** Matthew Linz  
**Subject:** Eurofins Sample Receipt Advice - Report 774274 : Site OATLANDS GOLFCOURSE (60383)

\*\*\*[EXTERNAL EMAIL] Stop and think before opening attachments, clicking or responding.\*\*\*

Dear Valued Client,

Metals bottle for sample MW01 not received, subsampled and filtered from unpreserved inorganics bottle. Filtered metals bottle for sample MW03 received twice. Unpreserved inorganics bottle not received for sample Rinsate, TDS and Hardness analyses cancelled due to insufficient amount of sample. Sample QA20210216 (1x unpreserved inorganics bottle, 1x PFAS bottle, 1x amber glass bottle, 1x filtered metals bottle, 1x preserved inorganics bottle, 2x glass vials) forwarded to Envirolab for analysis.

Please find attached a Sample Receipt Advice (SRA), a Summary Sheet and a scanned copy of your Chain-of-Custody (COC). It is important that you check this documentation to ensure that the details are correct such as the Client Job Number, Turn Around Time, any comments in the Notes section and sample numbers as well as the requested analysis. If there are any irregularities then please contact your Eurofins Analytical Services Manager as soon as possible to make certain that they get changed.

Kind regards,  
Mickael Ros  
**Sample Receipt**

**Eurofins | Environmental Testing**  
Unit F3, Parkview Building  
16 Mars Road  
LANE COVE WEST NSW 2066

AUSTRALIA

Phone: +61 02 9900 8421

Email: [EnviroSampleNSW@eurofins.com](mailto:EnviroSampleNSW@eurofins.com)

Website: [environment.eurofins.com.au](http://environment.eurofins.com.au)

[EnviroNote 1108 - Emissions from Stationary Sources](#)

[EnviroNote 1103 - NATA Accreditation for Dioxins](#)

Click [here](#) to report this email as spam.

ScannedByWebsenseForEurofins

**Australia**
**Melbourne**

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Dandenong South VIC 3175  
Phone : +61 3 8564 5000  
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Site # 1254 & 14271

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

**Brisbane**

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

**Perth**

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

**Newcastle**

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Mayfield East NSW 2304  
PO Box 60 Wickham 2293  
Phone : +61 2 4968 8448

**New Zealand**
**Auckland**

35 O'Rorke Road  
Penrose, Auckland 1061  
Phone : +64 9 526 45 51  
IANZ # 1327

**Christchurch**

43 Detroit Drive  
Rolleston, Christchurch 7675  
Phone : 0800 856 450  
IANZ # 1290

## Sample Receipt Advice

**Company name:** JBS & G Australia (NSW) P/L  
**Contact name:** Chris Kauffman  
**Project name:** OATLANDS GOLFCOURSE  
**Project ID:** 60383  
**Turnaround time:** 5 Day  
**Date/Time received:** Feb 16, 2021 1:45 PM  
**Eurofins reference:** 774274

## Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 8.4 degrees Celsius.
- ✗ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

## Notes

Metals bottle for sample MW01 not received, subsampled and filtered from unpreserved inorganics bottle. Filtered metals bottle for sample MW03 received twice. Unpreserved inorganics bottle not received for sample Rinsate, TDS and Hardness analyses cancelled due to insufficient amount of sample. Sample QA20210216 (1x unpreserved inorganics bottle, 1x PFAS bottle, 1x amber glass bottle, 1x filtered metals bottle, 1x preserved inorganics bottle, 2x glass vials) forwarded to Envirolab for analysis.

## Contact

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

**Ursula Long on phone : or by email: [UrsulaLong@eurofins.com](mailto:UrsulaLong@eurofins.com)**

Results will be delivered electronically via email to Chris Kauffman - [ckuffman@jbsg.com.au](mailto:ckuffman@jbsg.com.au).

## Australia

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

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

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

**Perth**  
2/91 Leach Highway  
Kewdale WA 6105  
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NATA # 1261  
Site # 23736

**Newcastle**  
4/52 Industrial Drive  
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PO Box 60 Wickham 2293  
Phone : +61 2 4968 8448

## New Zealand

**Auckland**  
35 O'Rorke Road  
Penrose, Auckland 1061  
Phone : +64 9 526 45 51  
IANZ # 1327

**Christchurch**  
43 Detroit Drive  
Rolleston, Christchurch 7675  
Phone : 0800 856 450  
IANZ # 1290

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
**Project Name:** OATLANDS GOLFCOURSE  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774274  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 16, 2021 1:45 PM  
**Due:** Feb 23, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Ammonia (as N)	Conductivity (at 25°C)	pH (at 25 °C)	BTEX	Volatile Organics	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	Eurofins Suite B11D: Na/K/Ca/Mg and Hardness	Eurofins Suite B19B: NO3/NO2/NOx	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA Site # 1254 & 14271						X								X			
Sydney Laboratory - NATA Site # 18217							X	X	X	X	X	X	X			X	X
Brisbane Laboratory - NATA Site # 20794															X		
Perth Laboratory - NATA Site # 23736																	
Mayfield Laboratory																	
External Laboratory																	
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID												
1	MW03	Feb 16, 2021		Water	S21-Fe30800	X	X	X		X		X	X	X	X		X
2	MW02	Feb 16, 2021		Water	S21-Fe30801	X	X	X		X		X	X	X	X		X
3	MW01	Feb 16, 2021		Water	S21-Fe30802	X	X	X		X		X	X	X	X		X
4	QC20210216	Feb 16, 2021		Water	S21-Fe30803	X	X	X		X		X	X	X	X		X
5	TS	Feb 10, 2021		Water	S21-Fe30804											X	
6	TB	Feb 10, 2021		Water	S21-Fe30805				X								
7	BLANK	Feb 16, 2021		Water	S21-Fe30806										X		
8	RINSATE	Feb 16, 2021		Water	S21-Fe30807	X	X	X		X	X			X	X		
Test Counts						5	5	5	1	5	1	4	4	5	6	1	4

**JBS & G Australia (NSW) P/L**  
**Level 1, 50 Margaret St**  
**Sydney**  
**NSW 2000**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

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

**Attention:** **Chris Kauffman**

**Report** **774274-W**  
**Project name** **OATLANDS GOLFCOURSE**  
**Project ID** **60383**  
**Received Date** **Feb 16, 2021**

Client Sample ID			MW03 Water S21-Fe30800 Feb 16, 2021	MW02 Water S21-Fe30801 Feb 16, 2021	MW01 Water S21-Fe30802 Feb 16, 2021	QC20210216 Water S21-Fe30803 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
<b>BTEX</b>						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	86	85	83	85
<b>Volatile Organics</b>						
1.1-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3-Dichloropropane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.3.5-Trimethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
1.4-Dichlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Butanone (MEK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Propanone (Acetone)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Chlorotoluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Allyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			MW03 Water S21-Fe30800 Feb 16, 2021	MW02 Water S21-Fe30801 Feb 16, 2021	MW01 Water S21-Fe30802 Feb 16, 2021	QC20210216 Water S21-Fe30803 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Volatile Organics</b>						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon disulfide	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1,2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
cis-1,3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibromomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorodifluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Iodomethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methylene Chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1,2-Dichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
trans-1,3-Dichloropropene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorofluoromethane	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Vinyl chloride	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Total MAH*	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromofluorobenzene (surr.)	1	%	86	85	83	85
Toluene-d8 (surr.)	1	%	106	104	104	90
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1



Client Sample ID			MW03 Water S21-Fe30800 Feb 16, 2021	MW02 Water S21-Fe30801 Feb 16, 2021	MW01 Water S21-Fe30802 Feb 16, 2021	QC20210216 Water S21-Fe30803 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Polycyclic Aromatic Hydrocarbons</b>						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene <sup>N07</sup>	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	INT	51	91	104
p-Terphenyl-d14 (surr.)	1	%	125	112	132	141
Ammonia (as N)	0.01	mg/L	0.04	0.03	0.10	0.02
Conductivity (at 25°C)	10	uS/cm	410	370	640	420
pH (at 25 °C)	0.1	pH Units	5.7	5.5	6.1	5.8
Total Dissolved Solids Dried at 180°C ± 2°C	5	mg/L	360	280	610	280
Hardness mg equivalent CaCO3/L	1	mg/L	52	51	65	57
<b>Eurofins Suite B19B: NO3/NO2/NOx</b>						
Nitrate & Nitrite (as N)	0.05	mg/L	< 0.05	2.5	< 0.05	< 0.05
Nitrate (as N)	0.02	mg/L	< 0.02	2.5	0.02	< 0.02
Nitrite (as N)	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
<b>Alkali Metals</b>						
Calcium	0.5	mg/L	8.3	5.9	12	9.4
Magnesium	0.5	mg/L	7.7	8.8	8.3	8.1
Potassium	0.5	mg/L	3.5	4.6	10.0	3.7
Sodium	0.5	mg/L	71	58	120	72
<b>Heavy Metals</b>						
Arsenic (filtered)	0.001	mg/L	0.002	0.002	0.002	0.003
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	0.001
Copper (filtered)	0.001	mg/L	0.005	0.006	0.002	0.006
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.008	0.010	0.012	0.008
Zinc (filtered)	0.005	mg/L	0.053	0.064	0.056	0.054
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	0.01	ug/L	0.05	< 0.01	0.02	< 0.01
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	0.01	ug/L	0.07	< 0.01	0.02	0.01
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	0.01	ug/L	0.08	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	0.01	ug/L	0.14	< 0.01	< 0.01	0.01

Client Sample ID			MW03 Water S21-Fe30800 Feb 16, 2021	MW02 Water S21-Fe30801 Feb 16, 2021	MW01 Water S21-Fe30802 Feb 16, 2021	QC20210216 Water S21-Fe30803 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorononanoic acid (PFNA) <sup>N11</sup>	0.01	ug/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	43	75	25	51
13C5-PFPeA (surr.)	1	%	53	104	29	66
13C5-PFHxA (surr.)	1	%	50	100	30	69
13C4-PFHpA (surr.)	1	%	51	96	27	66
13C8-PFOA (surr.)	1	%	50	92	28	66
13C5-PFNA (surr.)	1	%	48	91	24	57
13C6-PFDA (surr.)	1	%	32	75	17	49
13C2-PFUnDA (surr.)	1	%	29	61	13	39
13C2-PFDoDA (surr.)	1	%	30	64	11	38
13C2-PFTeDA (surr.)	1	%	30	60	INT	32
<b>Perfluoroalkyl sulfonamido substances</b>						
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	35	73	20	56
D3-N-MeFOSA (surr.)	1	%	47	94	18	72
D5-N-EtFOSA (surr.)	1	%	58	117	19	76
D7-N-MeFOSE (surr.)	1	%	27	58	INT	39
D9-N-EtFOSE (surr.)	1	%	27	58	INT	39
D5-N-EtFOSAA (surr.)	1	%	INT	INT	INT	INT
D3-N-MeFOSAA (surr.)	1	%	INT	INT	INT	INT
<b>Perfluoroalkyl sulfonic acids (PFSA)</b>						
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	0.01	ug/L	0.02	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	58	105	31	72
18O2-PFHxS (surr.)	1	%	79	131	37	90
13C8-PFOS (surr.)	1	%	71	127	34	86

Client Sample ID			MW03 Water	MW02 Water	MW01 Water	QC20210216 Water
Sample Matrix			S21-Fe30800	S21-Fe30801	S21-Fe30802	S21-Fe30803
Eurofins Sample No.			Feb 16, 2021	Feb 16, 2021	Feb 16, 2021	Feb 16, 2021
Date Sampled						
Test/Reference	LOR	Unit				
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTS (surr.)	1	%	76	117	43	85
13C2-6:2 FTSA (surr.)	1	%	56	82	34	74
13C2-8:2 FTSA (surr.)	1	%	34	66	17	48
13C2-10:2 FTSA (surr.)	1	%	34	68	13	52
<b>PFASs Summations</b>						
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.14	< 0.01	< 0.01	0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.14	< 0.01	< 0.01	0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	0.36	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	0.38	< 0.1	< 0.1	< 0.1

Client Sample ID			TS Water	TB Water	BLANK Water	RINSATE Water
Sample Matrix			S21-Fe30804	S21-Fe30805	S21-Fe30806	S21-Fe30807
Eurofins Sample No.			Feb 10, 2021	Feb 10, 2021	Feb 16, 2021	Feb 16, 2021
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>						
TRH C6-C9	0.02	mg/L	-	-	-	< 0.02
TRH C10-C14	0.05	mg/L	-	-	-	< 0.05
TRH C15-C28	0.1	mg/L	-	-	-	< 0.1
TRH C29-C36	0.1	mg/L	-	-	-	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	-	-	< 0.1
<b>BTEX</b>						
Benzene	0.001	mg/L	-	< 0.001	-	< 0.001
Toluene	0.001	mg/L	-	< 0.001	-	< 0.001
Ethylbenzene	0.001	mg/L	-	< 0.001	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	< 0.002	-	< 0.002
o-Xylene	0.001	mg/L	-	< 0.001	-	< 0.001
Xylenes - Total*	0.003	mg/L	-	< 0.003	-	< 0.003
4-Bromofluorobenzene (surr.)	1	%	-	86	-	87
<b>Volatile Organics</b>						
1.1-Dichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	-	-	-	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dibromoethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
1.2-Dichloroethane	0.001	mg/L	-	-	-	< 0.001
1.2-Dichloropropane	0.001	mg/L	-	-	-	< 0.001

Client Sample ID			TS Water S21-Fe30804 Feb 10, 2021	TB Water S21-Fe30805 Feb 10, 2021	BLANK Water S21-Fe30806 Feb 16, 2021	RINSATE Water S21-Fe30807 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Volatile Organics</b>						
1,2,3-Trichloropropane	0.001	mg/L	-	-	-	< 0.001
1,2,4-Trimethylbenzene	0.001	mg/L	-	-	-	< 0.001
1,3-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
1,3-Dichloropropane	0.001	mg/L	-	-	-	< 0.001
1,3,5-Trimethylbenzene	0.001	mg/L	-	-	-	< 0.001
1,4-Dichlorobenzene	0.001	mg/L	-	-	-	< 0.001
2-Butanone (MEK)	0.001	mg/L	-	-	-	< 0.001
2-Propanone (Acetone)	0.001	mg/L	-	-	-	< 0.001
4-Chlorotoluene	0.001	mg/L	-	-	-	< 0.001
4-Methyl-2-pentanone (MIBK)	0.001	mg/L	-	-	-	< 0.001
Allyl chloride	0.001	mg/L	-	-	-	< 0.001
Benzene	0.001	mg/L	-	-	-	< 0.001
Bromobenzene	0.001	mg/L	-	-	-	< 0.001
Bromochloromethane	0.001	mg/L	-	-	-	< 0.001
Bromodichloromethane	0.001	mg/L	-	-	-	< 0.001
Bromoform	0.001	mg/L	-	-	-	< 0.001
Bromomethane	0.001	mg/L	-	-	-	< 0.001
Carbon disulfide	0.001	mg/L	-	-	-	< 0.001
Carbon Tetrachloride	0.001	mg/L	-	-	-	< 0.001
Chlorobenzene	0.001	mg/L	-	-	-	< 0.001
Chloroethane	0.001	mg/L	-	-	-	< 0.001
Chloroform	0.005	mg/L	-	-	-	< 0.005
Chloromethane	0.001	mg/L	-	-	-	< 0.001
cis-1,2-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
cis-1,3-Dichloropropene	0.001	mg/L	-	-	-	< 0.001
Dibromochloromethane	0.001	mg/L	-	-	-	< 0.001
Dibromomethane	0.001	mg/L	-	-	-	< 0.001
Dichlorodifluoromethane	0.001	mg/L	-	-	-	< 0.001
Ethylbenzene	0.001	mg/L	-	-	-	< 0.001
Iodomethane	0.001	mg/L	-	-	-	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	-	-	-	< 0.001
m&p-Xylenes	0.002	mg/L	-	-	-	< 0.002
Methylene Chloride	0.001	mg/L	-	-	-	< 0.001
o-Xylene	0.001	mg/L	-	-	-	< 0.001
Styrene	0.001	mg/L	-	-	-	< 0.001
Tetrachloroethene	0.001	mg/L	-	-	-	< 0.001
Toluene	0.001	mg/L	-	-	-	< 0.001
trans-1,2-Dichloroethene	0.001	mg/L	-	-	-	< 0.001
trans-1,3-Dichloropropene	0.001	mg/L	-	-	-	< 0.001
Trichloroethene	0.001	mg/L	-	-	-	< 0.001
Trichlorofluoromethane	0.001	mg/L	-	-	-	< 0.001
Vinyl chloride	0.001	mg/L	-	-	-	< 0.001
Xylenes - Total*	0.003	mg/L	-	-	-	< 0.003
Total MAH*	0.003	mg/L	-	-	-	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	-	-	-	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	-	-	-	< 0.005
4-Bromofluorobenzene (surr.)	1	%	-	-	-	87
Toluene-d8 (surr.)	1	%	-	-	-	104

Client Sample ID			TS Water	TB Water	BLANK Water	RINSATE Water
Sample Matrix			S21-Fe30804	S21-Fe30805	S21-Fe30806	S21-Fe30807
Eurofins Sample No.			Feb 10, 2021	Feb 10, 2021	Feb 16, 2021	Feb 16, 2021
Date Sampled						
Test/Reference	LOR	Unit				
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>						
Naphthalene <sup>N02</sup>	0.01	mg/L	-	-	-	< 0.01
TRH C6-C10	0.02	mg/L	-	-	-	< 0.02
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	0.02	mg/L	-	-	-	< 0.02
TRH >C10-C16	0.05	mg/L	-	-	-	< 0.05
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	0.05	mg/L	-	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	-	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	-	< 0.1
<b>Polycyclic Aromatic Hydrocarbons</b>						
Acenaphthene	0.001	mg/L	-	-	-	< 0.001
Acenaphthylene	0.001	mg/L	-	-	-	< 0.001
Anthracene	0.001	mg/L	-	-	-	< 0.001
Benz(a)anthracene	0.001	mg/L	-	-	-	< 0.001
Benzo(a)pyrene	0.001	mg/L	-	-	-	< 0.001
Benzo(b&j)fluoranthene <sup>N07</sup>	0.001	mg/L	-	-	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	-	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	-	-	< 0.001
Chrysene	0.001	mg/L	-	-	-	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	-	-	< 0.001
Fluoranthene	0.001	mg/L	-	-	-	< 0.001
Fluorene	0.001	mg/L	-	-	-	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	-	-	-	< 0.001
Naphthalene	0.001	mg/L	-	-	-	< 0.001
Phenanthrene	0.001	mg/L	-	-	-	< 0.001
Pyrene	0.001	mg/L	-	-	-	< 0.001
Total PAH*	0.001	mg/L	-	-	-	< 0.001
2-Fluorobiphenyl (surr.)	1	%	-	-	-	107
p-Terphenyl-d14 (surr.)	1	%	-	-	-	134
Ammonia (as N)	0.01	mg/L	-	-	-	< 0.01
Conductivity (at 25°C)	10	uS/cm	-	-	-	90
pH (at 25 °C)	0.1	pH Units	-	-	-	6.0
<b>Eurofins Suite B19B: NO3/NO2/NOx</b>						
Nitrate & Nitrite (as N)	0.05	mg/L	-	-	-	< 0.05
Nitrate (as N)	0.02	mg/L	-	-	-	< 0.02
Nitrite (as N)	0.02	mg/L	-	-	-	< 0.02
<b>Heavy Metals</b>						
Arsenic	0.001	mg/L	-	-	-	< 0.001
Cadmium	0.0002	mg/L	-	-	-	< 0.0002
Chromium	0.001	mg/L	-	-	-	< 0.001
Copper	0.001	mg/L	-	-	-	< 0.001
Lead	0.001	mg/L	-	-	-	< 0.001
Mercury	0.0001	mg/L	-	-	-	< 0.0001
Nickel	0.001	mg/L	-	-	-	< 0.001
Zinc	0.005	mg/L	-	-	-	< 0.005

Client Sample ID			TS Water S21-Fe30804 Feb 10, 2021	TB Water S21-Fe30805 Feb 10, 2021	BLANK Water S21-Fe30806 Feb 16, 2021	RINSATE Water S21-Fe30807 Feb 16, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>						
Perfluorobutanoic acid (PFBA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTeDA) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	-	-	41	85
13C5-PFPeA (surr.)	1	%	-	-	46	102
13C5-PFHxA (surr.)	1	%	-	-	49	101
13C4-PFHpA (surr.)	1	%	-	-	44	95
13C8-PFOA (surr.)	1	%	-	-	42	91
13C5-PFNA (surr.)	1	%	-	-	42	93
13C6-PFDA (surr.)	1	%	-	-	39	85
13C2-PFUnDA (surr.)	1	%	-	-	28	74
13C2-PFDoDA (surr.)	1	%	-	-	23	71
13C2-PFTeDA (surr.)	1	%	-	-	13	74
<b>Perfluoroalkyl sulfonamido substances</b>						
Perfluorooctane sulfonamide (FOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	-	-	21	67
D3-N-MeFOSA (surr.)	1	%	-	-	30	118
D5-N-EtFOSA (surr.)	1	%	-	-	34	129
D7-N-MeFOSE (surr.)	1	%	-	-	17	66
D9-N-EtFOSE (surr.)	1	%	-	-	17	62
D5-N-EtFOSAA (surr.)	1	%	-	-	INT	26
D3-N-MeFOSAA (surr.)	1	%	-	-	INT	23
<b>Perfluoroalkyl sulfonic acids (PFSAs)</b>						
Perfluorobutanesulfonic acid (PFBS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) <sup>N15</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	-	-	49	93



Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	TS Water S21-Fe30804 Feb 10, 2021	TB Water S21-Fe30805 Feb 10, 2021	BLANK Water S21-Fe30806 Feb 16, 2021	RINSATE Water S21-Fe30807 Feb 16, 2021
<b>Perfluoroalkyl sulfonic acids (PFSA)</b>						
18O2-PFHxS (surr.)	1	%	-	-	57	120
13C8-PFOS (surr.)	1	%	-	-	60	120
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) <sup>N11</sup>	0.05	ug/L	-	-	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) <sup>N11</sup>	0.01	ug/L	-	-	< 0.01	< 0.01
13C2-4:2 FTS (surr.)	1	%	-	-	66	127
13C2-6:2 FTSA (surr.)	1	%	-	-	39	88
13C2-8:2 FTSA (surr.)	1	%	-	-	35	78
13C2-10:2 FTSA (surr.)	1	%	-	-	22	77
<b>PFASs Summations</b>						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	-	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	-	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	-	-	< 0.1	< 0.1
<b>BTEX</b>						
Benzene	1	%	120	-	-	-
Ethylbenzene	1	%	110	-	-	-
m&p-Xylenes	1	%	110	-	-	-
o-Xylene	1	%	98	-	-	-
Toluene	1	%	97	-	-	-
Xylenes - Total	1	%	100	-	-	-
4-Bromofluorobenzene (surr.)	1	%	88	-	-	-

## Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 16, 2021	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Feb 16, 2021	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 16, 2021	28 Days
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Sydney	Feb 16, 2021	7 Days
Ammonia (as N) - Method: APHA 4500-NH3 Ammonia Nitrogen by FIA	Melbourne	Feb 17, 2021	28 Days
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Sydney	Feb 17, 2021	28 Days
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Sydney	Feb 17, 2021	1 Days
Eurofins Suite B19B: NO3/NO2/NOx - Method: LTM-INO-4120 Analysis of NOx NO2 NH3 by FIA	Melbourne	Feb 17, 2021	14 Days
Total Dissolved Solids Dried at 180°C ± 2°C - Method: LTM-INO-4170 Total Dissolved Solids in Water	Sydney	Feb 16, 2021	7 Days
Eurofins Suite B11D: Na/K/Ca/Mg and Hardness Hardness mg equivalent CaCO3/L - Method: E020.1 Hardness in water	Sydney	Feb 22, 2021	28 Days
Alkali Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 22, 2021	180 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 22, 2021	180 Days
Per- and Polyfluoroalkyl Substances (PFASs) Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
Perfluoroalkyl sulfonic acids (PFSAAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 17, 2021	14 Days

## Australia

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Site # 1254 & 14271

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**Company Name:** JBS & G Australia (NSW) P/L  
**Address:** Level 1, 50 Margaret St  
Sydney  
NSW 2000  
**Project Name:** OATLANDS GOLFCOURSE  
**Project ID:** 60383

**Order No.:**  
**Report #:** 774274  
**Phone:** 02 8245 0300  
**Fax:**

**Received:** Feb 16, 2021 1:45 PM  
**Due:** Feb 23, 2021  
**Priority:** 5 Day  
**Contact Name:** Chris Kauffman

**Eurofins Analytical Services Manager : Ursula Long**

Sample Detail						Ammonia (as N)	Conductivity (at 25°C)	pH (at 25 °C)	BTEX	Volatile Organics	Eurofins Suite B7	Eurofins Suite B7 (filtered metals)	Eurofins Suite B11D: Na/K/Ca/Mg and Hardness	Eurofins Suite B19B: NO3/NO2/NOx	Per- and Polyfluoroalkyl Substances (PFASs)	BTEX	Total Dissolved Solids Dried at 180°C ± 2°C
Melbourne Laboratory - NATA Site # 1254 & 14271						X								X			
Sydney Laboratory - NATA Site # 18217							X	X	X	X	X	X	X			X	X
Brisbane Laboratory - NATA Site # 20794															X		
Perth Laboratory - NATA Site # 23736																	
Mayfield Laboratory																	
External Laboratory																	
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID												
1	MW03	Feb 16, 2021		Water	S21-Fe30800	X	X	X		X		X	X	X	X		X
2	MW02	Feb 16, 2021		Water	S21-Fe30801	X	X	X		X		X	X	X	X		X
3	MW01	Feb 16, 2021		Water	S21-Fe30802	X	X	X		X		X	X	X	X		X
4	QC20210216	Feb 16, 2021		Water	S21-Fe30803	X	X	X		X		X	X	X	X		X
5	TS	Feb 10, 2021		Water	S21-Fe30804											X	
6	TB	Feb 10, 2021		Water	S21-Fe30805				X								
7	BLANK	Feb 16, 2021		Water	S21-Fe30806										X		
8	RINSATE	Feb 16, 2021		Water	S21-Fe30807	X	X	X		X	X			X	X		
Test Counts						5	5	5	1	5	1	4	4	5	6	1	4

## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

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

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

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

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

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

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

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

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

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.3
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NC</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

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

### QC Data General Comments

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

**Quality Control Results**

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>BTEX</b>							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
<b>Method Blank</b>							
<b>Volatile Organics</b>							
1.1-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.1-Dichloroethene	mg/L	< 0.001			0.001	Pass	
1.1.1-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.1.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2-Trichloroethane	mg/L	< 0.001			0.001	Pass	
1.1.2.2-Tetrachloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dibromoethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.2-Dichloroethane	mg/L	< 0.001			0.001	Pass	
1.2-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.3-Trichloropropane	mg/L	< 0.001			0.001	Pass	
1.2.4-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
1.3-Dichloropropane	mg/L	< 0.001			0.001	Pass	
1.3.5-Trimethylbenzene	mg/L	< 0.001			0.001	Pass	
1.4-Dichlorobenzene	mg/L	< 0.001			0.001	Pass	
2-Butanone (MEK)	mg/L	< 0.001			0.001	Pass	
2-Propanone (Acetone)	mg/L	< 0.001			0.001	Pass	
4-Chlorotoluene	mg/L	< 0.001			0.001	Pass	
4-Methyl-2-pentanone (MIBK)	mg/L	< 0.001			0.001	Pass	
Allyl chloride	mg/L	< 0.001			0.001	Pass	
Bromobenzene	mg/L	< 0.001			0.001	Pass	
Bromochloromethane	mg/L	< 0.001			0.001	Pass	
Bromodichloromethane	mg/L	< 0.001			0.001	Pass	
Bromoform	mg/L	< 0.001			0.001	Pass	
Bromomethane	mg/L	< 0.001			0.001	Pass	
Carbon disulfide	mg/L	< 0.001			0.001	Pass	
Carbon Tetrachloride	mg/L	< 0.001			0.001	Pass	
Chlorobenzene	mg/L	< 0.001			0.001	Pass	
Chloroethane	mg/L	< 0.001			0.001	Pass	
Chloroform	mg/L	< 0.005			0.005	Pass	
Chloromethane	mg/L	< 0.001			0.001	Pass	
cis-1.2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
cis-1.3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Dibromochloromethane	mg/L	< 0.001			0.001	Pass	
Dibromomethane	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorodifluoromethane	mg/L	< 0.001			0.001	Pass	
Iodomethane	mg/L	< 0.001			0.001	Pass	
Isopropyl benzene (Cumene)	mg/L	< 0.001			0.001	Pass	
Methylene Chloride	mg/L	< 0.001			0.001	Pass	
Styrene	mg/L	< 0.001			0.001	Pass	
Tetrachloroethene	mg/L	< 0.001			0.001	Pass	
trans-1,2-Dichloroethene	mg/L	< 0.001			0.001	Pass	
trans-1,3-Dichloropropene	mg/L	< 0.001			0.001	Pass	
Trichloroethene	mg/L	< 0.001			0.001	Pass	
Trichlorofluoromethane	mg/L	< 0.001			0.001	Pass	
Vinyl chloride	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
<b>Method Blank</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
<b>Method Blank</b>							
Ammonia (as N)	mg/L	< 0.01			0.01	Pass	
Conductivity (at 25°C)	uS/cm	< 10			10	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	mg/L	< 5			5	Pass	
<b>Method Blank</b>							
<b>Eurofins Suite B19B: NO3/NO2/NOx</b>							
Nitrate & Nitrite (as N)	mg/L	< 0.05			0.05	Pass	
Nitrate (as N)	mg/L	< 0.02			0.02	Pass	
Nitrite (as N)	mg/L	< 0.02			0.02	Pass	
<b>Method Blank</b>							
<b>Alkali Metals</b>							
Calcium	mg/L	< 0.5			0.5	Pass	
Magnesium	mg/L	< 0.5			0.5	Pass	
Potassium	mg/L	< 0.5			0.5	Pass	
Sodium	mg/L	< 0.5			0.5	Pass	
<b>Method Blank</b>							
<b>Heavy Metals</b>							
Arsenic	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonamido substances</b>							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
<b>Method Blank</b>							
<b>Perfluoroalkyl sulfonic acids (PFSAs)</b>							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
<b>Method Blank</b>							
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA)</b>							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
<b>LCS - % Recovery</b>							



Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>							
TRH C6-C9	%	92			70-130	Pass	
TRH C10-C14	%	79			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>BTEX</b>							
Benzene	%	100			70-130	Pass	
Toluene	%	90			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	98			70-130	Pass	
o-Xylene	%	99			70-130	Pass	
Xylenes - Total*	%	98			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Volatile Organics</b>							
1.1-Dichloroethene	%	124			70-130	Pass	
1.1.1-Trichloroethane	%	93			70-130	Pass	
1.2-Dichlorobenzene	%	95			70-130	Pass	
1.2-Dichloroethane	%	115			70-130	Pass	
Trichloroethene	%	92			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>							
Naphthalene	%	86			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	76			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Polycyclic Aromatic Hydrocarbons</b>							
Acenaphthene	%	78			70-130	Pass	
Acenaphthylene	%	101			70-130	Pass	
Anthracene	%	90			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	113			70-130	Pass	
Benzo(b&j)fluoranthene	%	110			70-130	Pass	
Benzo(g,h,i)perylene	%	120			70-130	Pass	
Benzo(k)fluoranthene	%	110			70-130	Pass	
Chrysene	%	109			70-130	Pass	
Dibenz(a,h)anthracene	%	112			70-130	Pass	
Fluoranthene	%	109			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	115			70-130	Pass	
Naphthalene	%	83			70-130	Pass	
Phenanthrene	%	103			70-130	Pass	
Pyrene	%	91			70-130	Pass	
<b>LCS - % Recovery</b>							
Ammonia (as N)	%	99			70-130	Pass	
Conductivity (at 25°C)	%	90			70-130	Pass	
Total Dissolved Solids Dried at 180°C ± 2°C	%	94			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Eurofins Suite B19B: NO3/NO2/NOx</b>							
Nitrate & Nitrite (as N)	%	98			70-130	Pass	
Nitrate (as N)	%	98			70-130	Pass	
Nitrite (as N)	%	106			70-130	Pass	
<b>LCS - % Recovery</b>							
<b>Alkali Metals</b>							
Calcium	%	95			80-120	Pass	
Magnesium	%	97			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Potassium	%	97			80-120	Pass	
Sodium	%	100			80-120	Pass	
<b>LCS - % Recovery</b>							
<b>Heavy Metals</b>							
Arsenic	%	106			80-120	Pass	
Arsenic (filtered)	%	99			80-120	Pass	
Cadmium	%	108			80-120	Pass	
Cadmium (filtered)	%	101			80-120	Pass	
Chromium	%	104			80-120	Pass	
Chromium (filtered)	%	101			80-120	Pass	
Copper	%	100			80-120	Pass	
Copper (filtered)	%	103			80-120	Pass	
Lead	%	102			80-120	Pass	
Lead (filtered)	%	102			80-120	Pass	
Mercury	%	100			80-120	Pass	
Mercury (filtered)	%	102			80-120	Pass	
Nickel	%	99			80-120	Pass	
Nickel (filtered)	%	102			80-120	Pass	
Zinc	%	97			80-120	Pass	
Zinc (filtered)	%	96			80-120	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>							
Perfluorobutanoic acid (PFBA)	%	128			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	106			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	98			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	121			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	101			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	103			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	100			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	%	110			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	105			50-150	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl sulfonamido substances</b>							
Perfluorooctane sulfonamide (FOSA)	%	102			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	111			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	112			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	102			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	95			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	94			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	96			50-150	Pass	
<b>LCS - % Recovery</b>							
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>							
Perfluorobutanesulfonic acid (PFBS)	%	101			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	%	101			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	%	94			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	%	109			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	%	112			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	%	110			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	%	102			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	%	75			50-150	Pass	
<b>LCS - % Recovery</b>							
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)			%	116			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)			%	131			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)			%	108			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)			%	94			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Spike - % Recovery</b>									
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1					
TRH C10-C14	S21-Fe27358	NCP	%	80			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Total Recoverable Hydrocarbons - 2013 NEPM Fractions</b>				Result 1					
TRH >C10-C16	S21-Fe27358	NCP	%	78			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Arsenic (filtered)	M21-Fe37213	NCP	%	97			75-125	Pass	
Cadmium (filtered)	M21-Fe37213	NCP	%	99			75-125	Pass	
Chromium (filtered)	S21-Fe31762	NCP	%	85			75-125	Pass	
Copper (filtered)	M21-Fe37213	NCP	%	93			75-125	Pass	
Lead (filtered)	M21-Fe37213	NCP	%	100			75-125	Pass	
Mercury (filtered)	M21-Fe37213	NCP	%	103			75-125	Pass	
<b>Spike - % Recovery</b>									
				Result 1					
Ammonia (as N)	S21-Fe30802	CP	%	104			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Eurofins Suite B19B: NO3/NO2/NOx</b>				Result 1					
Nitrate & Nitrite (as N)	S21-Fe30802	CP	%	87			70-130	Pass	
Nitrate (as N)	S21-Fe30802	CP	%	87			70-130	Pass	
Nitrite (as N)	S21-Fe30802	CP	%	92			70-130	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl carboxylic acids (PFCAs)</b>				Result 1					
Perfluorobutanoic acid (PFBA)	S21-Fe30802	CP	%	52			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe30802	CP	%	88			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe30802	CP	%	72			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe30802	CP	%	96			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe30802	CP	%	81			50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe30802	CP	%	111			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe30802	CP	%	101			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30802	CP	%	99			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe30802	CP	%	100			50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-Fe30802	CP	%	109			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30802	CP	%	112			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonamido substances</b>				Result 1					
Perfluorooctane sulfonamide (FOSA)	S21-Fe30802	CP	%	100			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30802	CP	%	116			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30802	CP	%	115			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30802	CP	%	104			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30802	CP	%	103			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30802	CP	%	91			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30802	CP	%	90			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Perfluoroalkyl sulfonic acids (PFSA's)</b>				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30802	CP	%	88			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-Fe30802	CP	%	94			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30802	CP	%	102			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30802	CP	%	95			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30802	CP	%	108			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30802	CP	%	100			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30802	CP	%	99			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30802	CP	%	78			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)</b>				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30802	CP	%	95			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30802	CP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30802	CP	%	111			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30802	CP	%	97			50-150	Pass	
<b>Spike - % Recovery</b>									
<b>Alkali Metals</b>				Result 1					
Calcium	S21-Fe30803	CP	%	95			75-125	Pass	
Magnesium	S21-Fe30803	CP	%	89			75-125	Pass	
Potassium	S21-Fe30803	CP	%	90			75-125	Pass	
Sodium	S21-Fe30803	CP	%	77			75-125	Pass	
<b>Spike - % Recovery</b>									
<b>Heavy Metals</b>				Result 1					
Arsenic	S21-Fe30803	CP	%	107			75-125	Pass	
Cadmium	S21-Fe30803	CP	%	108			75-125	Pass	
Chromium	S21-Fe30803	CP	%	105			75-125	Pass	
Copper	S21-Fe30803	CP	%	107			75-125	Pass	
Lead	S21-Fe30803	CP	%	101			75-125	Pass	
Mercury	S21-Fe30803	CP	%	104			75-125	Pass	
Nickel	S21-Fe30803	CP	%	105			75-125	Pass	
Zinc	S21-Fe30803	CP	%	100			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons - 1999 NEPM Fractions</b>				Result 1	Result 2	RPD			
TRH C6-C9	S21-Fe26912	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S21-Fe21225	NCP	mg/L	0.17	0.14	22	30%	Pass	
TRH C15-C28	S21-Fe21225	NCP	mg/L	0.3	0.2	15	30%	Pass	
TRH C29-C36	S21-Fe21225	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate								
BTX				Result 1	Result 2	RPD		
Benzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	S21-Fe26912	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
o-Xylene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	S21-Fe26912	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Volatile Organics				Result 1	Result 2	RPD		
1.1-Dichloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1-Dichloroethene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.1-Trichloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.1.2-Tetrachloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.2-Trichloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.1.2.2-Tetrachloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dibromoethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichlorobenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2-Dichloropropane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.3-Trichloropropane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.2.4-Trimethylbenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichlorobenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3-Dichloropropane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.3.5-Trimethylbenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
1.4-Dichlorobenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
2-Butanone (MEK)	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
2-Propanone (Acetone)	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4-Chlorotoluene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
4-Methyl-2-pentanone (MIBK)	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Allyl chloride	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromobenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromochloromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromodichloromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromoform	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Bromomethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Carbon disulfide	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Carbon Tetrachloride	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chlorobenzene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chloroethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chloroform	S21-Fe26912	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Chloromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
cis-1.2-Dichloroethene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
cis-1.3-Dichloropropene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromochloromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibromomethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dichlorodifluoromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Iodomethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Isopropyl benzene (Cumene)	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Methylene Chloride	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Styrene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Tetrachloroethene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1.2-Dichloroethene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
trans-1.3-Dichloropropene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichloroethene	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Trichlorofluoromethane	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Vinyl chloride	S21-Fe26912	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S21-Fe26912	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	S21-Fe26912	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH >C10-C16	S21-Fe21225	NCP	mg/L	0.35	0.31	14	30%	Pass
TRH >C16-C34	S21-Fe21225	NCP	mg/L	0.3	0.2	10	30%	Pass
TRH >C34-C40	S21-Fe21225	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Conductivity (at 25°C)	S21-Fe30800	CP	uS/cm	410	400	2.0	30%	Pass
Total Dissolved Solids Dried at 180°C ± 2°C	S21-Fe30800	CP	mg/L	360	270	26	30%	Pass
Hardness mg equivalent CaCO <sub>3</sub> /L	S21-Fe30767	NCP	mg/L	150	140	3.0	30%	Pass
Duplicate								
Alkali Metals				Result 1	Result 2	RPD		
Calcium	S21-Fe30800	CP	mg/L	8.3	8.2	2.0	30%	Pass
Magnesium	S21-Fe30800	CP	mg/L	7.7	7.4	4.0	30%	Pass
Potassium	S21-Fe30800	CP	mg/L	3.5	3.5	3.0	30%	Pass
Sodium	S21-Fe30800	CP	mg/L	71	68	4.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe30800	CP	mg/L	0.002	0.002	1.0	30%	Pass
Arsenic (filtered)	M21-Fe37214	NCP	mg/L	0.002	0.002	3.0	30%	Pass
Cadmium	S21-Fe30800	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Cadmium (filtered)	M21-Fe37214	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	S21-Fe30800	CP	mg/L	0.004	0.004	1.0	30%	Pass
Chromium (filtered)	M21-Fe37214	NCP	mg/L	0.003	< 0.001	100	30%	Fail Q15
Copper	S21-Fe30800	CP	mg/L	0.012	0.012	2.0	30%	Pass
Copper (filtered)	M21-Fe37214	NCP	mg/L	0.001	0.001	3.0	30%	Pass
Lead	S21-Fe30800	CP	mg/L	0.004	0.004	3.0	30%	Pass
Lead (filtered)	M21-Fe37214	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury	S21-Fe30800	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Mercury (filtered)	M21-Fe37214	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	S21-Fe30800	CP	mg/L	0.011	0.011	1.0	30%	Pass
Nickel (filtered)	M21-Fe37214	NCP	mg/L	0.001	< 0.001	130	30%	Fail Q15
Zinc	S21-Fe30800	CP	mg/L	0.070	0.067	5.0	30%	Pass
Zinc (filtered)	M21-Fe37214	NCP	mg/L	0.006	0.005	14	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass



Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30801	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30801	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Ammonia (as N)	S21-Fe30802	CP	mg/L	0.10	0.09	11	30%	Pass
Duplicate								
Eurofins Suite B19B: NO3/NO2/NOx				Result 1	Result 2	RPD		
Nitrate & Nitrite (as N)	S21-Fe30802	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
Nitrate (as N)	S21-Fe30802	CP	mg/L	0.02	0.02	6.0	30%	Pass
Nitrite (as N)	S21-Fe30802	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass



Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorooctanoic acid (PFOA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe30806	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe30806	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Conductivity (at 25°C)	S21-Fe30807	CP	uS/cm	90	93	3.0	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe29848	NCP	mg/L	0.002	0.002	<1	30%	Pass
Cadmium	S21-Fe29848	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	S21-Fe29848	NCP	mg/L	0.004	0.004	9.0	30%	Pass
Copper	S21-Fe29848	NCP	mg/L	0.002	0.002	4.0	30%	Pass
Lead	S21-Fe29848	NCP	mg/L	0.001	0.001	5.0	30%	Pass
Mercury	S21-Fe29848	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	S21-Fe29848	NCP	mg/L	0.006	0.006	4.0	30%	Pass
Zinc	S21-Fe29848	NCP	mg/L	0.087	0.078	11	30%	Pass

## Comments

### Sample Integrity

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

### Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

### Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Charl Du Preez	Senior Analyst-Inorganic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
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Scott Beddoes	Senior Analyst-Inorganic (VIC)



**Glenn Jackson**  
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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