



Landcom

Edmondson Park Precinct 9
Site Contamination Assessment

Buchan Avenue, Edmondson Park

27 April 2021

59033/136,760 (Rev 0)

JBS&G

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Table of Contents

Abbreviations.....	vi
Executive Summary.....	vii
1. Introduction.....	1
1.1 Background.....	1
1.2 Objectives.....	2
1.3 Scope of Works.....	2
2. Site Conditions and Surrounding Environment	3
2.1 Site Identification	3
2.2 Site Description	3
2.3 Surrounding Land Use	3
2.4 Environmental Setting.....	3
2.4.1 Topography and Hydrology.....	3
2.4.2 Geology and Soils	4
2.4.3 Acid Sulfate Soils	4
2.4.4 Hydrogeology	4
2.4.5 Meteorology	5
3. Summary Site History and Previous Site Investigations	6
3.1 Environmental Validation Report – RZNRA (JBS, 2013)	6
3.2 Site Audit Report – RZNRA (Environ, 2013).....	7
3.3 Aerial Photographs	9
3.4 Integrity Assessment	10
4. Conceptual Site Model	11
4.1 Areas of Environmental Concern	11
4.2 Potentially Contaminated Media	11
4.3 Potential For Contaminant Migration	12
4.4 Potential Human and Ecological Receptors and Exposure Pathways	12
4.5 Preferential Pathways	13
5. Sampling and Analysis Plan.....	14
5.1 Data Quality Objectives	14
5.1.1 State the Problem	14
5.1.2 Identify the Decision	14
5.1.3 Identify Inputs to the Decision.....	14
5.1.4 Define the Study Boundaries	15
5.1.5 Develop a Decision Rule.....	15
5.1.6 Specific Limits on Decision Rules	15
5.2 Optimise the Design of Obtaining Data.....	17

5.2.1	Soil Investigation Program	17
5.2.2	Groundwater Investigation Program	17
5.3	Site Investigation Methodology	18
5.3.1	Site Inspection.....	18
5.3.2	Soil Sampling Methodology	18
5.3.3	Groundwater Installation and Sampling Methodology	18
5.3.4	Field PID Screening.....	20
5.3.5	Decontamination	20
5.3.6	Duplicate and Triplicate Sample Preparation	20
5.4	Laboratory Analysis	20
6.	Assessment Criteria	21
6.1	Regulatory Guidelines	21
6.2	Soil Assessment Criteria	21
6.3	Groundwater Assessment Criteria	21
7.	Quality Assurance / Quality Control	23
7.1	QA/QC Results	23
7.2	QA/QC Discussion.....	24
7.2.1	Precision.....	24
7.2.2	Accuracy.....	25
7.2.3	Representativeness.....	25
7.2.4	Comparability.....	26
7.2.5	Completeness.....	26
7.2.6	Sensitivity.....	27
7.3	QA/QC Assessment.....	27
8.	Investigation Results.....	28
8.1	Field Observations.....	28
8.1.1	Soil.....	28
8.1.2	Groundwater.....	28
8.2	Laboratory Results.....	29
8.2.1	Soil Analytical Results.....	29
8.2.2	Groundwater Analytical Results.....	30
9.	Site Characterisation.....	31
9.1	Are conditions of the site consistent with those reported in the 2013 Site Audit Statement?	31
9.2	Are there any unacceptable contamination risks at the site for school land use?	31
9.3	Are there any aesthetic issues at the site?.....	32
9.4	Is a site management strategy required?.....	32

10. Conclusions.....	33
11. Limitations	34

List of Tables

Table 2.1: Site Details.....	3
Table 4.1: Areas of Environmental Concern and Associated Contaminants of Potential Concern	11
Table 4.2: Summary of Potential Human Exposures	13
Table 5.1: Summary of Decision Rules.....	15
Table 5.2: Data Quality Indicators.....	16
Table 5.3: Summary of Investigation Program and Analysis Schedule	18
Table 7.1: Data Quality Indicator Assessment	23
Table 7.2: Matrix Spike Exceedances	25
Table 8.1: Groundwater Parameters	28

List of Figures

Figure 1	Site Location
Figure 2	Site Layout

Appendices

Appendix A	Summary Tables
Appendix B	Photographic Log
Appendix C	Historical Aerials
Appendix D	QA/QC Tables
Appendix E	Chain of Custody and Laboratory Analytical Reports
Appendix F	Decontamination and Calibration Sheets
Appendix G	Test Pit and Monitoring Well Logs
Appendix H	Groundwater Field Notes

Abbreviations

Term	Definition
ACM	Asbestos Containing Materials
AEC	Areas of Environmental Concern
AHD	Australian Height Datum
bgs	Below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
Btoc	Below Top of Casing
CLM Act	Contaminated Land Management Act 1997
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DP	Deposited Plan
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EIL	Ecological Investigation Levels
EPA	NSW Environment Protection Authority
ESLs	Ecological Screening Levels
Ha	Hectare
HILs	Health Investigation Levels
HSLs	Health Screening Levels
JBS&G	JBS&G Australia Pty Ltd
LEP	Local Environmental Plan
LOR	Limit of Reporting
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PFAS	Per and Polyfluoroalkyl Substances
PID	Photo-ionisation Detector
POEO Act	Protection of Environment Operations Act 1997
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
SAQP	Sampling Analytical and Quality Plan
SEPP 55	State Environmental Planning Policy No 55 – Remediation of Land
TCLP	Toxicity Characterisation Leachate Procedure
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compounds

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by Landcom (the client) to undertake a supplementary environmental site assessment of a portion of Precinct 9 of the Edmondson Park development site located at Gallipoli Drive, Edmondson Park, NSW (the site) as shown in **Figure 1 (Attachment 2)**. The site is legally identified as part Lots 1 and 2 on DP 1257105. The site has an area of approximately 6 hectares (ha).

JBS&G understand the site is proposed to be redeveloped for land use as a future school following divestment by Landcom to NSW School Infrastructure (SINSW). To assist with meeting the obligations under the contract of sale, JBS&G has been engaged to confirm the current site contamination conditions. For the purposes of this assessment, JBS&G also extend the definition of client to SINSW.

The site as part of a broader land parcel has previously been the subject of environmental assessment, remediation and validation activities (JBS 2013¹) and a subsequent site audit (Environ 2013²) that identified the site as being suitable for the purposes of 'residential with gardens and accessible soil' and other less sensitive uses including schools, open space and commercial, subject to compliance with the environmental management plan relevant to the proposed open space areas within RZNRA (JBS&G 2013³). This EMP does not relate to the footprint of this site.

The site is a portion of a greater area formerly used by Department of Defence as a training facility. Investigation of the greater site area identified military objects (concertina wire, weapons pits, etc.), waste material on the ground surface and buried in pits and trenches, unexploded ordnance (UXO), exploded ordnance waste (EOW) and small arms ammunition (SAA) from military training exercises, and lead impacted material used to form tracks. Remediation of the site was undertaken to remove waste material, UXO, EOW and SAA, asbestos and lead impacted material. UXO, EOW and SAA was generally disposed off-site, whilst lead and asbestos impacted material was retained within land situated to the south of the railway line, remote to this current site. Groundwater within the site and in the greater site area was assessed prior to and following remediation. Heavy metals concentrations in groundwater exceeded ecological criteria, however were considered indicative of background conditions associated with the regional geology, comprising the Wianamatta Group shale formation.

Since the finalisation of the remediation/validation works and issue of the final site audit statement (Environ 2013), the site has been managed by Landcom, or an appointed principal contractor as associated with subdivision construction activities nearby to the site. This resulted in use of the site at times as a stockpiling yard for broader site generated excess fill material. This stockpiled material was subsequently assessed (JBS&G 2018⁴, 2020a⁵, 2020b⁶ and 2020c⁷) as suitable for beneficial reuse as part of subdivision and road construction works and the material has been moved beyond the site boundary for future re-use during construction of Buchan Avenue upgrades.

¹ Validation Report – RZNRA, prepared for Landcom, Zouch Road, Edmondson Park. JBS Environmental. 24 September 2013 (JBS 2013)

² Site Audit Report – Residential Zone North of Rail Alignment, Zouch Road Edmondson Park NSW, prepared for Landcom, ENVIRON Australia Pty Ltd. October 2013 (Environ 2013)

³ Urban Growth, Public Open Space, Site Environmental Management Plan, Residential Zone North of Rail Alignment, Zouch Road, Edmondson Park, NSW, JBS&G (NSW & WA) Pty Ltd. 2 September 2013 (JBS&G 2013)

⁴ Material Classification – Edmondson Park Precinct 9 Stockpile Assessment, Edmondson Park, NSW. JBS&G 9 March 2018 (JBS&G 2018)

⁵ Material Classification – Edmondson Park Precinct 9 Stockpile 1 Assessment Part 2, Buchan Avenue, Edmondson Park NSW. JBS&G 15 June 2020 (JBS&G 2020a)

⁶ Material Classification – Edmondson Park Precinct 9 Stockpile 1 Assessment Part 3, Buchan Avenue, Edmondson Park NSW. JBS&G 19 June 2020 (JBS&G 2020b)

⁷ Material Classification – Edmondson Park Precinct Fly Tipped Stockpile Assessment, Buchan Avenue, Edmondson Park NSW. JBS&G 10 July 2020 (JBS&G 2020c)

The objective of this assessment was to conduct an environmental investigation, including intrusive soil investigation, associated soil and groundwater sampling, to identify if the site is consistent with the results of the 2013 Site Audit Statement outcomes and confirm that the land is suitable for the proposed public school land use.

This report documents the findings of the DSI and has been prepared in accordance with NSW Environment Protection Authority (EPA 1995⁸), NEPC (2013⁹), EPA (2020¹⁰), EPA (2017¹¹) and SEPP 55¹² guidelines.

The findings of the investigation are summarised as follows:

- The ground surface comprised exposed clay, and vegetation (grass, shrubs and weeds) in good condition. Generally, the lithology was characterised by fill (gravelly clay and silty clay) with the total depth of fill occurrence ranging from 0 to 0.3m bgs (TP06). The underlying natural clay soils were observed to be red to red/grey stiff clay, with underlying weathered grey shale identified at TP08. No anthropogenic materials were observed in any of the test pit locations.
- A single ACM fragment was encountered on the site's ground surface in the vicinity of TP28. This sample was removed by JBS&G for confirmatory analysis. No additional asbestos fragments were observed across the site. Given that one isolated fragment was identified, specific management is considered not to be required, as such occurrences would be best managed under a standard construction period environmental management plan (EMP)/unexpected finds protocol (UFP) framework, whereby any isolated occurrences could be identified and disposed of appropriately.
- The laboratory analysis data for soil and groundwater for all contaminants of concern other than PFAS (which was not assessed in Environ (2013)), has been compared to the complete data sets for soil and groundwater for the broader RZNRA site the subject to the audit in 2013. A review of the data has identified that in addition to there not being any soil contaminant elevations with regard to the adopted site assessment criteria, the results are consistent with those previously documented at the site.
- Groundwater concentrations for all organic compounds were reported to be less than the laboratory LOR and below the adopted site assessment criteria. These results are consistent with those previously reported in groundwater at the site in Environ (2013). Comparison of the individual heavy metals groundwater concentrations indicate the same regional groundwater elevations of chromium, copper, nickel and zinc as previously identified across the broader site. Concentrations within the same order of magnitude have been reported for these compounds and as such, the results are considered consistent with those reported in the 2013 site audit statement for groundwater.
- Whilst PFAS compounds were not previously evaluated, the current investigation has identified PFAS in soil and groundwater to be present at levels less than the relevant site assessment criteria presented in NEPM (2.0) as relevant to the site conditions.

Based on the scope of work undertaken for this assessment (and subject to the limitations in **Section 11**), it is considered that consistent with the outcomes of the 2013 Site Audit, the site is considered suitable for the following uses: residential with accessible soil, including gardens and accessible soils;

⁸ *Contaminated Sites: Sampling Design Guidelines*. NSW Environment Protection Authority 1995 (EPA 1995)

⁹ *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. National Environment Protection Council (NEPC 2013)

¹⁰ *Consultants Reporting on Contaminated Lands, Contaminated Land Guidelines*, NSW EPA, 2020 (EPA 2020)

¹¹ *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*. NSW EPA, 2017 (EPA 2017)

¹² *Managing Land Contamination Planning Guidelines SEPP 55—Remediation of Land*. Department of Urban Affairs and Planning, August 1988 (DUAP 1998)

day care centre, pre-school, primary and secondary school; and park, recreational open space, playing fields.

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Landcom (the client) to undertake a supplementary environmental site assessment of a portion of Precinct 9 of the Edmondson Park development site located at Gallipoli Drive, Edmondson Park, NSW (the site) as shown in **Figure 1 (Attachment 2)**. The site is legally identified as part Lots 1 and 2 on DP 1257105. The site has an area of approximately 6 hectares (ha).

JBS&G understand the site is proposed to be redeveloped for land use as a future school following divestment by Landcom to NSW School Infrastructure (SINSW). To assist with meeting the obligations under the contract of sale, JBS&G has been engaged to confirm the current site contamination conditions. For the purposes of this assessment, JBS&G also extend the definition of client to SINSW.

The site as part of a broader land parcel has previously been the subject of environmental assessment, remediation and validation activities (JBS 2013¹³) and a subsequent site audit (Environ 2013¹⁴) that identified the site as being suitable for the purposes of 'residential with gardens and accessible soil' and other less sensitive uses including schools, open space and commercial, subject to compliance with the environmental management plan relevant to the proposed open space areas within RZNRA (JBS&G 2013¹⁵). This EMP does not relate to the footprint of this site.

The site is a portion of a greater area formerly used by Department of Defence as a training facility. Investigation of the greater site area identified military objects (concertina wire, weapons pits, etc.), waste material on the ground surface and buried in pits and trenches, unexploded ordnance (UXO), exploded ordnance waste (EOW) and small arms ammunition (SAA) from military training exercises, and lead impacted material used to form tracks. Remediation of the site was undertaken to remove waste material, UXO, EOW and SAA, asbestos and lead impacted material. UXO, EOW and SAA was generally disposed off-site, whilst lead and asbestos impacted material was retained within land situated to the south of the railway line, remote to this current site. Groundwater within the site and in the greater site area was assessed prior to and following remediation. Heavy metals concentrations in groundwater exceeded ecological criteria, however were considered indicative of background conditions associated with the regional geology, comprising the Wianamatta Group shale formation.

Since the finalisation of the remediation/validation works and issue of the final site audit statement (Environ 2013), the site has been managed by Landcom, or an appointed principal contractor as associated with subdivision construction activities nearby to the site. This resulted in use of the site at times as a stockpiling yard for broader site generated excess fill material. This stockpiled material was subsequently assessed (JBS&G 2018¹⁶, 2020a¹⁷, 2020b¹⁸ and 2020c¹⁹) as suitable for beneficial reuse as part of subdivision and road construction works and the material has been moved beyond the site boundary for future re-use during construction of Buchan Avenue upgrades.

¹³ Validation Report – RZNRA, prepared for Landcom, Zouch Road, Edmondson Park. JBS Environmental. 24 September 2013 (JBS 2013)

¹⁴ Site Audit Report – Residential Zone North of Rail Alignment, Zouch Road Edmondson Park NSW, prepared for Landcom, ENVIRON Australia Pty Ltd. October 2013 (Environ 2013)

¹⁵ Urban Growth, Public Open Space, Site Environmental Management Plan, Residential Zone North of Rail Alignment, Zouch Road, Edmondson Park, NSW, JBS&G (NSW & WA) Pty Ltd. 2 September 2013 (JBS&G 2013)

¹⁶ Material Classification – Edmondson Park Precinct 9 Stockpile Assessment, Edmondson Park, NSW. JBS&G 9 March 2018 (JBS&G 2018)

¹⁷ Material Classification – Edmondson Park Precinct 9 Stockpile 1 Assessment Part 2, Buchan Avenue, Edmondson Park NSW. JBS&G 15 June 2020 (JBS&G 2020a)

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¹⁹ Material Classification – Edmondson Park Precinct Fly Tipped Stockpile Assessment, Buchan Avenue, Edmondson Park NSW. JBS&G 10 July 2020 (JBS&G 2020c)

This report documents the findings of the DSI and has been prepared in accordance with NSW Environment Protection Authority (EPA 1995²⁰), NEPC (2013²¹), EPA (2020²²), EPA (2017²³) and SEPP 55²⁴ guidelines.

1.2 Objectives

The objective of this assessment was to conduct an environmental investigation, including intrusive soil investigation, associated soil and groundwater sampling, to identify if the site is consistent with the results of the 2013 Site Audit Statement outcomes and confirm that the land is suitable for the proposed public school land use.

1.3 Scope of Works

The scope of works for the assessment included:

- Desktop review of previous reports, local and regional background environmental information and available historical background information;
- A detailed site inspection of the site and surrounds;
- Development of a conceptual site model (CSM) to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs), and documentation of a Sampling and Analysis Quality Plan (SAQP) including data quality objectives (DQOs) for the investigation;
- Implementation an Environmental investigation, including soil and groundwater sampling, laboratory analysis and data assessment in accordance with guidelines made or approved by the Commonwealth of Australia, and the NSW Environmental Protection Authority (EPA); and
- Documentation of the outcomes of this assessment as this site assessment report presenting the conclusions of the assessment.

²⁰ *Contaminated Sites: Sampling Design Guidelines*. NSW Environment Protection Authority 1995 (EPA 1995)

²¹ *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)*. National Environment Protection Council (NEPC 2013)

²² *Consultants Reporting on Contaminated Lands, Contaminated Land Guidelines*, NSW EPA, 2020 (EPA 2020)

²³ *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition)*. NSW EPA, 2017 (EPA 2017)

²⁴ *Managing Land Contamination Planning Guidelines SEPP 55–Remediation of Land*. Department of Urban Affairs and Planning, August 1988 (DUAP 1998)

2. Site Conditions and Surrounding Environment

2.1 Site Identification

The site location and layout are shown in **Figures 1** and **2**, respectively. Site details are summarised in **Table 2.1** and described in detail in the following sections.

Table 2.1: Site Details

Lot/DP Number	Parts Lots 1 and 2 on DP1257105
Street Address	Gallipoli Drive, Edmondson Park
Local Government Authority	Liverpool City Council
Site Area	Approximately 6 ha
Geographic Co-ordinates (GDA 94 – MGA56)	East: 301662.2, North: 6239479.822

2.2 Site Description

A detailed site inspection was conducted on 08 February 2021 by one of JBS&G's trained and experienced environmental consultants. The site comprised an approximately rectangular shaped block, located between the rail line to the south and the Buchan Road extension to the north.

At the time of investigation, the site was identified to be vacant land, with the previous stockpile footprint characterised as exposed clay soil and shale. The entire site was devoid of any trees or with minimal vegetation observed in the north-western and south eastern corners of the site.

The land parcel inclusive of Lots 1 and 2 DP1257105 was secured with permanent fencing at the street/rail corridor boundaries with access controlled via a lockable gate on Buchan Avenue. The areas to the north and east of the site were identified as part of an adjacent construction site, and there was no fencing observed separating these site boundaries.

There were no indications of discoloured, stained and/or odorous soil conditions with the exposed surface materials.

A photograph log of the site and surrounding area is provided in **Appendix B**.

2.3 Surrounding Land Use

The surrounding land uses have been identified as follows:

- North – To the north of the site was the balance of the Landcom Precinct 4 development site, characterised by the Buchan Avenue road corridor, individual residential properties, Clermont Park public open space and the St Francis Catholic College campus beyond.
- East – To the east of the site was vacant land with Edmondson Park Station beyond.
- South – To the south of the site was the Liverpool to Leppington railway line beyond which was the Edmondson Regional Park.
- West – The site was bound to the west by Faulkner Way road reserve with low density residential land uses beyond (Development Precinct 4).

Based on the general observations of the surrounding properties, it was considered the potential for contamination to be migrating onto the site from the surrounding areas is low.

2.4 Environmental Setting

2.4.1 Topography and Hydrology

A review of regional topographical data via the Spatial Information exchange (SIX Maps²⁵) indicates the site has an elevation of between 56 m and 70 m AHD with the highest portion of the Site being

²⁵ Spatial Information Exchange Viewer, NSW Land and Property Information, Accessed 30/03/2021, <https://maps.six.nsw.gov.au/>;

located in the south-western corner and ground levels observed to fall toward the north-eastern corner, with minor undulations associated with an ephemeral drainage line that crosses the northern portion of the site in a west to east direction. An unnamed tributary of Maxwells Creek is present to the east of site, that ultimately flows into Cabramatta Creek, located approximately 6.5 km north-east of the site. The Georges River is also located to the east of site and from there into the Georges River at Chipping Norton Lake.

Rainfall is anticipated to infiltrate unsealed soils at the site, and surface water run-off to follow the local topography of the land and flow into stormwater infrastructure and ultimately towards the unnamed tributary.

2.4.2 Geology and Soils

Based on review of the Penrith 1:100,000 Geological Sheet Edition (1991²⁶) the site is located in an area underlain by Bringelly Shale which is found within the Wianamatta Group formation. Typical geological characteristics of the Bringelly Shale are fine to medium grained shale, carbonaceous claystone and claystone.

Based on eSPADE²⁷ Soil Landscape information, soils at the site and surrounding area are part of the Blacktown landscape characterised by gently undulating rises on Wianamatta Group shales. With local relief to 30 m and slopes usually less than 5%. Landforms can include broad rounded crests and ridges with gently inclined slopes. Vegetation is usually cleared eucalypt woodland and tall open-forest. Soils tend to be shallow to moderately deep hard setting mottled texture contrast soils, with red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines. Limitations of this soil type include localised seasonal waterlogging, water erosion hazard, moderately reactive highly plastic subsoils, localised soils surface movement potential.

As summarised in Environ (2013) subsurface conditions at the site and surrounds were generally characterised by the presence of clayey silt/silty clay topsoil to depths of 0.05 – 0.5 m m below ground level (bgl), with isolated areas of fill material overlying residual silty clay soil and shale bedrock at depths of between 0.2 m to 3.2 m bgl.

2.4.3 Acid Sulfate Soils

Based on a review of the NSW Office of Environment and Heritage Acid Sulfate Soils Risk database (2011 Revision) there is “no known occurrence” of acid sulfate soils identified for the site or the surrounding areas. As such, no further consideration of potential requirements for acid sulfate soils management is considered necessary.

2.4.4 Hydrogeology

A post-remediation groundwater monitoring event was completed across the 12619 Project site using the available wells (JBS 2013b²⁸). Groundwater monitoring in October 2012 reported standing water levels of between 1.6 m (BH291) and 7.1 m (BH558) below ground level. This corresponds to standing water elevations of between 46.75 m AHD (BH2) to the west outside of current site boundaries and 51.28 m AHD in the east section outside of the current site boundaries.

Based on local topography and geology, regional groundwater is expected to be present in cracks and fissures within the underlying Bringelly Shale. Regional groundwater is anticipated to flow in an easterly to north-easterly direction toward the Georges River.

²⁶ Penrith 1:100,000 Geological Sheet 9030 Edition 1 (1991)

²⁷ eSPADE <https://www.environment.nsw.gov.au/eSpade2WebApp> (Accessed 14/06/2020)

²⁸ *Post-remediation Groundwater Monitoring Event Results Landcom Project 12619 Zouch Road, Edmondson Park*, JBS Environmental, 25 February 2013 (JBS 2013b)

2.4.5 Meteorology

A review of average climatic data for the nearest Bureau of Meteorology monitoring location Badgery's Creek AWS (BOM, 2021²⁹) indicates the site is located within the following meteorological setting:

- Mean maximum temperature ranges from 17.5°C in July to 30.3°C in January, while mean minimum temperature ranges from 4.1°C in July to 17.3°C in both January; and
- The average annual rainfall is approximately 658 mm. On average, July received the least amount of rain with a mean rainfall of 24.8 mm, while February receives the most rain, with a mean of 108.4 mm.

²⁹ Commonwealth of Australia, 2019 Bureau of Meteorology, http://www.bom.gov.au/climate/averages/tables/cw_067108.shtml prepared on 30 March 2021 - accessed by JBS&G on 16 February 2021

3. Summary Site History and Previous Site Investigations

A number of previous environmental site investigations have been undertaken which provide some relevant environmental data for the site. The works and findings of the relevant assessments available to JBS&G are summarised in the following sections.

3.1 Environmental Validation Report – RZNRA (JBS, 2013)

JBS Environmental Pty Ltd (JBS) was engaged by Landcom to act as remediation consultant during redevelopment of the land known as Landcom Project 12619 located at Zouch Road, Edmondson Park, NSW which comprised the land formally identified as Part Lot 7 and Lot 8 in DP1127652.

The site had formerly been part of the Ingleburn Army Camp training grounds, prior to be transferred to Landcom for future residential development. Contamination issues identified as requiring remediation and/or management to render the site suitable for the proposed residential with accessible soil use included:

- Stockpiled excavated materials placed across the site during historical activities;
- Lead particulate impacted material placed during the construction of an access road (located north of the subject site);
- The potential for asbestos containing materials (ACM) impacts on the ground surface and buried in waste pits in various areas of the site;
- Timber, general waste and steel materials buried in weapons pits/trenches in addition to concrete slabs that required removal prior to the commencement of residential development activities; and
- Clearance of residual unexploded ordnance (UXO), exploded ordnance (EXO), and small arms ammunitions (SAA) items across the site.

Remediation of the RZNRA site, of which the current assessment site is a small portion, was undertaken in 2012 to remove the waste material, UXO, EOW and SAA, and lead or asbestos impacted material. Waste material, UXO, EOW and SAA was generally disposed off-site. Asbestos containing material, contaminated stockpiled material and lead impacted material were placed in an encapsulation area located within the greater site area.

Following completion of remedial works, RZNRA site validation has been successfully achieved for the removal of UXO and ACM. In addition, validation inspections and the analysis of samples representative of soils retained on site have confirmed contaminant concentrations were less than the adopted validation criteria.

JBS concluded that the Site has been remediated and validated in general accordance with the site specific Remedial Action Plan (Golder 2011³⁰). The Site was therefore suitable for the proposed residential use with accessible soils. It is noted that one area of proposed public open space within the broader site, beyond the current investigation area, required the application of a Site Environmental Management Plan (SEMP). The SEMP was required as a result of vegetation retention requirements within the relevant portion of the site which prevented application of a full instrumental search for buried UXO/EXO/SAA and associated buried waste. As such there was a residual risk that such items may be encountered during future vegetation management and/or development activities. At the time of issue, the area covered by the SEMP comprised the footprint of Clermont Park, situated to the north of Buchan Avenue, to the north of the current subject site.

³⁰ Landcom Project 12619 – Zouch Road, Edmondson Park, NSW, Remediation Action Plan. Golder Associates Pty Ltd (Golder 2011)

3.2 Site Audit Report – RZNRA (Environ, 2013)

On the basis of JBS (2013) and JBS&G (2013), a site audit report was prepared for the site by Graeme Nyland, a NSW EPA Accredited Site Auditor (9808). The audit was commissioned by Landcom to assess the suitability of the greater site area for its proposed use including residential and conservation areas.

The following reports were reviewed as part of the SAR (not all available to JBS&G at the time of reporting):

- Report “*Stage 1 Preliminary Contamination Investigation. Zouch Road Ingleburn 92 Ha Site*”. September 2000 by Milsearch.
- Report “*Final Stage 2 Munitions Contamination Investigations. Landcom 92 Ha Site, Zouch Road, Ingleburn (Former Army Infantry Centre). 21 January – 6 April 2002*”. Footer date 30 June 2002 (and earlier draft) by Milsearch.
- Report “*Stage 2 Munitions Contamination Investigations, Additional Investigations. Landcom 92 Ha Site, Zouch Road, Ingleburn (Former Army Infantry Centre)*”, 14-16 January & 9 February 2003, 30 April-2 May 2003, 21-22 May 2003. Footer date 10 June 2003 by Milsearch.
- Report “*SAQP, Detailed Site Assessment, Zouch Road, Ingleburn*”. May 2004 (and drafts dated March and April 2004) by PB.
- Report “*Final Report, UXO Investigation Ex-Infantry Training Area, Zouch Road, Edmondson Park, NSW*”. February 2005 by BACTEC.
- Report “*Detailed Contamination Site Investigation, Landcom Project No: 12619, Zouch Road, Edmondson Park, NSW*”. August 2005 (and draft dated May 2005) by Golder.
- Report “*Remediation Action Plan, Landcom Project No: 12619, Zouch Road, Edmondson Park, NSW*”. December 2005 (and draft dated October 2005) by Golder.
- Report “*Environmental Management Plan (EMP), Proposed Remediation Works, Regional Park Zone, Part Lot 7 and 8 in DP1127653, Edmondson Park, NSW*”, included as Appendix E of RAP. 10 December 2010 (and draft 26 August 2010) by Golder.
- Report “*Remediation Action Plan, Landcom Project 12619 – Zouch Road, Edmondson Park, NSW*”. 11 February 2011 (and drafts dated 26 August and 10 December 2010) by Golder.
- Report “*Final Report, UXO Remediation of the SW Rail Link Alignment, Former Defence Training Area – Ingleburn*”. July 2011 by BACTEC.
- Report “*Validation Sampling, Analysis and Quality Plan, Landcom Project 12619, Zouch Road, Edmondson Park, NSW*”. 3 February 2012 by JBS.
- Letter Report “*Environmental & Occupational Health Management Plan for Asbestos Management at Zouch Road Edmondson Park Former Bardia Barracks Redevelopment Site for TRN Group*”. February 2012 by Pacific Environmental.
- Letter Report “*Stockpile Characterisation Advice, Landcom Project 12619 Zouch Road, Edmondson Park*”. 5 April 2012 (and draft dated 23 March 2012) by JBS.
- Letter Report “*Pre-remediation Groundwater Monitoring Event Results, Landcom Project 12619 Zouch Road, Edmondson Park*”. 13 April 2012 by JBS.
- Letter Report “*Explosive Ordnance Clearance Certificate in Respect of UXO Clearance of the Former Defence Training Area, Ingleburn, NSW, SW Rail Link Corridor for John Holland Group*”. 17 September 2012 by BACTEC.

- Letter Report “*Post-remediation Groundwater Monitoring Event Results, Landcom Project 12619 Zouch Road, Edmondson Park*”. 25 February 2013 by JBS.
- Report “*Data Quality Indicator Compliance Assessment, Validation Assessment Works, Landcom Project 12619, Zouch Road, Edmondson Park, NSW*”. 28 February 2013 by JBS.
- Report “*Urban Growth, Public Open Space, Site Environmental Management Plan, Residential Zone North of Rail Alignment, Zouch Road, Edmondson Park, NSW (Rev 0)*”. 2 September 2013 (and Rev B dated 28 August 2013) by JBS&G.
- Report “*Post Activity Report – Unexploded Ordnance Search and Clearance, Edmondson Park, NSW (Version 1.2)*”. 3 September 2013 (and version 1.1 dated 24 January 2013) by G-tek.
- Report “*Validation Report – RZNRA, Landcom, Zouch Rd, Edmondson Park, NSW (Rev 0)*”. 24 September 2013 (and Rev A dated March 2013) by JBS.

The audit report presented site contamination characterisation data in soil from the broader RZNRA site, including the current investigation site and surrounds. This included approximately 479 soil investigation locations comprising test pits, hand augered holes and drilled boreholes, completed on a grid of approximately 32 m spacing with additional targeted locations associated with drainage lines, stockpiles and observed contaminant conditions. The summarised site characterisation data as presented in Environ (2013) have been compiled as **Table 3.1** following.

Table 3.1 Environ (2013) Site Soil Characterisation Contaminant Analytical Results Summary

Analyte	n	Detections	Maximum	n > EPA(1994)	n > SIL Column 1 (DEC 2006)	n > SIL Column 5 (DEC 2006)
pH	6	Min-5.1	6.2	-	-	-
Arsenic	641	563	28	-	0	1
Cadmium	641	0	<0.5	-	0	0
Total Chromium	641	641	42	-	0	641 ¹
Chromium VI	6	0	<1	-	0	0
Copper	641	640	55	-	0	0
Lead	641	641	210	0	0	0
Mercury (inorganic)	641	74	0.14	-	0	0
Nickel	641	641	40	-	0	0
Zinc	641	641	810	-	0	3
TPH (C ₆ -C ₉)	105	0	<20	0	-	-
TPH (C ₁₀ -C ₃₆)	105	2	800	0	-	-
BTEX	105	0	<0.5	0	-	-
Phenols	6	0	<0.5	-	0	-
VCH	5	0	<0.5	-	-	-
Total PAHs	105	1	0.1	-	0	-
Benzo(a)pyrene	105	0	<0.1	-	0	-
OCP/ OPP	83	0	<0.1	-	0	-
PCBs	83	0	<0.1	-	0	-
Explosives	101	0	<1	-	-	-
Asbestos	125	1	-	-	-	-

n number of samples

- No criteria available/used

¹ Chromium VI criterion used

VCH Volatile Chlorinated Hydrocarbons

OCP Organophosphorous Pesticides

PCB Polychlorinated Biphenyls

Groundwater on the site and in the greater site area was assessed prior to and following remediation. Heavy metals concentrations in groundwater exceeded the adopted ecological criteria, however were considered indicative of background conditions associated with the Wianamatta

Group shale formation. Groundwater was therefore considered not to present a significant risk to human and ecological receptors with regard to the site.

Table 3.2 Environ (2013) Post Remediation Groundwater Analytical Results

Analyte	Units	n	Detections	Minimum	Maximum	Max Well	n > ANZECC Fresh (2000)
Temperature	°C	7	7	21.0	23.8	BH558	-
pH	-	7	7	6.8	7.2	BH675	0
EC	µV	7	7	9,210	14,270	BH291	-
TDS	mS	7	7	4.53	7.18	BH291	-
Arsenic	mg/L	7	7	0.004	0.12	BH2	1 ¹
Cadmium	mg/L	7	0	-	<0.0002	-	0
Total Chromium	mg/L	7	7	0.007	0.014	BH608	7 ²
Copper	mg/L	7	5	<0.001	0.004	BH608	3
Lead	mg/L	7	7	0.002	0.012	BH675	6
Mercury (inorganic)	mg/L	7	0	<0.0001	0.0001	BH291 (Dup)	1 ³
Nickel	mg/L	7	7	0.002	0.022	BH675	4
Zinc	mg/L	7	3	<0.001	0.07	BH291 (Dup)	2
TPH (C ₆ -C ₉)	mg/L	7	0	-	<0.04	-	-
TPH (C ₁₀ -C ₃₆)	mg/L	7	0	-	<0.5	-	-
BTEX	mg/L	7	0	-	<0.001	-	0
Phenols	µg/L	7	0	-	<0.5	-	0
VHC	µg/L	7	0	-	<5	-	0
PAHs	µg/L	7	0	-	<0.5	-	0 ⁴
OCP/ OPP	µg/L	7	0	<0.01	<0.2	-	0 ⁵
PCBs	µg/L	7	0	-	<0.1	-	-
Explosives	mg/L	7	0	-	<0.005	-	-

n number of samples

- No criteria available/used

1 Arsenic III criteria

2 Chromium III criteria

3 Detection limit (0.0001 mg/L) for primary samples is above guideline (0.00006 mg/L)

4 Detection limits for some PAHs (anthracene, benzo(a)pyrene) are above guidelines

5 Detection limits for some OCP/OPP (Aldrin, Dieldrin, Chlorpyrifos) are above guidelines

The Auditor concluded that at the time of issue of the Site Audit Statement, the site was suitable for the purposes of 'residential with gardens and accessible soil' and other less sensitive uses including schools, open space and commercial, subject to the application of the SEMP in specific areas of the audit site (beyond the current investigation area).

3.3 Aerial Photographs

To evaluate the potential activities across the site area since the 2013 site audit, historical aerial imagery sourced from NearMaps are provided in **Appendix C** and discussed below.

May 2014 – The site and surrounding area appeared predominately cleared with dirt trails running to and across the site. The railway line was apparent to the south. The area was characterised as partially grassed with scattered small trees.

June 2014 – To the north west of the site, earthworks had started and stockpiling of material was apparent on the site. Additionally, a large area around the base of the stockpile had been stripped of vegetation. To the east of the stockpile area a long square stockpile was also apparent.

January 2015 – The construction site to the west of the site, Landcom Precinct 4 had been cleared of all vegetation and the bulk earthworks were in progress. The stockpile identified onsite had significantly increased in volume. Smaller stockpiles could be seen to the north east and east of the larger site. The area to the north east of the site remained similar to the June 2014 aerial.

May 2015 –The stockpile appeared to have further increased in volume. The roads had been constructed on Precinct 4 to the west of the site. Several stockpiles were observed around the base of the main stockpile including one to the north, north west and east. The site surroundings appeared similar to the January 2015 aerial.

October 2015 –The stockpile appeared to be similar in size and character to the May 2015 aerial. The roads within the Precinct 4 development had been paved and the pads for the housing appeared to have been completed to the west of the site. The smaller stockpiles observed remain similar to those identified in the previous historical aerial May 2015, however they appeared to have been shaped.

January 2018 – The stockpile appeared to be similar in size and character to that shown in October 2015 with the exception that the stockpile had now been vegetated. The houses to the west of the site had been constructed. Earthworks had started in the area to the north of the site.

April 2020 - The stockpile appeared to be similar in size and character to that shown in January 2018 with the exception of further vegetative cover. The houses to the west of the site had all been constructed and the site had been fenced. The balance of the site appeared to have increased vegetative cover and no areas of active ground disturbance was apparent at the time of the imagery.

August 2020 – Removal of the identified stockpiles appears in progress, with a haul road constructed from the south-east corner of the site to the placement location of the material to the north-east of the site across the Buchan Ave upgrade, outside of the current site boundary.

October 2020 – The large stockpile and associated smaller stockpiles, as identified in the April 2020 image, has been removed from the site, resulting in the stockpile footprint characterised with exposed soil and with associated ground disturbance across the site.

December 2020 – The site remains largely unchanged from the October 2020 image, with ongoing construction earthworks to the north of the site associated with construction of Buchan Ave.

3.4 Integrity Assessment

The amount of data and comprehensive analytical suite in previous investigations is deemed sufficient to appropriately characterise the nature of contamination at the site. As such, further investigation into the site history is not considered necessary.

4. Conceptual Site Model

4.1 Areas of Environmental Concern

Based on the objectives of the assessment, the desktop review and observations made during the site inspection, the following points are noted:

- Historical use of the site as part of the Ingleburn Army Camp site were identified in the past to have resulted in a number of site contamination concerns across the broader camp site. In 2012, remediation works undertaken at the site by Landcom enabled validation of the site portion the subject of this assessment as 'suitable for the proposed residential use with accessible soils' with no requirements for ongoing management in relation to contamination.
- The validation report (JBS 2013) conclusions were endorsed by the appointed site auditor in a Site Audit Statement in 2013, noting that in addition to the residential land uses with accessible soil, the site was also considered suitable for less sensitive land uses include schools.
- Subsequent to issue of the site audit statement, Landcom initiated residential subdivision of land to the north and west of the current assessment site. During these activities, Landcom appointed contractors used portions of the current site for the temporary stockpiling of surplus excavated material generated during the subdivision works. It was also noted that given the absence of material tracking records by the contractors and site condition reports at the completion of works in addition to the notation that site was not at all times secured, there was the potential that some additional placement of material or otherwise impacts to the site may have occurred.

On this basis, the areas of environmental concern (AEC) and associated contaminants of potential concern (COPC) identified at the site with regard to historical use of the site are noted in **Table 4.1**. Also, per- and polyfluoroalkyl substances (PFAS) has been included as a COPC given its emergence as a known contaminant on Defence sites since issue of the existing Site Audit Statement and as such there has not previously been any known historical evaluation of the potential for such contaminant impacts at this site, resulting in the current data gap.

Table 4.1: Areas of Environmental Concern and Associated Contaminants of Potential Concern

Area of Environmental Concern (AEC)	Contaminant of Potential Concern (COPC)
Soil impacts from historical stockpiling and general site contractor area use since issue of the 2013 SAS	Heavy Metals TRH/BTEX PAHs OCPs/PCBs Asbestos PFAS
Potential for historical use of PFAS during military operations	PFAS

4.2 Potentially Contaminated Media

Each of the AECs and corresponding COPCs identified in **Table 4.1** have the potential to impact soil at the site and if present, have the potential to impact groundwater underlying the site.

The site history indicates that there have been potentially contaminating activities mostly from historical stockpiling of materials of unknown origin and use of the area as a staging yard.

Based on the recent historical site activities surface soil/fill material at the site it is considered to potentially be impacted by a range of COPCs including asbestos, heavy metals, TRH/BTEX, PAHs and pesticides.

If fill materials are present to depth, or soils have been disturbed, there is a potential that environmental impact may be present at depths 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.

Given the broader historical activities associated with the military training grounds, there is the potential that PFAS may be present at the site as associated with surface soils. Given its known ability to migrate within the environment, in addition to surface soils, activities within the site and broader surrounds also potentially may have resulted in PFAS impacts to subsurface natural soils and/or groundwater at the site.

More broadly, groundwater is considered to be a potentially impacted media given the proximity to the historical activities of the site as a defence base. There is also potential for contamination of groundwater to have occurred from historical land uses of the site.

4.3 Potential For Contaminant 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 a combination of:

- 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 around the site or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The COPCs identified as part of the site history review and site inspection are generally in solid form (e.g. asbestos, PAHs and metals), liquid form (e.g. TRH, BTEX, OCPs, PCBs and PFAS) or gaseous form (e.g. BTEX, volatile TRH, VOCs and semi-volatile PAHs).

The potential solubility of chemical contaminants in soil, in addition to rate of surface water intrusion, perched water seepage and groundwater movement across the site will influence the potential for migration of soil and groundwater based contamination within and from the site. Should impacted groundwater be identified within the eastern site extent, then potential off-site migration of contaminants in groundwater will require consideration.

The ground surface of the site is partially grassed with bare areas of exposed underlying soils. As such, there is a moderate potential for windblown contaminants to migrate from the site. It is considered that exposure pathways are limited to dermal, ingestion and inhalation of potentially impacted soil should the soil at the site be disturbed.

The potential for off-site migration of vapours will only be relevant where these constituents are identified at significant levels. These constituents can migrate laterally from the site through diffusive/advective processes as well as through preferential pathways (refer to **Section 4.5**). Should elevated levels of volatile contaminants be identified, then the potential off-site migration of these constituents will require further consideration.

4.4 Potential Human and Ecological Receptors and Exposure Pathways

Table 4.2 summarises potential human receptors and associated exposure pathways for the site, based on the range of exposure scenarios that may occur under the potential land-uses of the site.

Table 4.2: Summary of Potential Human Exposures

Receptor	Location	Media	Potential Exposure Pathways
Construction worker or intrusive maintenance worker (short duration)	Construction areas/ Excavations	Soil	Inhalation (vapours and particulates) Oral Dermal
		Groundwater	Inhalation (vapours) Oral (infiltrating seepage water) Dermal (infiltrating seepage water)
Future Site User (adult or child)	Within School buildings	Soil	Inhalation (vapours)
		Groundwater	Inhalation (vapours) Oral (infiltrating seepage water within basement if present) Dermal (infiltrating seepage water within basement if present)
	Outside areas	Soil	Inhalation (particulates) Oral Dermal
		Surface Water	Inhalation (vapours) Oral Dermal

Potential ecological receptors within the assessment area include existing and/or future flora and fauna species established within open spaces under the proposed school land-use scenario. Off-site ecological receptors may potentially be impacted by surface/groundwater and windblown dusts discharged from the site. Surrounding open spaces including the riparian corridor and associated surface water bodies (noting the drainage channel that traverses the central portion of the site and unnamed tributary to the east of the site) are also environments in which potential ecological receptors will be exposed to site impacts, or the migration thereof (if present).

4.5 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 COPCs as either liquid or gas.

Man-made preferential pathways at the site are limited to fill materials in which it is anticipated that the materials will have a higher permeability than natural soils, where present. All known historical below ground structures and services have been removed from the site and as such backfilled locations may remain. Where environmental impact (particularly in liquid or gaseous form) is observed within fill materials, further consideration to the potential migration of these impacts will be required.

Natural preferential pathways at the site are limited to the drainage line that traverses the site and adjoining areas, where contaminants could migrate via surface water or sediment laden run-off. Where environmental impact is observed within surface soils or surface water, in proximity of the drainage line, further consideration to the potential migration of these impacts will be required.

5. Sampling and Analysis Plan

5.1 Data Quality Objectives

Data quality objectives (DQOs) were developed for the investigation, as discussed in the following sections.

5.1.1 State the Problem

It is understood the site was subject to an environmental assessment, with subsequent remediation and then site validation activities (JBS 2013) completed to enable a subsequent Site Audit Statement (SAS) (Environ 2013). Given the SAS was completed in 2013, and site construction activities have since had the potential to impact contamination conditions, including stockpiling of materials assumed to be generated from the civil construction adjacent to the site. additional investigation was required to be undertaken to confirm that the works completed across the site had not resulted in impacts to the site that result in further management requirements to enable future development of the site for the proposed school use.

To satisfy contract requirements between Landcom and SINSW, this investigation is required to assess if the site contains soil and/or groundwater contaminants that would impact the suitability of the site for future development as per the stated investigation objectives.

5.1.2 Identify the Decision

To address the stated objectives of the investigation, the following decisions are considered appropriate for this investigation:

- Are conditions of the site consistent with those reported in the 2013 Site Audit Statement?
- Are there any unacceptable contamination risks at the site for residential and school land use?
- Are there any aesthetic issues at the site?
- Is a site management strategy required?

5.1.3 Identify Inputs to the Decision

Inputs identified to provide sufficient data to make the decisions nominated above include:

- Desktop review of the client supplied reports previously prepared for the site (summarised in **Section 3**) to identify AECs and COPCs;
- Historical site information and inspection of the site to identify and/or confirm potential AECs and COPCs at the site;
- Detailed site inspection/walkover;
- Physical observations and interpretation of fill and natural material through the collection of soil samples;
- Observations of groundwater from samples collected from the three monitoring wells installed at the site;
- Laboratory analysis of soil and groundwater samples for COPCs;
- Adoption of appropriate assessment criteria for evaluation of soil and groundwater impacts; and
- Comparison of collected data against applicable guidelines made or endorsed by the NSW EPA, as nominated in **Section 6**; and

- Confirmation that data generated by sample analyses were of sufficient quality to allow reliable comparison to assessment criteria as undertaken by assessment of quality assurance / quality control (QA/QC) as per the data quality indicators established in Section 5.1.6.

Specifically, sufficient data needs to be collected from each of the identified potentially impacted media in the identified AECs for the associated COPCs (**Table 4.1**).

5.1.4 Define the Study Boundaries

The study boundaries are limited to site boundaries as described in **Section 2.1** and shown on **Figure 2**.

The vertical extent of the soil contamination investigation ranged from 0 m bgs to 0.5 m bgs, being the maximum depth of test pit excavations required for this investigation. The vertical extent of groundwater investigation was up to 15.5 m bgs, being the maximum depth of wells installed for this investigation.

As a result of the project objectives, the temporal study boundaries were limited to the period of assessment works completed in February 2021. Due to the nature of the potential contamination identified, seasonality is not considered to be significant with respect to assessing risks to future site receptors.

5.1.5 Develop a Decision Rule

The decision rules adopted to answer the decisions identified in **Section 5.1.2** are summarised in **Table 5.1**.

Table 5.1: Summary of Decision Rules

Decisions required to be made	Decision Rule
Are conditions of the site consistent with those reported in the 2013 Site Audit Statement?	The analytical data set for COPCs identified at the site were required to be compared within those presented within the existing 2013 SAR (as presented in Tables 3.1 and 3.2 respectively). If the analytical data set for one or more contaminants was considered to demonstrate contaminant concentrations had statistically increased since 2013, the answer to the decision was Yes. If the analytical data set were considered to be statistically consistent with those reported previously, the answer to the decision was No.
Are there any unacceptable contamination risks at the site for school land use?	Analytical data were compared against NSW EPA endorsed criteria (see Section 6) applicable to the proposed land use. Statistical analysis of the data was completed, where necessary, in accordance with relevant guidance documents, as appropriate, to facilitate the decision. The criteria in Section 6 were adopted with respect to soil and groundwater. Either: the reported concentrations were all below the site criteria; Or: no single analyte concentration exceeded 250 % of the adopted site criterion; and the standard deviation of the results was less than 50 % of the site criterion; And: the 95 % UCL of the average concentration for each analyte was below the adopted site criterion. If the statistical criteria stated above were satisfied, the answer to the decision was No. If the statistical criteria were not satisfied, the answer to the decision was Yes.
Are there any aesthetic issues at the site?	If there were any ACM fragments on the ground surface, any unacceptable odours or soil discolouration, or excessive extraneous/foreign/waste materials, the answer to the decision was Yes. Otherwise, the answer to the decision was No.
Is a site management strategy required?	Is the answer to any of the above decisions Yes? If yes, a site management strategy is required. If no, a site management strategy is not required.

5.1.6 Specific Limits on Decision Rules

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

Specific limits for this project have been adopted in accordance with the appropriate guidance from the NSW EPA, ASC NEPM (2013) and standard JBS&G procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data was assessed against pre-determined data quality indicators (DQIs) for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS parameters). The acceptable limit on decision error is 95% compliance with DQIs.

The pre-determined DQIs established for the project are discussed below in relation to the PARCCS parameters and are shown in **Table 5.2**.

- **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples.
- **Accuracy** - measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards.
- **Representativeness** –expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy.
- **Comparability** - expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples; and ensuring analysing laboratories use consistent analysis techniques; and reporting methods.
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.
- **Sensitivity** – expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted site assessment criteria.

Table 5.2: Data Quality Indicators

Data Quality Indicators	Frequency	Data Quality Criteria
Precision		
Split duplicates (intra laboratory)	1 / 20 samples	<50% RPD ^a
Blind duplicates (inter laboratory)	1 / 20 samples	<50% RPD ^a
Laboratory Duplicates	1 / 20 samples	<50% RPD ^a
Accuracy		
Surrogate spikes	All organic samples	70-130%
Laboratory control samples	1 per lab batch	70-130%
Matrix spikes	1 per lab batch	70-130%
Representativeness		
Sampling appropriate for media and analytes	All samples	- ^b
Samples extracted and analysed within holding times.	-	Soil: organics (14 days), inorganics (6 months) PFAS (6 months)
Laboratory Blanks	1 per lab batch	<LOR
Trip blanks	1 per lab batch	<LOR
Trip spike	1 per lab batch	70-130% recovery
Storage blank	1 per lab batch	<LOR

Data Quality Indicators	Frequency	Data Quality Criteria
Rinsate sample	1 per sampling event/media	<LOR
Comparability		
Standard operating procedures for sample collection & handling	All Samples	All Samples
Standard analytical methods used for all analyses	All Samples	NATA accreditation
Consistent field conditions, sampling staff and laboratory analysis	All Samples	All samples ^b
Limits of reporting appropriate and consistent	All Samples	All samples ^b
Completeness		
Sample description and Chain of Custody (COCs) completed and appropriate	All Samples	All samples ^b
Appropriate documentation	All Samples	All samples ^b
Satisfactory frequency and result for QC samples		95% compliance
Data from critical samples is considered valid	-	Critical samples valid
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	All samples	LOR<= site assessment criteria

- If the RPD between duplicates is greater than the pre-determined data quality indicator, a judgment will be made as to whether the excess is critical in relation to the validation of the data set or unacceptable sampling error is occurring in the field.
- A qualitative assessment of compliance with standard procedures and appropriate sample collection methods will be completed during the DQI compliance assessment.

5.2 Optimise the Design of Obtaining Data

Various strategies for developing a statistically based sampling plan are identified in *Contaminated Sites: Sampling Design Guidelines* (EPA 1995), including judgemental, random, systematic and stratified sampling patterns. The adopted sampling methodology is discussed in the following sections.

5.2.1 Soil Investigation Program

The *NSW Sampling Design Guidelines* (EPA 1995) does not provide specific guidance on the sampling density for sites larger than 5 ha; rather it recommends a systematic sampling approach based on consideration of the potential for contamination. With regard to the previous characterisation works completed as documented in Environ (2013), the known site activities documented to have occurred since this period and the proposed site development details, a systematic sampling grid approach has been considered appropriate. An approximately even grid sample spacing of 50 m was adopted, as detailed in **Table 5.3**. This resulted in the completion of 30 sampling locations, enabling comparison of a statistically robust data set with the previous data and the current guidelines.

5.2.2 Groundwater Investigation Program

Given that historical groundwater sampling locations were not present within the current investigation site, or alternatively had been removed, it was required to establish new groundwater monitoring wells. With regard to the site topography and surrounding land uses, it was considered appropriate to install three groundwater monitoring wells at the site to characterise conditions at the site and evaluate the potential for offsite migration. Wells were designed to be installed to depths sufficient to intersect the regional shallow groundwater seepage present within fractured shale bedrock at the site.

Three groundwater monitoring wells were installed on 8 February 2021 and subsequently sampled on 22 February 2021 as per **Table 5.3**.

Table 5.3: Summary of Investigation Program and Analysis Schedule

Sample Type	Laboratory Analyses (excluding QA/QC)
Soil: In-situ (TP01 – TP30)	Heavy Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) - 30 Samples TRH/BTEX - 30 Samples PAHs - 30 Samples OCPs/PCBs - 30 Samples Asbestos - 30 Samples PFAS - 5 Samples Ecological parameters (CEC, pH, Org C etc) - 3 Samples
Groundwater (MW01 – MW03)	Heavy Metals - 3 Samples TRH/BTEX - 3 Samples PAHs - 3 Samples PFAS - 3 Samples pH/EC - 3 Samples

In addition to the above primary analyses, to address the DQIs, field duplicate and triplicate samples were analysed at a rate of one per 20 primary samples. A rinsate sample was obtained from non-disposable sampling equipment, and a trip spike and trip blank accompanied the sampling event.

5.3 Site Investigation Methodology

5.3.1 Site Inspection

Prior to the sampling works being conducted at the site, a detailed inspection was conducted by a JBS&G consultant to identify surface asbestos, staining/discolouration and potential areas of fill.

5.3.2 Soil Sampling Methodology

Soil samples locations were advanced via the use of a backhoe, which allowed for the inspection of excavated soil and collection of representative soil samples. Soil samples were collected at the ground surface and then at 0.5 m intervals to 0.5 m into natural materials (or prior refusal).

Selected soil samples were screened for potential volatile organic compounds (VOCs) using a portable photo-ionisation detector (PID). Samples were logged according to the Unified Soil Classification System (USCS). Features such as seepage, discolouration, staining, odours and other indicators of contamination were noted on bore logs, and all soil sampling locations were recorded by a handheld GPS device. Test pits were reinstated using excavated material, and nominally compacted level with the surrounding surface.

A fresh pair of nitrile gloves was worn for each sample collected and care was taken to ensure soils were not mixed during collection. Collected samples were immediately transferred to laboratory supplied sample jars and bags. Asbestos soil samples were collected in 500 mL bags 500 mL for asbestos analysis consistent with NEPC (2013). Sample jars 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.

Based upon field observations, samples were analysed in accordance with the laboratory schedule provided in **Table 5.3**. Not all samples collected were analysed. All samples remain at the primary laboratory for a period of two months for possible future analysis (subject to holding times), if required, following the receipt of sample results.

5.3.3 Groundwater Installation and Sampling Methodology

Three groundwater wells were installed on 8 February 2021 at locations across the site. The wells were installed by a drill rig using solid flight auger. Boreholes were advanced to the target depth based on conditions encountered (lithology/geology conditions encountered) during drilling the depth of monitoring wells, being up to approximately 15.5 m bgs, as 2 m below encountered groundwater seepage levels. The wells were constructed in accordance with relevant NSW EPA endorsed guidance such as National Uniform Drillers Licensing Committee, 2012, *Minimum*

Construction Requirements for Water Bores in Australia, and Victoria EPA, 2000, Publication 669 *Groundwater Sampling Guidelines*.

Monitoring wells were constructed of Class 18 UPVC (50mm) screen and casing, with appropriate gravel packs, bentonite seals, well caps and above ground stick up finish. Generally, as a minimum a 3-6 m screen was installed at the base of the well. A gravel filter pack was placed adjacent to the screened interval with a 0.5 m bentonite seal above. The remaining bore annulus was backfilled with soil cuttings to the ground surface. The wells were finished with a lockable cap and flush-mounted gatic cover.

Wells were developed after construction using a re-usable steel bailer to remove turbidity created by the drilling and construction process to remove fines, settle the filter pack and ensure representative groundwater samples can be collected. The bailer was decontaminated prior to use at each well using Liquinox and PFAS-free deionised water. The monitoring wells were allowed to stabilise for three weeks after development prior to sampling.

PFAS groundwater samples were collected via Hydrasleeve (see below) and transferred directly to laboratory supplied sample bottles. Sample bottles were clearly marked with sample identification details, sealed and then transferred to a chilled esky with ice. Samples were analysed in accordance with the analytical schedule (**Table 5.3**).

All monitoring wells were sampled using the following procedure:

- Before and between sampling each sampling location, the non-disposable equipment (i.e. HydraSleeve weights and clips) were decontaminated using Liquinox and PFAS-free deionised water in line with project/PFAS specific wash-down procedures. Appropriate QA/QC samples (i.e. rinsate) were collected to assess the effectiveness of the decontamination procedures;
- The disposable HydraSleeve samplers were flexible 3mm thick lay-flat polyethylene sleeves with a check valve on the top and a re-usable weight on the bottom;
- 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;
- The sample was collected by lowering the sleeve into the well and left for up to one hour. The HydraSleeve was then pulled up through the water column to the surface. The recovered water sample was then decanted into the appropriate laboratory supplied sample bottles;
- Collected groundwater samples were immediately transferred to sample containers of appropriate composition (non-Teflon lined), which were pre-treated in a manner appropriate for the laboratory analysis. Groundwater samples were obtained with minimal headspace where possible;
- Each of the sample bottles were labelled using (only) ball point pens with the project ID, date, sampler's initials and unique surface water ID (or QA/QC sample ID);
- In order to minimise exposure to sunlight, PFAS sample bottles were placed immediately into a pre-chilled ice chest, for transport to the testing laboratories;
- Following PFAS sampling, low flow pumping was undertaken at all three locations, with a micropurge pump using new 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;

- 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;
- Chain of custody documentation was completed for each batch of samples relinquished to the laboratory; and
- QA/QC samples were collected to assess the effectiveness of the sampling and decontamination procedures.

5.3.4 Field PID Screening

Soil samples were screened onsite during the works using a photo-ionisation detector (PID) to assess the potential presence of VOCs. 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 on the borehole logs

5.3.5 Decontamination

Prior to the commencement of soil and groundwater sampling activities, non-disposable sampling equipment was cleaned with deionized water/detergent spray and rinsed with tap water. 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 obtained from non-disposable sampling equipment, following completion of field sampling activities to determine the effectiveness of the decontamination procedures implemented on re-usable sampling equipment.

5.3.6 Duplicate and Triplicate Sample Preparation

At selected sample locations, sufficient soil and groundwater was collected to provide a duplicate (intra-laboratory) and triplicate (inter-laboratory) sample using the sampling methodology outlined above. Duplicate and triplicate samples were collected at a ratio of at least 1 per 20 samples.

Each sample was labelled with primary or duplicate sample identification before being placed in the chilled esky for transport to the laboratory.

5.4 Laboratory Analysis

Eurofins MGT (Eurofins) was engaged as the primary laboratory, with Envirolab Services (Envirolab) as the secondary laboratory. All laboratories are NATA registered for the required analyses. In addition, the laboratories were required to meet JBS&G's internal QA/QC requirements. The completed analysis schedule is summarised in **Table 5.3**.

6. Assessment Criteria

6.1 Regulatory Guidelines

The following guidelines are applicable to this investigation:

- *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, National Environment Protection Council (NEPC 2013);
- *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*, 3rd Edition. NSW EPA, 2017 (EPA 2017);
- *Contaminated Sites: Sampling Design Guidelines*, NSW EPA, 1995 (EPA 1995);
- *Consultants Reporting on Contaminated Lands, Contaminated Land Guidelines*, NSW EPA, 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); and
- *PFAS National Environmental Management Plan (NEMP)* (Version 2.0), Heads of EPAs Australia and New Zealand (HEPA), January 2020 (HEPA 2020).

6.2 Soil Assessment Criteria

The proposed development and ongoing use of the site is equivalent to a NEPC (2013) land use scenario of residential with garden/accessible soils and primary schools (HIL A). Concentrations of contaminants in soil were compared against Health Investigation/Screening Levels (HILs/HSLs), and Ecological Investigation/Screening Levels (EILs/ESLs), as outlined below:

- HILs: HIL A – Residential;
- HSLs: HSL A – Residential (Sand - fine textured soils);
- EILs and ESLs: Residential;
- Management Levels for Residential/Parkland (Fine Soil) (NEPC 2013); and
- Aesthetic considerations as per NEPC (2013); and
- PFAS NEMP Human Health Screening Values (HEPA 2020).

Where there are no NSW EPA endorsed thresholds for individual contaminants of concern the laboratory limit of reporting (LOR) was adopted as an initial screening value for the purposes of this assessment.

Asbestos analysis was undertaken in general accordance with NEPC (2013) including DOH (2018) guidance with regard to the adopted sampling methodology.

Aesthetics were also considered in the assessment of site suitability consistent with EPA (2017) and NEPC (2013).

6.3 Groundwater Assessment Criteria

Groundwater and surface water analytical data evaluated as part of the site wide investigation has been compared against the following groundwater criteria:

- Criteria for species protection in freshwater ecosystems presented in ANZG (2018);

- Criteria for species protection of freshwater ecosystems (95% species protection³¹) presented in HEPA (2020);
- GIL for freshwater water as presented in NEPC (2013);

Consideration was given to groundwater investigation levels (GILs) for drinking water, as presented in NEPC (2013). Given the moderately saline nature of groundwater underlying the site, the GILs for drinking water were not considered applicable as part of this investigation as per guidance in EPA (2017).

³¹ It is considered that 95% is appropriate given the distance to the nearest sensitive receptor.

7. Quality Assurance / Quality Control

7.1 QA/QC Results

The QA/QC results for soil and groundwater samples collected at the site are summarised in **Table 7.1** and discussed in **Section 7.2** below. QA/QC RPD results are presented in **Appendix D**, and detailed QA/QC results are included in the laboratory reports in **Appendix E**.

Table 7.1: Data Quality Indicator Assessment

Data Quality Indicator	Results	DQO met?
Precision		
Blind duplicates (intra laboratory)	SOIL 0-181% RPD Intra laboratory samples were analysed at a rate of 2 in 30 primary samples.	Partial ^a
	WATER 0% RPD Intra laboratory samples were analysed at a rate of 1 in 3 primary samples.	Yes
Blind duplicates (inter laboratory)	SOIL 0-95% RPD Inter-laboratory samples were analysed at a rate of 2 in 30 primary samples.	Partial ^a
	WATER 0-116% RPD Inter-laboratory samples were analysed at a rate of 1 in 3 primary samples.	Partial ^a
Laboratory Duplicates	0-39% RPD	Partial ^a
Accuracy		
Surrogate spikes	45 – 152 % recovery 2 x chromatographic interference	Partial ^a
Laboratory control samples	66 – 148% recovery	Partial ^a
Matrix spikes	69 – 139 % recovery	Partial ^a
Representativeness		
Samples extracted and analysed within holding times.	All primary and duplicate samples were extracted within 14 days of sampling.	Yes
Trip spike	71 – 110%	Yes
Storage blank	<LOR	Yes
Rinsate blank	<LOR	Yes
Method blank	<LOR	Yes
Standard operating procedures for sample collection & handling	Field scientist used the same standard operating procedures throughout works.	Yes
Comparability		
Standard analytical methods used for all analyses	Standard analytical methods used by NATA accredited primary and secondary laboratories	Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by the same field scientist. Standard operating procedures were conducted throughout the works. Field conditions remained the same throughout the works. The primary and secondary labs remained consistent throughout the investigation.	Yes
Limits of reporting appropriate and consistent	Soil and groundwater limits of reporting were consistent and appropriate.	Yes
Completeness		
Soil description and COCs completed and appropriate	All bore logs, monitoring wells and COCs were completed appropriately.	Yes
Appropriate documentation	All appropriate field documentation is included in the Appendices.	Yes
Satisfactory frequency and result for QC samples	The QC results are considered adequate for the purposes of the investigation.	Yes
Data from critical samples	Samples were analysed at locations where potential for contamination was observed.	Yes

Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	Analytical methods and limits of recovery were considered appropriate for media and adopted site assessment criteria for all soil analytes.	Yes

a. See discussion of DQI exceedances in **Section 7.2**.

7.2 QA/QC Discussion

7.2.1 Precision

Soil Duplicate (intra-laboratory)

Field blind duplicate (intra-laboratory) samples were collected at a rate of 2 per 30 primary samples, greater than the required 1/20 DQI frequency. The results of analysis for the intra-laboratory duplicate soil samples were mostly in agreement with the acceptance criteria of 0-50%, with the exception of the following:

- Between primary sample (TP27_0-0.1) and duplicate sample (QA03):
 - Arsenic with a RPD of 121%;
 - Chromium (III+VI) with a RPD of 129%;
 - Copper with an RPD of 117%;
 - Lead with an RPD of 157%;
 - Nickel with an RPD of 113% and
 - Zinc with an RPD of 181%.

It is considered that a majority of the elevated RPDs are due to the heterogeneous nature of the materials encountered. The elevated RPDs are within the laboratory quality control acceptance criteria. As a conservative measure, the highest reported result for all analytes was adopted for assessment purposes. Therefore, the RPDs above the DQI are not considered to affect the precision of the data set.

Soil Triplicate (inter-laboratory)

Field soil blind triplicate (inter-laboratory) samples were collected at a rate of 2 per 30 primary samples, greater than the 1/20 DQI frequency. The results of analysis for the intra-laboratory duplicate soil sample were in agreement with the acceptance criteria of 0-50%, with the exception of the primary sample (TP01_0-0.1) and triplicate sample (QA01) results for arsenic, with a RPD of 53%.

It is considered that a majority of the elevated RPDs are due to the heterogeneous nature of the materials encountered. The elevated RPDs are within the laboratory quality control acceptance criteria. As a conservative measure, the highest reported result for all analytes was adopted for assessment purposes. Therefore, the RPDs above the DQI are not considered to affect the precision of the data set.

Based on this, the RPDs above the DQI are not considered to affect the data set.

Water Duplicate (intra-laboratory)

Field water blind duplicate (intra-laboratory) samples were collected at a rate greater than the 1/20 DQI frequency and were within the range of 0-50% RPD.

Water Triplicate (inter-laboratory)

Field water blind triplicate (inter-laboratory) samples were collected at a rate greater than the 1/20 DQI frequency and were within the range of 0-50% RPD, with the exception of the following:

- Between primary sample (MW03) and triplicate (QA01-20210222)

- Arsenic with a RPD of 100%;
- Chromium (III+VI) with a RPD of 100%;
- Copper with an RPD of 116%; and
- Zinc with an RPD of 67%.

Laboratory Duplicates

Soil and water laboratory duplicates were collected at a rate greater than 1 per 20 samples across each of the analytical batches prepared and assessed. All RPDs were below the target range of 50%.

7.2.2 Accuracy

Surrogate Spikes

Surrogate spikes were conducted in conjunction with organic contaminant analysis of all samples. All surrogate spikes reported recoveries within the JBS&G acceptable range of 70%-130% with the exception of several samples which reported recoveries between 12% and 184%.

The surrogate spike recoveries outside of the target range are not considered to affect the overall reliability of the data set as concentrations in samples were close to or below the laboratory's LOR and/or were generally within the laboratories NATA accredited limits (50%-150%). Spike recoveries outside of the NATA accredited limits are not considered to affect the accuracy of the data set, noting the primary constituents were generally reported below the laboratory LOR at the majority of locations, with contaminants reported significantly below the adopted site criteria.

Laboratory Control Samples

Soil and water laboratory control samples analysed reported recoveries generally within the acceptable range.

Two recoveries (LCS_1_775582 and LCS_4_773152) were reported outside of the JBS&G data quality objectives (70-130%), all of these exceedances were within the NATA accredited testing laboratories acceptable limits of 50-150% for PFAS. It is therefore considered that the accuracy of the results was acceptable for assessing the suitability of the data sets.

Matrix Spikes

All matrix spikes reported recoveries within the JBS&G acceptable range of 70% – 130% with the exception of the following:

Table 7.2: Matrix Spike Exceedances

Matrix	Sample Code	SDG	Compound	Recovery %
water	S21-Fe42567-SPK	775582	2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	69
soil	NCP_Fe21899_773152-SPK	773152	Perfluorooctane sulfonamide (FOSA)	132
soil	NCP_Fe21899_773152-SPK	773152	Perfluoropropanesulfonic acid (PFPrS)	133
soil	NCP_Fe21899_773152-SPK	773152	Perfluorononanesulfonic acid (PFNS)	135
soil	NCP_Fe21899_773152-SPK	773152	1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	139

The laboratory noted that the matrix spike recoveries were outside the recommended acceptance criteria, indicating sample matrix interference in recovery of spiked concentrations. Given acceptable recoveries were obtained in corresponding laboratory control samples, the slight exceedances are considered not to have a significant effect to the overall evaluation of accuracy within the data set.

7.2.3 Representativeness

Sampling appropriate for media and analytes

All sampling works completed during the investigation were conducted in accordance with JBS&G standard operating procedures as outlined in **Section 5.2**. Sample locations were undertaken for the

purposes of visual inspection and/or olfactory assessment of fill/soil conditions and the collection of samples was considered appropriate for identified COPC.

All samples were collected wearing a new pair of disposable nitrile gloves. Where possible, disturbance of the sample was minimised during placement within the laboratory supplied sample container and during shipment to reduce the potential for loss of VOCs within the samples.

Holding Times

All samples were extracted within the recommended holding times for all analytes.

Rinsate Blank

A rinsate sample was prepared during the groundwater sampling event while using non-disposable equipment and subsequently submitted for analysis for key contaminants of concern. All subsequent contaminant concentrations were below the laboratory LOR.

Method Blank

There were no reported concentrations of contaminant compounds above the laboratory LOR in the laboratory method blanks analysed.

Trip Spike

A trip spike was submitted with the soil samples. All trip spike recoveries were within the acceptable limit of 70-130%, indicating that the adopted assessment sample preservation methods were appropriate to result in a low risk of contaminant concentration loss during transport of the sampling.

Storage Blank

A storage blank sample was carried during the soil sampling events, meeting the nominated frequency thresholds. There were no reported concentrations of BTEX compounds above the laboratory LOR, achieving the nominated DQIs.

Decontamination and Calibration

All field equipment was decontaminated appropriately as per the procedure identified in **Section 5.2.6** and calibrated (see **Appendix F**).

7.2.4 Comparability

An experienced JBS&G field scientist undertook all sampling in accordance with standard JBS&G sampling methods. Field works and sampling were undertaken by the same JBS&G field scientist throughout the works.

All field documentation was appropriately completed. The nominated laboratories undertook all analysis in accordance with the relevant National Association of Testing Authorities (NATA) accredited methods.

7.2.5 Completeness

Samples were transported under full chain of custody (COC) documentation. The COC documentation was completed correctly and the selected analyses were correctly conducted.

All field documentation was completed appropriately including laboratory COCs (**Appendix E**), test pit logs and monitoring well installation details (**Appendix G**), groundwater monitoring field notes (**Appendix H**) and, calibration and decontamination sheets (**Appendix F**).

The frequency of analysis and results of the QA sample was appropriate.

7.2.6 Sensitivity

Laboratory analysis methods for all contaminants in soil adopted during the investigation used limits of reporting less than the site assessment criteria to ensure that contaminant concentrations could be confidently identified as being less than the adopted soil site assessment criteria.

7.3 QA/QC Assessment

The field sampling and handling procedures produced QA/QC results which indicate that the collected soil and water data are of an acceptable quality and suitable for use in site characterisation.

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

On the basis of the results of the field and laboratory QA/QC program, the soil and water data is of an acceptable quality in order to achieve the objectives of the validation assessment.

8. Investigation Results

8.1 Field Observations

8.1.1 Soil

The lithology encountered at the site during the field works is summarised below. Photographs are presented in **Appendix B** and detailed logs are included in **Appendix G**. A total of 30 test pit locations were assessed via backhoe on 9 February 2021.

A visual inspection of the investigation site was completed prior to the installation of the three groundwater monitoring wells and test pit investigation locations.

The ground surface comprised exposed clay, and vegetation (grass, shrubs and weeds) in good condition. As seen on **Figure 2**, this dense vegetation was observed to the northern boundary of the site, with approximately 25% of the site identified to be vegetated. It is understood that this area has not undergone recent ground disturbance. The remaining central and southern areas of the site was observed to be exposed clays in the areas that were historically occupied by the stockpile footprint and associated material movement haul roads.

Generally, the lithology was characterised by fill (gravelly clay and silty clay) with the total depth of fill occurrence ranging from 0 to 0.3m bgs (TP06). The underlying natural clay soils were observed to be red to red/grey stiff clay, with underlying weathered grey shale identified at TP08. No anthropogenic materials were observed in any of the test pit locations.

A single ACM fragment was encountered on the site's ground surface in the vicinity of TP28. This sample was removed by JBS&G for confirmatory analysis. No additional asbestos fragments were observed across the site.

The western portion of the site was being utilised by the contractors of the adjacent Buchan Ave upgrade, with small stockpiles of imported material observed.

No further odours, staining or asbestos was observed in the non-vegetated areas at the site.

8.1.2 Groundwater

Groundwater sampling was undertaken from the installed groundwater monitoring wells MW01, MW02 and MW03 on 22 February 2021. Groundwater was observed as turbid, with no odour or sheen identified.

As summarised for each well location in **Table 8.1**, the groundwater at the site was generally considered saline, with respective electrical conductivity readings ranging between 8959 $\mu\text{S}/\text{cm}$ at MW03 and 15,467 $\mu\text{S}/\text{cm}$ at MW01, consistent with groundwater present in shale bedrock environments. The pH was generally neutral (ranging from 6.94 at MW01 to 7.31 units at MW02), and oxygen concentration indicated aerobic conditions, ranging between 3.26 mg/L (ppm) at MW3 and 4.07 mg/L (ppm) at MW1.

Table 8.1: Groundwater Parameters

Well ID	SWL (mBTOC)	DO (mg/ppm)	EC ($\mu\text{S}/\text{cm}$)	pH	Redox (mV)	Temperature ($^{\circ}\text{C}$)
MW01	5.92	4.07	15,467	6.94	17.4	26.0
MW02	8.84	3.52	12,984	7.31	-68.1	20.1
MW03	6.95	3.26	8959	7.03	-10.0	22.8

Standing groundwater levels were reported at depths of between 5.92 m and 8.84 m below the top of the monitoring well collars.

8.2 Laboratory Results

Representative soil samples were collected across the site (**Figure 2**), and were analysed for a range of COPCs. Groundwater was recovered from three monitoring wells and assessed for the presence of COPC.

The summarised laboratory results are presented in data summary **Tables A and B** in **Appendix A** and are discussed below. Detailed laboratory reports and chain of custody documentation are provided in **Appendix E**.

8.2.1 Soil Analytical Results

8.2.1.1 PFAS

PFAS concentrations in the analysed samples were reported below the laboratory level of reporting (LOR), with the following exceptions:

- Perfluorooctanesulfonic acid (PFOS) at QA01 (triplicate of TP01_0-0.1) with reported concentration of 0.0002 mg/kg.
- Perfluorooctanoic acid (PFOA) at QA01 (triplicate of TP01_0-0.1) with reported concentration of 0.0001 mg/kg; and
- Perfluorobutanoic acid (PFBA) at QA01 (triplicate of TP01_0-0.1) with reported concentration of 0.0002 mg/kg.

These concentrations are one order of magnitude below the primary laboratory LOR and two orders of magnitude below the PFOS adopted criteria.

All PFAS contaminant compound concentrations were reported in samples to be less than the adopted site assessment criteria.

8.2.1.2 Heavy Metals

Concentrations of heavy metals in the analysed samples were reported below the LOR and/ or the adopted assessment criteria.

8.2.1.3 TRH/BTEX

TRH and BTEX concentrations in the analysed samples were reported below the LOR and/ or the adopted assessment criteria.

8.2.1.4 OCP/PCB

OCP and PCB concentrations in the analysed samples were reported below the LOR and/ or the adopted assessment criteria.

8.2.1.5 PAH

PAH concentrations in the analysed samples were reported below the LOR and/ or the adopted assessment criteria.

8.2.1.6 Asbestos

Asbestos concentrations in all samples analysed was reported as no asbestos detected at the reporting limit of 0.001% w/w.

As noted in **Section 8.1.1**, a fragment ACM was observed on the ground surface in the southern portion of the site. This sample was collected from the site and sent to the laboratory for confirmatory analysis. Laboratory analysis confirmed asbestos present in the sample submitted. No additional asbestos fragments were observed across the site.

8.2.2 Groundwater Analytical Results

8.2.2.1 PFAS

Groundwater samples collected from MW01 to MW03 were analysed for PFAS. All reported PFAS concentrations were reported to be below the adopted assessment criteria.

Detectable levels of 1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) was reported in MW2 and MW3 (and associated QA/QC samples). There is no guideline attributed to this specific analyte.

8.2.2.2 Heavy Metals

The reported heavy metal concentrations were below the adopted criteria with the following exceptions:

- Chromium (III+IV) which marginally exceeded the freshwater 95% criterion (0.001 mg/L) at all monitoring locations (0.003 mg/L);
- Copper, which exceeded the freshwater 95% criterion (0.0014 mg/L) in all the monitoring wells ranging from 0.004 mg/L at MW3 to a maximum concentration of 0.015 mg/L at QA01 (MW3);
- Nickel which marginally exceeded the freshwater 95% criterion (0.011 mg/L) at MW3 (ranging 0.015 mg/L at QC01 (MW3) to 0.016 mg/L at MW3) and marginal exceedance of the adopted health criteria (0.02 mg/L) at MW1 (0.022 mg/L) and MW2 (0.064 mg/L) and
- Zinc, which exceeded the freshwater 95% criterion (0.008 mg/L) in all monitoring wells ranging from 0.009 mg/L (MW3) to a maximum concentration of 0.034 mg/L at MW1.

8.2.2.3 TRH/BTEX

TRH and BTEX concentrations in the analysed samples were reported to be below the LOR and the adopted assessment criteria.

8.2.2.4 PAHs

PAH concentrations in the analysed samples were reported below the LOR and/ or the adopted assessment criteria.

9. Site Characterisation

Section 5.1.5 provides decision rules applicable to determine if contamination is present at the site that may be potentially unacceptable for the permissible uses from a health and ecological health perspective. Discussion of each of the decision rules is provided in the following sections.

9.1 Are conditions of the site consistent with those reported in the 2013 Site Audit Statement?

The laboratory analysis data for soil and groundwater for all contaminants of concern other than PFAS (which was not assessed in Environ (2013)) as presented in **Section 8**, has also been compared to the complete data sets for soil and groundwater for the broader RZNRA site the subject to the audit in 2013.

Review of the data has identified that in addition to there not being any soil contaminant elevations with regard to the adopted site assessment criteria, the results are consistent with those previously documented at the site.

Groundwater concentrations for all organic compounds were reported to be less than the laboratory LOR and below the adopted site assessment criteria. These results are consistent with those previously reported in groundwater at the site in Environ (2013). Comparison of the individual heavy metals groundwater concentrations indicate the same regional groundwater elevations of chromium, copper, nickel and zinc as previously identified across the broader site. Concentrations within the same order of magnitude have been reported for these compounds and as such, the results are considered consistent with those reported in the 2013 site audit statement for groundwater.

Whilst PFAS compounds were not previously evaluated, the current investigation has identified PFAS in soil and groundwater to be present at levels less than the relevant site assessment criteria presented in NEPM (2.0) as relevant to the site conditions.

As such, it is considered based on the completed scope of assessment that site soil and groundwater conditions are consistent with those reported in the 2013 Site Audit Statement (Environ 2013).

9.2 Are there any unacceptable contamination risks at the site for school land use?

Representative soil samples were analysed for a range of COPCs identified at the site. The reported soil concentrations of all contaminants were below the adopted residential with garden/accessible soils and primary schools criteria applicable for this investigation. On this basis, there were no identified contaminants within site soils that would present an unacceptable risk with respect to the proposed land use.

One small asbestos containing fibre cement fragment was identified on the ground surface during the site inspection/ soil sampling activities. Close inspection of the site ground surface (in areas where this was possible due to the presence of vegetation) did not identify the source of this fragment, or the indicators of a more widespread issue. Given that one isolated fragment was identified, specific management is considered not to be required, as such occurrences would be best managed under a standard construction period environmental management plan (EMP)/unexpected finds protocol (UFP) framework, whereby any isolated occurrences could be identified and disposed of appropriately.

Groundwater samples collected from monitoring wells installed for this investigation were analysed for COPCs identified at the site. The results, apart from a number of heavy metals concentrations, did not report concentrations of COPC above the adopted site assessment criteria. Consistent with the previous site characterisation data presented in Environ (2013) obtained during previous sampling events, a range of heavy metals concentrations representative of background geological conditions were reported in groundwater. Given the regional geology and the depth to groundwater

below development levels and the absence of beneficial users, no further assessment of potential risks from groundwater is required and there is risk to future sensitive site receptors.

It is noted that assessment of PFAS in groundwater did identify the presence of one PFAS compound known as 6:2 FTSA underlying the site. Concentrations were reported in the range of 0.1 to 0.32 µg/L. Given the low toxicity of this compound, relative to PFOS and PFAS primary compounds, the NSW EPA has not endorsed a trigger level for further investigation/management of 6:2 FTSA. Whilst this compound has been reported to potentially breakdown into PFOS, given the absence of PFOS detections in groundwater at the site, the presence of the detections at low levels in groundwater is considered to not pose a risk to either future site users and/or ecology of the site or nearby sensitive ecological receptors.

On this basis, there are no unacceptable contamination risks with respect to the proposed landuse.

9.3 Are there any aesthetic issues at the site?

The site inspections conducted by JBS&G did not identify any significant aesthetic issues at the site, noting the presence in some areas of the site of dense grass cover that may have precluded the identification of ground surface features. As noted above, one fragment of ACM, as detailed in **Section 8.2.1.6** was identified during the works and removed from the site. Additional inspections of the surface area across the site resulted in no additional asbestos impacts being observed.

There were no unacceptable odours or staining/discoloured soil associated with contamination observed within site soils during the current investigation that may pose an aesthetic issue at the site. It is therefore considered that there are no outstanding aesthetic issues relating to soil contamination at the site that will require ongoing management. As noted above, the potential for any isolated issues may be suitably addressed via application of procedures within a future construction period EMP with an appropriate UFP.

9.4 Is a site management strategy required?

No residual contamination has been identified in the validation area of the validation site, therefore it is considered that no further investigation or management is required to make the site suitable for the proposed use.

10. Conclusions

Based on the scope of work undertaken for this assessment (and subject to the limitations in **Section 11**), it is considered that consistent with the outcomes of the 2013 Site Audit, the site is considered suitable for the following uses:

- Residential with accessible soil, including gardens and accessible soils;
- Day care centre, pre-school, primary and secondary school; and
- Park, recreational open space, playing fields.

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.

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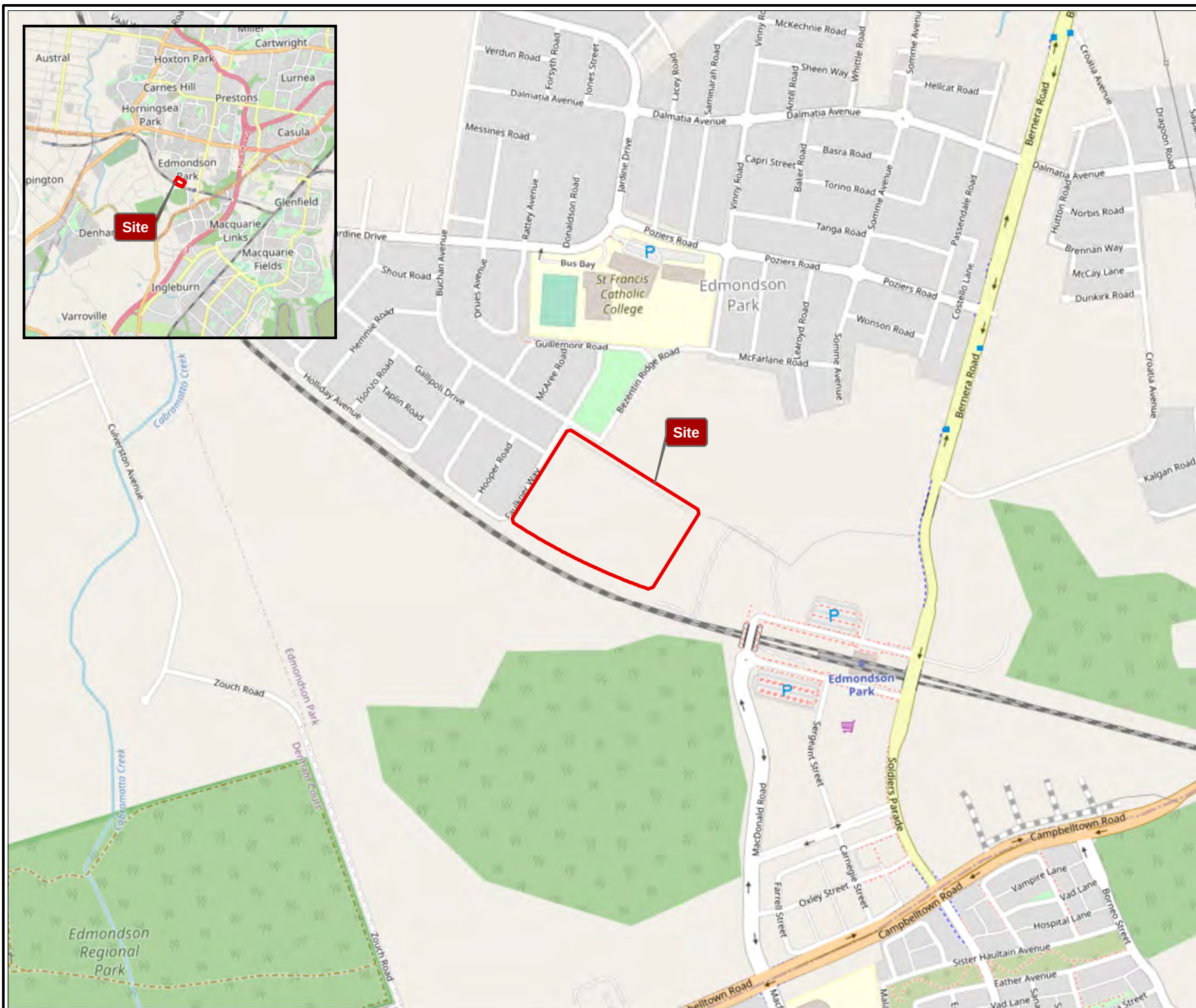
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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



Job No: 59033

Client: Landcom

Version: R01 Rev A

Date 25/03/2021

Drawn By: JA

Checked By: MD

Scale 1:10,000



0 125 250
metres

Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

SITE LOCATION

FIGURE 1



Legend

- Approximate Site Boundary
- NSW Cadastre (DFS, 2020)

Sample Locations

- Monitoring Well
- Test Pit

Job No: 59033

Client: Landcom

Version: R01 Rev A	Date 25/03/2021
Drawn By: JA	Checked By: MD

Scale 1:1,750

Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

SITE LAYOUT AND SAMPLE LOCATIONS

FIGURE 2

Appendix A Summary Tables

[illegible]

[illegible]

Table 1: Soil Analytical Results
Project Number: 59033
Project Name: Buchan Avenue Stockpile Assessment



																			Asbestos - Eurofins										Asbestos - Envirolab										Moisture Content		Other											
					Approximate Sample Mass		Mass 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		ACM - Comment		FA - Comment		AF - Comment		Organic Fibres - Comment		Respirable Fibres - Comment		Synthetic Fibres - Comment		Asbestos Reported Result		Asbestos ID in Soil		Total Asbestos		Asbestos (ACM >7mm) Estimation		Asbestos in soil (2mm < AF/FA) (w/w)		Moisture Content		Moisture Content (dried @ 105°C)		TOC		Iron (%)	
					g	g	g	% (w/w)	g	g	g	g	g	g	g	% (w/w)	g	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	Comment	g/kg	g/kg	% (w/w)	% (w/w)	%	%	mg/kg	%										
EQL																																			0.1	0.01	0.001	0.1	1	0.1	0.01											
NEPM 2013 Table 1A(1) Hills Res A Soil																																																				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																																				
0-1m																																																				
NEPM 2013 Table 1B(1-5) Site Specific EIL - Urban Residential and Public Open Space																																																				
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																																																				
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																																				
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil																																																				
PFAS NEMP 2020 Table 2 Health Residential accessible soil																																																				
Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Lab_Report_Number	6	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Chrysotile, amosite and crocidolite asbestos detected	-	-	-	-	-	-	-	-	-	-	-	-										
FRAG01	FRAG01		09-02-21	773152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	<0.1	<0.01	<0.001	18	-	-	-	-										
QA01	QA01		09-02-21	261400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	<0.1	<0.01	<0.001	9.8	-	-	-	-										
QA03	QA03		09-02-21	261400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	<0.1	<0.01	<0.001	9.8	-	-	-	-										
QC01	TP01_0-0.1		09-02-21	773152	617	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
QC03	TP27_0-0.1		09-02-21	773152	621	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP01_0-0.1	TP01	0-0.1	09-02-21	773152	580	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP02_0.2-0.5	TP02	0.2-0.5	09-02-21	773152	516	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP03_0-0.1	TP03	0-0.1	09-02-21	773152	585	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP04_0.1-0.3	TP04	0.1-0.3	09-02-21	773152	644	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP05_0-0.1	TP05	0-0.1	09-02-21	773152	653	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP06_0-0.3	TP06	0-0.3	09-02-21	773152	670	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP07_0.2-0.5	TP07	0.2-0.5	09-02-21	773152	521	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP08_0-0.1	TP08	0-0.1	09-02-21	773152	625	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP09_0-0.1	TP09	0-0.1	09-02-21	773152	692	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP10_0.2-0.5	TP10	0.2-0.5	09-02-21	773152	558	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP11_0-0.2	TP11	0-0.2	09-02-21	773152	530	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP12_0.1-0.5	TP12	0.1-0.5	09-02-21	773152	667	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP13_0.2-0.5	TP13	0.2-0.5	09-02-21	773152	695	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP14_0-0.1	TP14	0-0.1	09-02-21	773152	641	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP15_0-0.1	TP15	0-0.1	09-02-21	773152	681	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP16_0-0.1	TP16	0-0.1	09-02-21	773152	793	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP17_0.1-0.3	TP17	0.1-0.3	09-02-21	773152	600	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP18_0-0.1	TP18	0-0.1	09-02-21	773152	690	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP19_0-0.1	TP19	0-0.1	09-02-21	773152	616	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP20_0-0.1	TP20	0-0.1	09-02-21	773152	679	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP21_0-0.1	TP21	0-0.1	09-02-21	773152	593	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP22_0-0.1	TP22	0-0.1	09-02-21	773152	613	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP23_0.1-0.3	TP23	0.1-0.3	09-02-21	773152	589	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP24_0-0.1	TP24	0-0.1	09-02-21	773152	540	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP25_0-0.1	TP25	0-0.1	09-02-21	773152	663	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP26_0-0.1	TP26	0-0.1	09-02-21	773152	606	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP27_0-0.1	TP27	0-0.1	09-02-21	773152	649	0	0	0	0	0	0	0	0	0	0	0	Nil	Nil	Nil	Organic fibres detected	No respirable fibres detected	Nil	No asbestos detected at the reporting limit of 0.001% w/w	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
TP28_0-0.1	TP28	0-0.1	09-02-21	773152	693	0	0	0	0	0	0	0	0																																							

Appendix B Photographic Log

**PHOTO 1: SITE LOOKING NORTH-WEST TO BUCHAN AVE
(08/02/2021)**



**PHOTO 2: SITE LOOKING NORTH ACROSS BUCHAN AVE
(09/02/2021)**



**PHOTO 3: SITE LOOKING NORTH ACROSS BUCHAN AVE
(09/02/2021)**



**PHOTO 4: SITE LOOKING WEST ACROSS THE STOCKPILE
FOOTPRINT (09/02/2021)**



Job No: 59033

Client: Landcom

Version: R01

Date: 14/04/2021

Drawn By: MD

Checked By: JR

Not to Scale

Coord. Sys n/a

**Edmondson Park Schools Upgrade
Buchan Ave, Edmondson Park**

APPENDIX B: PHOTO LOG

PHOTO 1: MONITORING WELL INSTALLATION (08/02/2021)



PHOTO 2: TEST PIT LOCATION TP03 (09/02/2021)



PHOTO 3: TEST PIT AT LOCATION TP21 (09/02/2021)



PHOTO 4: TEST PIT TP30



Job No: 59033	
Client: Landcom	
Version: R01	Date: 14/04/2021
Drawn By: MD	Checked By: JR
Not to Scale	
Coord. Sys n/a	
Edmondson Park Schools Upgrade	
Buchan Ave, Edmondson Park	
APPENDIX B: PHOTO LOG	

Appendix C Historical Aerials



Legend

 Approximate Site Boundary

Sample Locations

 Monitoring Well

 Test Pit



Job No: 59033

Client: Landcom

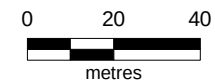
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - MAY 2014**

AERIAL 2014



Legend

Approximate Site Boundary

Sample Locations

● Monitoring Well

■ Test Pit



Job No: 59033

Client: Landcom

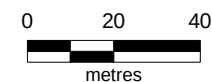
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - JUNE 2014**

AERIAL 2014



Legend

 Approximate Site Boundary

Sample Locations

● Monitoring Well

■ Test Pit



Job No: 59033

Client: Landcom

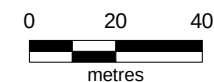
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750

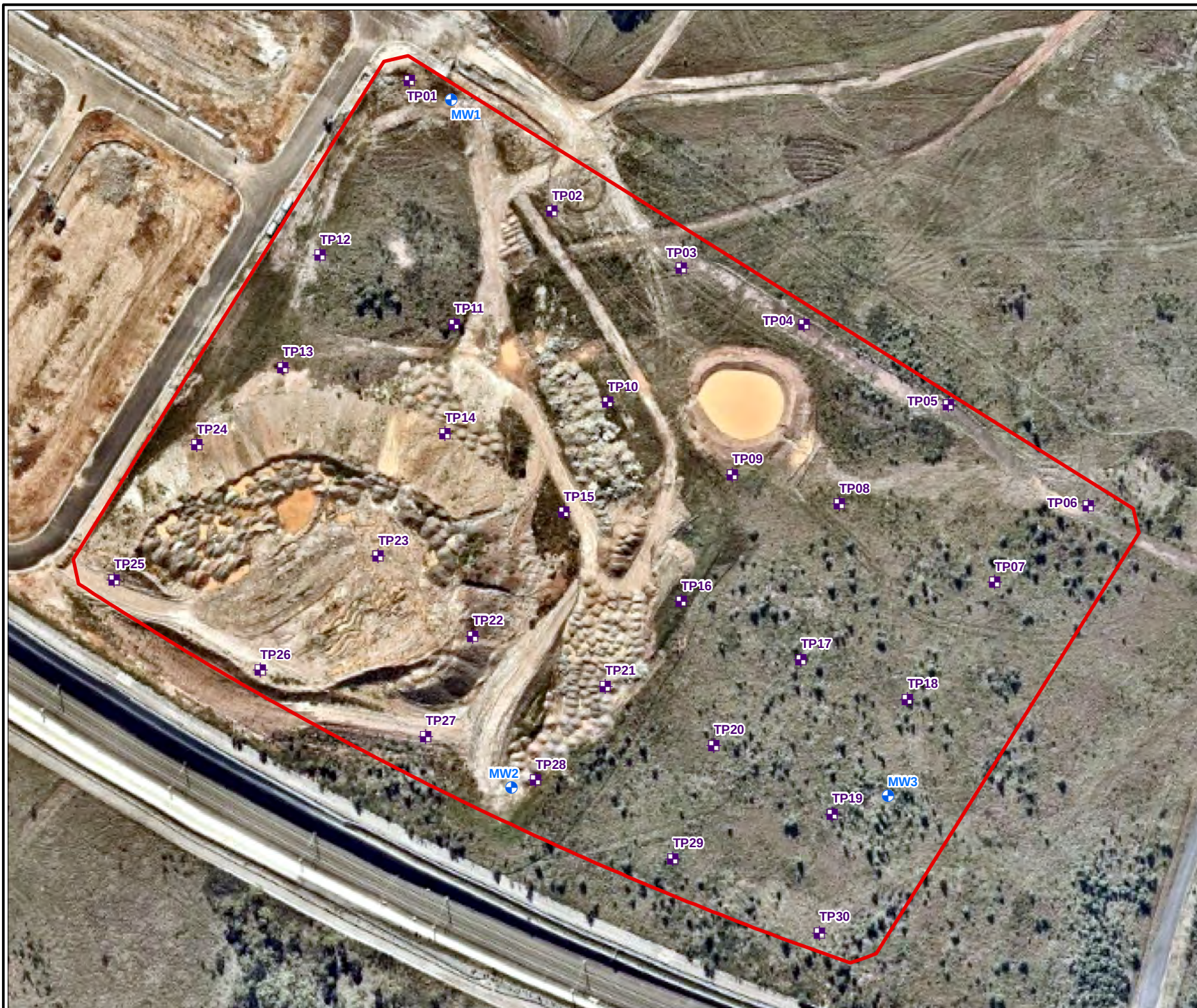


Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - JANUARY 2015**

AERIAL 2015

**Legend**

 Approximate Site Boundary

Sample Locations

 Monitoring Well

 Test Pit



Job No: 59033

Client: Landcom

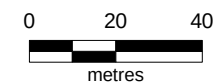
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750

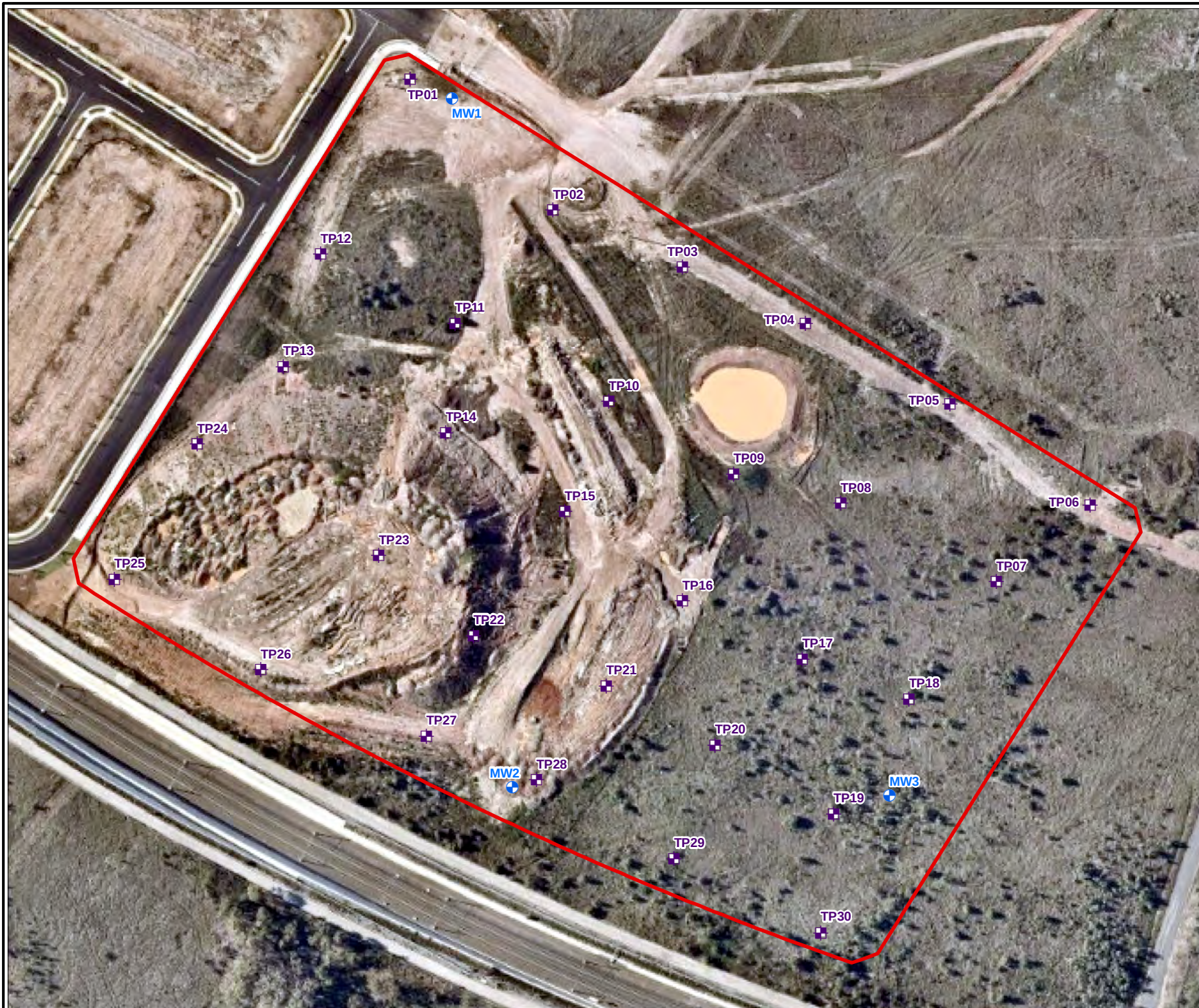


Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - MAY 2015**

AERIAL 2015



Legend

 Approximate Site Boundary

Sample Locations

● Monitoring Well

■ Test Pit



Job No: 59033

Client: Landcom

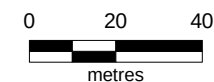
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - OCTOBER 2015**

AERIAL 2015



- Legend**
- Approximate Site Boundary
 - Sample Locations**
 - Monitoring Well
 - Test Pit



Job No: 59033

Client: Landcom

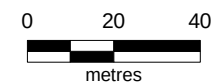
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - AUGUST 2017**

AERIAL 2017



Legend

 Approximate Site Boundary

Sample Locations

● Monitoring Well

■ Test Pit



Job No: 59033

Client: Landcom

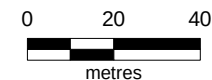
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - JANUARY 2018**

AERIAL 2018



- Legend**
- Approximate Site Boundary
 - Sample Locations**
 - Monitoring Well
 - Test Pit



Job No: 59033

Client: Landcom

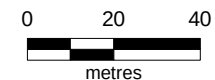
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - APRIL 2020**

AERIAL 2020



Legend

- Approximate Site Boundary
- Sample Locations**
- Monitoring Well
- Test Pit



Job No: 59033

Client: Landcom

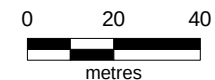
Version: Aerial

Date 16/04/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - AUGUST 2020**

AERIAL 2020



Legend

 Approximate Site Boundary

Sample Locations

● Monitoring Well

■ Test Pit



Job No: 59033

Client: Landcom

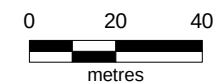
Version: Aerial

Date 29/03/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - OCTOBER 2020**

AERIAL 2020



Legend

- Approximate Site Boundary
- Sample Locations**
- Monitoring Well
- Test Pit



Job No: 59033

Client: Landcom

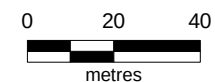
Version: Aerial

Date 7/04/2021

Drawn By: JA

Checked By: MD

Scale 1:1,750



Coord. Sys. GDA 1994 MGA Zone 56

Edmondson Park, NSW

**HISTORICAL AERIAL
PHOTOGRAPH - DECEMBER 2020**

AERIAL 2020

Appendix D QA/QC Tables

Field Duplicates (soil)
Filter: SDG in('773152','775582')

Field ID		773152	773152	RPD	773152	261400	RPD	773152	773152	RPD	773152	261400	RPD
Sampled Date/Time		TP01_0-0.1	QC01		TP01_0-0.1	QA01		TP27_0-0.1	QC03		TP27_0-0.1	QA03	
		9/02/2021	9/02/2021		9/02/2021	9/02/2021		9/02/2021	9/02/2021		9/02/2021	9/02/2021	
Chem Group	ChemName	Units	EQL										
Metals & Metalloids	Asenic	mg/kg	2 : 4 (Interlab)	12	11	9	12	7	53	8.1	<2	121	8.1
	Cadmium	mg/kg	0.4	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0	<0.4
	Chromium (III+VI)	mg/kg	5 : 1 (Interlab)	24	24	0	24	19	23	23	<5	129	23
	Copper	mg/kg	5 : 1 (Interlab)	24	24	0	24	21	13	19	<5	117	19
	Lead	mg/kg	5 : 1 (Interlab)	27	27	0	27	28	4	42	<5	157	42
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Nickel	mg/kg	5 : 1 (Interlab)	16	15	6	16	13	21	18	<5	113	18
	Zinc	mg/kg	5 : 1 (Interlab)	52	56	7	52	58	11	98	<5	181	98
TPHS (NEPC 1999)	C6-C9 Fraction	mg/kg	20 : 25 (Interlab)	<20	<20	0	<20	<25	0	<20	<20	0	<20
	C10-C14 Fraction	mg/kg	20 : 50 (Interlab)	<20	<20	0	<20	<50	0	22	<20	10	22
	C15-C28 Fraction	mg/kg	50 : 100 (Interlab)	<50	<50	0	<50	<100	0	66	62	6	66
	C29-C36 Fraction	mg/kg	50 : 100 (Interlab)	<50	<50	0	<50	<100	0	99	93	6	99
	C10-C36 Fraction (Sum of Total)	mg/kg	50	<50	<50	0	<50			187	155	19	187
TPHS (NEPC 1999)	C6-C10	mg/kg	20 : 25 (Interlab)	<20	<20	0	<20	<25	0	<20	<20	0	<20
	C10-C16	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50
	C16-C34	mg/kg	100	<100	<100	0	<100	<100	0	140	130	7	140
	C34-C40	mg/kg	100	<100	<100	0	<100	<100	0	<100	<100	0	<100
	C10-C40 (Sum of total)	mg/kg	100 : 50 (Interlab)	<100	<100	0	<100	<50	0	140	130	7	140
TPHS (NEPC 1999)	F1 (C6-C10 minus BTEX)	mg/kg	20 : 25 (Interlab)	<20	<20	0	<20	<25	0	<20	<20	0	<20
	F2 (C10-C16 less Naphthalene)	mg/kg	50	<50	<50	0	<50	<50	0	<50	<50	0	<50
	BTEX	mg/kg	0.1 : 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0	<0.1	<0.1	0	<0.1
	Toluene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0	<0.1	<0.1	0	<0.1
	Ethylbenzene	mg/kg	0.1 : 1 (Interlab)	<0.1	<0.1	0	<0.1	<1	0	<0.1	<0.1	0	<0.1
TPHS (NEPC 1999)	Xylene (o)	mg/kg	0.1 : 1 (Interlab)	<0.1	<0.1	0	<0.1	<1	0	<0.1	<0.1	0	<0.1
	Xylene (m & p)	mg/kg	0.2 : 2 (Interlab)	<0.2	<0.2	0	<0.2	<2	0	<0.2	<0.2	0	<0.2
	Xylene Total	mg/kg	0.3 : 3 (Interlab)	<0.3	<0.3	0	<0.3	<3	0	<0.3	<0.3	0	<0.3
	Naphthalene - MAH	mg/kg	0.5	<0.5	<0.5	0	<0.5			<0.5	<0.5	0	<0.5
	PAH	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
TPHS (NEPC 1999)	Acenaphthene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Acenaphthylene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Anthracene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Benz(a)anthracene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Benzo(a)pyrene	mg/kg	0.5 : 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.05	0	<0.5	<0.5	0	<0.5
TPHS (NEPC 1999)	Benzo(b)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Chrysene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
TPHS (NEPC 1999)	Fluoranthene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Fluorene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Naphthalene - PAH	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Phenanthrene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
TPHS (NEPC 1999)	Pyrene	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	PAHs (Sum of total)	mg/kg	0.5 : 0.05 (Interlab)	<0.5	<0.5	0	<0.5	<0.05	0	<0.5	<0.5	0	<0.5
	Organochlorine Pesticides	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	4,4'-DDE	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	a-BHC	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
Organochlorine Pesticides	b-BHC	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	d-BHC	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	a-BHC (Lindane)	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Aldrin	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Dieldrin	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
Organochlorine Pesticides	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05			<0.05	<0.05	0	<0.05
	Chlordane	mg/kg	0.1	<0.1	<0.1	0	<0.1			<0.1	<0.1	0	<0.1
	DDT	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	DDD	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	DDT+DDE+DDD	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
Organochlorine Pesticides	Endosulfan I	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Endosulfan II	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Endosulfan sulphate	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Endrin	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Endrin aldehyde	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
Organochlorine Pesticides	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05			<0.05	<0.05	0	<0.05
	Heptachlor	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Heptachlor Epoxide	mg/kg	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0	<0.05	<0.05	0	<0.05
	Methoxychlor	mg/kg	0.2 : 0.1 (Interlab)	<0.2	<0.2	0	<0.2	<0.1	0	<0.2	<0.2	0	<0.2
	Toxaphene	mg/kg	0.1	<0.1	<0.1	0	<0.1			<0.1	<0.1	0	<0.1
Organochlorine Pesticides	Polychlorinated Biphenyls	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Arochlor 1016	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1221	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1232	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Arochlor 1242	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
Organochlorine Pesticides	Arochlor 1248	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Arochlor 1254	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	Arochlor 1260	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	PCBs (Sum of total)	mg/kg	0.5 : 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.5	0	<0.5
	PFAS	mg/kg	0.005 : 0.0002 (Interlab)	<0.005	<0.005	0	<0.005	<0.0002	0				
PFAS	Perfluorobutanoic acid (PFBA)	mg/kg	0.005 : 0.0002 (Interlab)	<0.005	<0.005	0	<0.005	<0.0002	0				
	Perfluoropentanoic acid (PFPeA)	mg/kg	0.005 : 0.0002 (Interlab)	<0.005	<0.005	0	<0.005	<0.0002	0				
	Perfluorohexanoic acid (PFHxA)	mg/kg	0.005 : 0.0001 (Interlab)	<0.005	<0.005	0	<0.005	<0.0001	0				
	Perfluoroheptanoic acid (PFHpA)	mg/kg	0.005 : 0.0001 (Interlab)	<0.005	<0.005	0	<0.005	<0.0001	0				
	Perfluorooctanoic acid (PFOA)	mg/kg	0.005 : 0.0001 (Interlab)	<0.005	<0.005	0	<0.005</						

Table 4: Water QA/QC RPD
Project Number: 59033
Project Name: Edmondson Park School Site
Field Duplicates (water)
Filter: SDG in('773152','775582')



SDG	775582	775582		775582	262550	
Field ID	QC01-20210222	QC01-20210222	RPD	QC01-20210222	QA01-20210222	RPD
Sampled Date/Time	22/02/2021	22/02/2021		22/02/2021	22/02/2021	

Chem_Group	ChemName	Units	EQL						
Metals & Metalloids	Arsenic (Filtered)	mg/l	0.001	0.005	0.005	0	0.005	0.002	86
	Cadmium (Filtered)	mg/l	0.0002 : 0.0001 (Interlab)	<0.0002	<0.0002	0	<0.0002	<0.0001	0
	Chromium (III+VI) (Filtered)	mg/l	0.001	0.003	0.003	0	0.003	<0.001	100
	Copper (Filtered)	mg/l	0.001	0.004	0.004	0	0.004	0.015	116
	Lead (Filtered)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Mercury (Filtered)	mg/l	0.0001 : 5e-005 (Interlab)	<0.0001	<0.0001	0	<0.0001	<0.00005	0
	Nickel (Filtered)	mg/l	0.001	0.015	0.015	0	0.015	0.016	6
	Zinc (Filtered)	mg/l	0.005 : 0.001 (Interlab)	0.009	0.009	0	0.009	0.018	67
	TPHs (NEPC 1999)								
1999)	C6-C9 Fraction	mg/l	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
	C10-C14 Fraction	mg/l	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	C15-C28 Fraction	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	C29-C36 Fraction	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	C10-C36 Fraction (Sum of Total)	mg/l	0.1	<0.1	<0.1	0	<0.1		
	TRHs (NEPC 2013)								
	C6-C10	mg/l	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
2013)	C10-C16	mg/l	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	C16-C34	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	C34-C40	mg/l	0.1	<0.1	<0.1	0	<0.1	<0.1	0
	C10-C40 (Sum of total)	mg/l	0.1	<0.1	<0.1	0	<0.1		
	F1 (C6-C10 minus BTEX)	mg/l	0.02 : 0.01 (Interlab)	<0.02	<0.02	0	<0.02	<0.01	0
	F2 (C10-C16 less Naphthalene)	mg/l	0.05	<0.05	<0.05	0	<0.05		
	BTEXN								
	Benzene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Toluene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Ethylbenzene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Xylene (o)	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Xylene (m & p)	mg/l	0.002	<0.002	<0.002	0	<0.002	<0.002	0
	Xylene Total	mg/l	0.003	<0.003	<0.003	0	<0.003		
	Naphthalene - MAH	mg/l	0.01	<0.01	<0.01	0	<0.01		
	PAH								
	Acenaphthene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Acenaphthylene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Anthracene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Benz(a)anthracene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Benzo(a) pyrene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Benzo(b+j)fluoranthene	mg/l	0.001	<0.001	<0.001	0	<0.001		
	Benzo(g,h,i)perylene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Benzo(k)fluoranthene	mg/l	0.001	<0.001	<0.001	0	<0.001		
	Chrysene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Dibenz(a,h)anthracene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Fluoranthene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Fluorene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Indeno(1,2,3-c,d)pyrene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Naphthalene - PAH	mg/l	0.001	<0.001	<0.001	0	<0.001		
	Phenanthrene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	Pyrene	mg/l	0.001	<0.001	<0.001	0	<0.001	<0.001	0
	PAHs (Sum of total)	mg/l	0.001	<0.001	<0.001	0	<0.001	0.0E0	0
	PFAS								
	Perfluorobutanoic acid (PFBA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
	Perfluoropentanoic acid (PFPeA)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorodecanoic acid (PFDA)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.01 : 0.05 (Interlab)	<0.01	<0.01	0	<0.01	<0.05	0
	Perfluorotridecanoic acid (PFTrDA)	µg/L	0.01 : 0.1 (Interlab)	<0.01	<0.01	0	<0.01	<0.1	0
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01 : 0.5 (Interlab)	<0.01	<0.01	0	<0.01	<0.5	0
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0
	N-Methyl perfluorooctane sulfonamide (NMeFOSA)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	µg/L	0.05 : 0.1 (Interlab)	<0.05	<0.05	0	<0.05	<0.1	0
	N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	µg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
	N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	µg/L	0.05 : 0.5 (Interlab)	<0.05	<0.05	0	<0.05	<0.5	0
	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.05 : 0.02 (Interlab)	<0.05	<0.05	0	<0.05	<0.02	0
	Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	<0.01	<0.01	0	<0.01		
	Perfluorobutanesulfonic acid (PFBS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Perfluorononanesulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01	0	<0.01		
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	µg/L	0.05 : 0.01 (Interlab)	0.28	0.28	0	0.28	0.32	13
	1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	0.01 : 0.02 (Interlab)	<0.01	<0.01	0	<0.01	<0.02	0
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01	0	<0.01		
	Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
	Sum of PFAS (WA DER List)	µg/L	0.05	0.28	0.28	0	0.28		
	Sum of PFAS	µg/L	0.1 : 0.01 (Interlab)	0.28	0.28	0	0.28	0.32	13
	Ionic Balance								
e	Electrical Conductivity (Lab)	µS/cm	10	13000	13000	0	13000		
	pH (Lab)	PH UNITS	0.1	7.1	7.1	0	7.1	7.3	3

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 30 (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory



Field Blanks (water)
Filter: SDG in('773152','775582')

SDG	775582	775582	773152	775582
Field ID	BLANK	RINS0222	TRIP BLANK	TB
Sampled_Date/Time	22/02/2021	22/02/2021	9/02/2021	22/02/2021
Sample Type	Field_B	Rinsate	Trip_B	Trip_B

Chem_Group	ChemName	Units	EQL				
BTEXN	Benzene	mg/l	0.001		<0.001	<0.001	<0.001
	Toluene	mg/l	0.001		<0.001	<0.001	<0.001
	Ethylbenzene	mg/l	0.001		<0.001	<0.001	<0.001
	Xylene (o)	mg/l	0.001		<0.001	<0.001	<0.001
	Xylene (m & p)	mg/l	0.002		<0.002	<0.002	<0.002
	Xylene Total	mg/l	0.003		<0.003	<0.003	<0.003
	Naphthalene - MAH	mg/l	0.01		<0.01	<0.01	<0.01
Ionic Balance	Electrical Conductivity (Lab)	µS/cm	10				
	pH (Lab)	PH UNITS	0.1				
Metals & Metalloids	Arsenic (Filtered)	mg/l	0.001		<0.001		
	Cadmium (Filtered)	mg/l	0.0002		<0.0002		
	Chromium (III+VI) (Filtered)	mg/l	0.001		<0.001		
	Copper (Filtered)	mg/l	0.001		<0.001		
	Lead (Filtered)	mg/l	0.001		<0.001		
	Mercury (Filtered)	mg/l	0.0001		<0.0001		
	Nickel (Filtered)	mg/l	0.001		<0.001		
	Zinc (Filtered)	mg/l	0.005		<0.005		
PAH	Acenaphthene	mg/l	0.001		<0.001		
	Acenaphthylene	mg/l	0.001		<0.001		
	Anthracene	mg/l	0.001		<0.001		
	Benz(a)anthracene	mg/l	0.001		<0.001		
	Benzo(a) pyrene	mg/l	0.001		<0.001		
	Benzo(b+)fluoranthene	mg/l	0.001		<0.001		
	Benzo(g,h,i)perylene	mg/l	0.001		<0.001		
	Benzo(k)fluoranthene	mg/l	0.001		<0.001		
	Chrysene	mg/l	0.001		<0.001		
	Dibenz(a,h)anthracene	mg/l	0.001		<0.001		
	Fluoranthene	mg/l	0.001		<0.001		
	Fluorene	mg/l	0.001		<0.001		
	Indeno(1,2,3-c,d)pyrene	mg/l	0.001		<0.001		
	Naphthalene - PAH	mg/l	0.001		<0.001		
	Phenanthrene	mg/l	0.001		<0.001		
	Pyrene	mg/l	0.001		<0.001		
	PAHs (Sum of total)	mg/l	0.001		<0.001		
PFAS	Perfluorobutanoic acid (PFBA)	µg/L	0.05	<0.05	<0.05		
	Perfluoropentanoic acid (PFPeA)	µg/L	0.01	<0.01	<0.01		
	Perfluorohexanoic acid (PFHxA)	µg/L	0.01	<0.01	<0.01		
	Perfluoroheptanoic acid (PFHpA)	µg/L	0.01	<0.01	<0.01		
	Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01		
	Perfluorononanoic acid (PFNA)	µg/L	0.01	<0.01	<0.01		
	Perfluorodecanoic acid (PFDA)	µg/L	0.01	<0.01	<0.01		
	Perfluoroundecanoic acid (PFUnDA)	µg/L	0.01	<0.01	<0.01		
	Perfluorododecanoic acid (PFDoDA)	µg/L	0.01	<0.01	<0.01		
	Perfluorotridecanoic acid (PFTriDA)	µg/L	0.01	<0.01	<0.01		
	Perfluorotetradecanoic acid (PFTeDA)	µg/L	0.01	<0.01	<0.01		
	Perfluorooctane sulfonamide (FOSA)	µg/L	0.05	<0.05	<0.05		
	N-Methyl perfluorooctane sulfonamide (NMeFOSA)	µg/L	0.05	<0.05	<0.05		
	N-Ethyl perfluorooctane sulfonamide (NEtFOSA)	µg/L	0.05	<0.05	<0.05		
	N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)	µg/L	0.05	<0.05	<0.05		
	N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	µg/L	0.05	<0.05	<0.05		
	N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	µg/L	0.05	<0.05	<0.05		
	N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	µg/L	0.05	<0.05	<0.05		
	Perfluoropropanesulfonic acid (PFPrS)	µg/L	0.01	<0.01	<0.01		
	Perfluorobutanesulfonic acid (PFBS)	µg/L	0.01	<0.01	<0.01		
	Perfluoropentanesulfonic acid (PFPeS)	µg/L	0.01	<0.01	<0.01		
	Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01		
	Perfluoroheptane sulfonic acid (PFHpS)	µg/L	0.01	<0.01	<0.01		
	Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01		
	Perfluorononanesulfonic acid (PFNS)	µg/L	0.01	<0.01	<0.01		
	Perfluorodecanesulfonic acid (PFDS)	µg/L	0.01	<0.01	<0.01		
	1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	µg/L	0.01	<0.01	<0.01		
	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2 FTSA)	µg/L	0.05	<0.05	<0.05		
	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	µg/L	0.01	<0.01	<0.01		
	1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	µg/L	0.01	<0.01	<0.01		
	Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01		
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01		
	Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01		
	Sum of PFAS (WA DER List)	µg/L	0.05	<0.05	<0.05		
	Sum of PFAS	µg/L	0.1	<0.1	<0.1		
TPHs (NEPC 1999)	C6-C9 Fraction	mg/l	0.02		<0.02	<0.02	<0.02
	C10-C14 Fraction	mg/l	0.05		<0.05		
	C15-C28 Fraction	mg/l	0.1		<0.1		
	C29-C36 Fraction	mg/l	0.1		<0.1		
	C10-C36 Fraction (Sum of Total)	mg/l	0.1		<0.1		
TRHs (NEPC 2013)	C6-C10	mg/l	0.02		<0.02	<0.02	<0.02
	C10-C16	mg/l	0.05		<0.05		
	C16-C34	mg/l	0.1		<0.1		
	C34-C40	mg/l	0.1		<0.1		
	C10-C40 (Sum of total)	mg/l	0.1		<0.1		
	F1 (C6-C10 minus BTEX)	mg/l	0.02		<0.02	<0.02	<0.02
	F2 (C10-C16 less Naphthalene)	mg/l	0.05		<0.05		

Appendix E Chain of Custody and Laboratory Analytical Reports

PROJECT NO.: 59033		LABORATORY BATCH NO.: 773152	
PROJECT NAME: Ed Park Test pits.		SAMPLERS:	
DATE NEEDED BY: STAT.		QC LEVEL: NEPM (2013)	
PHONE: Sydney 02 8245 0300 Perth 08 9488 0100 Brisbane 07 3112 2688 Melbourne 03 9642 0599 Adelaide 08 8431 7113			
SEND REPORT & INVOICE TO: (1) admin@jbsg.com.au; (2)@jbsg.com.au; (3)@jbsg.com.au			
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:			

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	ANALYSIS						IDENTIFICATION NEPM/WA	NOTES:	
						JB2A	PFAS	% organic Carbon	% iron	% clay	CEC			PH
TP01-0-0.1	SOIL	9.2.21		Jar & Bag + tub + ice		X	X	X	X	X	X	X		
0.1-0.3														
TP02-0-0.2														
0.2-0.5														
TP03-0-0.1						X	X							
0.1-0.3														
TP04-0-0.1						X	X							
0.1-0.3														
TP05-0-0.1						X	X							
0.1-0.3														
TP06-0-0.3						X								
0.3-0.5														
TP07-0-0.2														
0.2-0.5														
TP08-0-0.1						X								
0.1-0.3														
TP09-0-0.1						X	X							
0.1-0.3														
QCC01						X	X							

RELINQUISHED BY:		METHOD OF SHIPMENT:	
NAME:	DATE:	CONSIGNMENT NOTE NO.	
JF: JBS&G		TRANSPORT CO.	
NAME:	DATE:	CONSIGNMENT NOTE NO.	
JF:		TRANSPORT CO.	

RECEIVED BY:		FOR RECEIVING LAB USE ONLY:	
NAME:	DATE:	COOLER SEAL - Yes..... No	Intact
JF: JBS&G		COOLER TEMP deg C	Broken
NAME:	DATE:	COOLER SEAL - Yes..... No	Intact
JF:		COOLER TEMP deg C	Broken



PROJECT NO.: 59033

PROJECT NAME: Ed Park Test Pits.

DATE NEEDED BY: Standard Test.

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminsw@jbsg.com.au; (2) MAC&A@jbsg.com.au; (3) SALES@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JB2A	PFA5	% Organic Carbon	% Iron	% Dry	CEC	pH	TYPE OF ANALYSIS	IDENTIFICATION	NEPM/WA	NOTES:
TP10-0-0.2	Soil	9.2.21		Jar + Bag + tub + ice		X	X									
0.2-0.5						X										
TP11-0-0.2																
0.2-0.5																
TP12-0-0.1																
0.1-0.5						X										
0.5-0.8																
TP13-0-0.2																
0.2-0.5						X										
0.5-0.8																
TP14-0-0.1						X	X	X	X	X	X					
0.1-0.3																
TP15-0-0.1						X										
0.1-0.3																
TP16-0-0.1						X										
0.1-0.3																
TP17-0-0.1																
0.1-0.3						X										
QC02																

RELINQUISHED BY: AS DATE: 9.2.21

METHOD OF SHIPMENT:

CONSIGNMENT NOTE NO.

TRANSPORT CO.

CONSIGNMENT NOTE NO.

TRANSPORT CO.

RECEIVED BY: [Signature] DATE: 9.2.21

NAME: [Signature] OF: [Signature] DATE: 9.2.21

COOLER TEMP deg C

COOLER SEAL - Yes..... No Intact..... Broken.....

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

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH
TP18-0-0.1 0.1-0.3	SOL	9.2.26		Bag + Jar + Twine	X
TP19-0-0.1 0.1-0.3					X
TP20-0-0.1 0.1-0.3					X
TP21-0-0.1 0.1-0.3					X
TP22-0-0.1 0.1-0.3					X
TP23-0-0.1 0.1-0.3					X
TP24-0-0.1 0.1-0.3					X
TP25-0-0.1 0.1-0.3					X
TP26-0-0.1 0.1-0.3					X
TP27-0-0.1 0.1-0.3					X

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

JB2A

PFAS

% organic Carbon

% Iron

% Clay

CEC

pH

IDENTIFICATION

NEMP/WA

TYPE OF ASBESTOS ANALYSIS

NOTES:

RELINQUISHED BY:		METHOD OF SHIPMENT:		RECEIVED BY:		FOR RECEIVING LAB USE ONLY:	
NAME:	DATE:	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL - Yes..... No	Intact	Broken	
JF: JBS&G	9.2.21	TRANSPORT CO.	DATE:	COOLER TEMP deg C			
NAME:	DATE:	CONSIGNMENT NOTE NO.	OF:	COOLER SEAL - Yes..... No	Intact	Broken	
JF:		TRANSPORT CO	NAME:	COOLER TEMP deg C			
Container & Preservation Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Presvd.; C = Sodium Hydroxide Presvd.; VC = Hydrochloric Acid Presvd; Vaj; VS = Sulfuric Acid Presvd; Vaj; S = Sulfuric Acid Presvd; Z = Zinc Presvd; E = EDTA Presvd; ST = Sterile Bottle; O = Other				COOLER TEMP deg C			

[illegible]

#AU04_Enviro_Sample_NSW

From: Alison Smith <alisonsmith@jbsg.com.au>
Sent: Thursday, 11 February 2021 10:18 AM
To: #AU04_Enviro_Sample_NSW; Michelle Delandro
Subject: RE: ATTENTION:Eurofins Sample Receipt Advice - Report 773152 : Site ED PARK TEST PITS (59033)

Follow Up Flag: Follow up
Flag Status: Completed

Hi There,

Please leave QA04 and RINS on HOLD.

Could TRIP SPIKE and TRIP BLANK please get analysed for TRH and BTEXs.

Thanks
Ali



Alison Smith | GIS/Graphics Officer | JBS&G

Sydney | Melbourne | Adelaide | Perth | Brisbane | Canberra | Darwin | Wollongong | Bunbury

Level 1, 50 Margaret Street Sydney NSW 2000

T: 02 8245 0300 | M: 0488 977 474 | E: alisonsmith@jbsg.com.au | W: www.jbsg.com.au

Contaminated Land | Groundwater Remediation | Approvals and Assessments | Auditing and Compliance | Hygiene and Hazardous Materials | Due Diligence and Liability | Fire Management Planning | Stakeholder and Risk Management

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From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>
Sent: Thursday, 11 February 2021 12:57 AM
To: Michelle Delandro <MDelandro@jbsg.com.au>
Cc: Alison Smith <alisonsmith@jbsg.com.au>
Subject: ATTENTION:Eurofins Sample Receipt Advice - Report 773152 : Site ED PARK TEST PITS (59033)

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

Dear Valued Client,

Samples received extra; QA04 (Pfas Tub), RINS (Pfas Bottle), TRIP SPIKE (2XVials) and TRIP BLANK (2XVials) - logged on hold.

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 | Environment Testing Analytical Services Manager as soon as possible to make certain that they get changed.

Regards

Suzanne Ford
Sample Receipt

Eurofins | Environment Testing

Unit F3, Parkview Building

16 Mars Road

LANE COVE WEST NSW 2066

AUSTRALIA

Phone: +61 02 9900 8421

Email: EnviroSampleNSW@eurofins.com

Website: environment.eurofins.com.au

[EnviroNote 1079 - PFAS Fingerprinting](#)

[EnviroNote 1080 - Total Organofluorine Analysis & PFAS Investigations](#)

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

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

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NATA # 1261 Site # 18217

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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: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoralkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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 0-0.1	Feb 09, 2021		Soil	S21-Fe21115	X	X				X	X	X	X	X	X		X	
2	TP02 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21116		X							X		X			
3	TP03 0-0.1	Feb 09, 2021		Soil	S21-Fe21117		X							X		X			
4	TP04 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21118		X							X		X			
5	TP05 0-0.1	Feb 09, 2021		Soil	S21-Fe21119		X							X		X			
6	TP06 0-0.3	Feb 09, 2021		Soil	S21-Fe21120		X							X		X			
7	TP07 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21121		X							X		X			
8	TP08 0-0.1	Feb 09, 2021		Soil	S21-Fe21122		X							X		X			
9	TP09 0-0.1	Feb 09, 2021		Soil	S21-Fe21123		X							X		X		X	

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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: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoralkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
10	QC01	Feb 09, 2021		Soil	S21-Fe21124		X							X		X		X	
11	TP10_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21125		X							X		X			
12	TP11_0-0.2	Feb 09, 2021		Soil	S21-Fe21126		X							X		X			
13	TP12_0.1-0.5	Feb 09, 2021		Soil	S21-Fe21127		X							X		X			
14	TP13_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21128		X							X		X			
15	TP14_0-0.1	Feb 09, 2021		Soil	S21-Fe21129	X	X				X	X	X	X	X	X		X	
16	TP15_0-0.1	Feb 09, 2021		Soil	S21-Fe21130		X							X		X			
17	TP16_0-0.1	Feb 09, 2021		Soil	S21-Fe21131		X							X		X			
18	TP17_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21132		X							X		X			
19	TP18_0-0.1	Feb 09, 2021		Soil	S21-Fe21133		X							X		X			
20	TP19_0-0.1	Feb 09, 2021		Soil	S21-Fe21134		X							X		X			

Australia

Melbourne
6 Monterey Road
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Site # 1254 & 14271

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
21	TP20_0-0.1	Feb 09, 2021		Soil	S21-Fe21135	X	X				X	X	X	X	X	X		X	
22	TP21_0-0.1	Feb 09, 2021		Soil	S21-Fe21136		X							X		X			
23	TP22_0-0.1	Feb 09, 2021		Soil	S21-Fe21137		X							X		X			
24	TP23_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21138		X							X		X			
25	TP24_0-0.1	Feb 09, 2021		Soil	S21-Fe21139		X							X		X			
26	TP25_0-0.1	Feb 09, 2021		Soil	S21-Fe21140		X							X		X			
27	TP26_0-0.1	Feb 09, 2021		Soil	S21-Fe21141		X							X		X			
28	TP27_0-0.1	Feb 09, 2021		Soil	S21-Fe21142		X							X		X			
29	TP28_0-0.1	Feb 09, 2021		Soil	S21-Fe21143		X							X		X			
30	TP29_0-0.1	Feb 09, 2021		Soil	S21-Fe21144		X							X		X		X	
31	TP30_0-0.1	Feb 09, 2021		Soil	S21-Fe21145		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271										X		X							
Sydney Laboratory - NATA Site # 18217									X	X	X		X	X		X	X		
Brisbane Laboratory - NATA Site # 20794						X									X				
Perth Laboratory - NATA Site # 23736																			
Mayfield Laboratory																			
External Laboratory																			
32	QC03	Feb 09, 2021		Soil	S21-Fe21146		X			X									
33	FRAG01	Feb 09, 2021		Building Materials	S21-Fe21147			X											
34	TP01_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21148										X				
35	TP02_0-0.2	Feb 09, 2021		Soil	S21-Fe21149										X				
36	TP03_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21150										X				
37	TP04_0-0.1	Feb 09, 2021		Soil	S21-Fe21151										X				
38	TP05_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21152										X				
39	TP06_0.3-0.5	Feb 09, 2021		Soil	S21-Fe21153										X				
40	TP07_0-0.2	Feb 09, 2021		Soil	S21-Fe21154										X				
41	TP08_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21155										X				

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
64	TP29_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21178					X									
65	TP30_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21179					X									
66	QC04	Feb 09, 2021		Soil	S21-Fe21180					X									
67	QA04	Feb 09, 2021		Soil	S21-Fe21283				X										
68	RINS	Feb 09, 2021		Water	S21-Fe21284				X										
69	TRIP SPIKE	Feb 09, 2021		Water	S21-Fe21285														X
70	TRIP BLANK	Feb 09, 2021		Water	S21-Fe21286												X		
Test Counts						3	32	1	35	35	3	3	3	32	3	32	1	6	1

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
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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: Michelle Delandro
Report 773152-AID
Project Name ED PARK TEST PITS
Project ID 59033
Received Date Feb 10, 2021
Date Reported Feb 18, 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 ED PARK TEST PITS
Project ID 59033
Date Sampled Feb 09, 2021
Report 773152-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP01_0-0.1	21-Fe21115	Feb 09, 2021	Approximate Sample 580g 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.
TP02_0.2-0.5	21-Fe21116	Feb 09, 2021	Approximate Sample 516g 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_0-0.1	21-Fe21117	Feb 09, 2021	Approximate Sample 585g 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.
TP04_0.1-0.3	21-Fe21118	Feb 09, 2021	Approximate Sample 644g 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.
TP05_0-0.1	21-Fe21119	Feb 09, 2021	Approximate Sample 653g 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.
TP06_0-0.3	21-Fe21120	Feb 09, 2021	Approximate Sample 670g 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.
TP07_0.2-0.5	21-Fe21121	Feb 09, 2021	Approximate Sample 521g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP08_0-0.1	21-Fe21122	Feb 09, 2021	Approximate Sample 625g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP09_0-0.1	21-Fe21123	Feb 09, 2021	Approximate Sample 692g 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.
QC01	21-Fe21124	Feb 09, 2021	Approximate Sample 617g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP10_0.2-0.5	21-Fe21125	Feb 09, 2021	Approximate Sample 558g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP11_0-0.2	21-Fe21126	Feb 09, 2021	Approximate Sample 530g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP12_0.1-0.5	21-Fe21127	Feb 09, 2021	Approximate Sample 667g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP13_0.2-0.5	21-Fe21128	Feb 09, 2021	Approximate Sample 695g 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.
TP14_0-0.1	21-Fe21129	Feb 09, 2021	Approximate Sample 641g 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.
TP15_0-0.1	21-Fe21130	Feb 09, 2021	Approximate Sample 681g 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.
TP16_0-0.1	21-Fe21131	Feb 09, 2021	Approximate Sample 793g 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.
TP17_0.1-0.3	21-Fe21132	Feb 09, 2021	Approximate Sample 600g 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.
TP18_0-0.1	21-Fe21133	Feb 09, 2021	Approximate Sample 690g 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.
TP19_0-0.1	21-Fe21134	Feb 09, 2021	Approximate Sample 616g 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.
TP20_0-0.1	21-Fe21135	Feb 09, 2021	Approximate Sample 679g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP21_0-0.1	21-Fe21136	Feb 09, 2021	Approximate Sample 593g 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.
TP22_0-0.1	21-Fe21137	Feb 09, 2021	Approximate Sample 613g 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.
TP23_0.1-0.3	21-Fe21138	Feb 09, 2021	Approximate Sample 589g 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.
TP24_0-0.1	21-Fe21139	Feb 09, 2021	Approximate Sample 540g 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.
TP25_0-0.1	21-Fe21140	Feb 09, 2021	Approximate Sample 663g 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.
TP26_0-0.1	21-Fe21141	Feb 09, 2021	Approximate Sample 606g 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.
TP27_0-0.1	21-Fe21142	Feb 09, 2021	Approximate Sample 649g 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.
TP28_0-0.1	21-Fe21143	Feb 09, 2021	Approximate Sample 693g 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.
TP29_0-0.1	21-Fe21144	Feb 09, 2021	Approximate Sample 561g 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.
TP30_0-0.1	21-Fe21145	Feb 09, 2021	Approximate Sample 608g 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.
QC03	21-Fe21146	Feb 09, 2021	Approximate Sample 621g 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.
FRAG01	21-Fe21147	Feb 09, 2021	Approximate Sample 5.9g Sample consisted of: Grey fibrous cement plaster	Chrysotile, amosite and crocidolite 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 10, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Feb 10, 2021	Indefinite

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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 0-0.1	Feb 09, 2021		Soil	S21-Fe21115	X	X				X	X	X	X	X	X		X	
2	TP02 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21116		X							X		X			
3	TP03 0-0.1	Feb 09, 2021		Soil	S21-Fe21117		X							X		X			
4	TP04 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21118		X							X		X			
5	TP05 0-0.1	Feb 09, 2021		Soil	S21-Fe21119		X							X		X			
6	TP06 0-0.3	Feb 09, 2021		Soil	S21-Fe21120		X							X		X			
7	TP07 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21121		X							X		X			
8	TP08 0-0.1	Feb 09, 2021		Soil	S21-Fe21122		X							X		X			
9	TP09 0-0.1	Feb 09, 2021		Soil	S21-Fe21123		X							X		X		X	

Australia

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NSW 2000

Project Name: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
10	QC01	Feb 09, 2021		Soil	S21-Fe21124		X							X		X		X	
11	TP10_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21125		X							X		X			
12	TP11_0-0.2	Feb 09, 2021		Soil	S21-Fe21126		X							X		X			
13	TP12_0.1-0.5	Feb 09, 2021		Soil	S21-Fe21127		X							X		X			
14	TP13_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21128		X							X		X			
15	TP14_0-0.1	Feb 09, 2021		Soil	S21-Fe21129	X	X				X	X	X	X	X	X		X	
16	TP15_0-0.1	Feb 09, 2021		Soil	S21-Fe21130		X							X		X			
17	TP16_0-0.1	Feb 09, 2021		Soil	S21-Fe21131		X							X		X			
18	TP17_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21132		X							X		X			
19	TP18_0-0.1	Feb 09, 2021		Soil	S21-Fe21133		X							X		X			
20	TP19_0-0.1	Feb 09, 2021		Soil	S21-Fe21134		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
21	TP20_0-0.1	Feb 09, 2021		Soil	S21-Fe21135	X	X				X	X	X	X	X	X		X	
22	TP21_0-0.1	Feb 09, 2021		Soil	S21-Fe21136		X							X		X			
23	TP22_0-0.1	Feb 09, 2021		Soil	S21-Fe21137		X							X		X			
24	TP23_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21138		X							X		X			
25	TP24_0-0.1	Feb 09, 2021		Soil	S21-Fe21139		X							X		X			
26	TP25_0-0.1	Feb 09, 2021		Soil	S21-Fe21140		X							X		X			
27	TP26_0-0.1	Feb 09, 2021		Soil	S21-Fe21141		X							X		X			
28	TP27_0-0.1	Feb 09, 2021		Soil	S21-Fe21142		X							X		X			
29	TP28_0-0.1	Feb 09, 2021		Soil	S21-Fe21143		X							X		X			
30	TP29_0-0.1	Feb 09, 2021		Soil	S21-Fe21144		X							X		X		X	
31	TP30_0-0.1	Feb 09, 2021		Soil	S21-Fe21145		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
32	QC03	Feb 09, 2021		Soil	S21-Fe21146		X							X		X			
33	FRAG01	Feb 09, 2021		Building Materials	S21-Fe21147			X											
34	TP01 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21148					X									
35	TP02 0-0.2	Feb 09, 2021		Soil	S21-Fe21149					X									
36	TP03 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21150					X									
37	TP04 0-0.1	Feb 09, 2021		Soil	S21-Fe21151					X									
38	TP05 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21152					X									
39	TP06 0.3-0.5	Feb 09, 2021		Soil	S21-Fe21153					X									
40	TP07 0-0.2	Feb 09, 2021		Soil	S21-Fe21154					X									
41	TP08 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21155					X									

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
42	TP09_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21156					X									
43	TP10_0-0.2	Feb 09, 2021		Soil	S21-Fe21157					X									
44	TP11_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21158					X									
45	TP12_0-0.1	Feb 09, 2021		Soil	S21-Fe21159					X									
46	TP12_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21160					X									
47	TP13_0-0.2	Feb 09, 2021		Soil	S21-Fe21161					X									
48	TP13_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21162					X									
49	TP14_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21163					X									
50	TP15_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21164					X									
51	TP16_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21165					X									
52	TP17_0-0.1	Feb 09, 2021		Soil	S21-Fe21166					X									

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
53	QC02	Feb 09, 2021		Soil	S21-Fe21167					X									
54	TP18_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21168					X									
55	TP19_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21169					X									
56	TP20_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21170					X									
57	TP21_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21171					X									
58	TP22_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21172					X									
59	TP23_0-0.1	Feb 09, 2021		Soil	S21-Fe21173					X									
60	TP25_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21174					X									
61	TP26_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21175					X									
62	TP27_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21176					X									
63	TP28_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21177					X									

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
64	TP29_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21178					X									
65	TP30_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21179					X									
66	QC04	Feb 09, 2021		Soil	S21-Fe21180					X									
67	QA04	Feb 09, 2021		Soil	S21-Fe21283				X										
68	RINS	Feb 09, 2021		Water	S21-Fe21284				X										
69	TRIP SPIKE	Feb 09, 2021		Water	S21-Fe21285														X
70	TRIP BLANK	Feb 09, 2021		Water	S21-Fe21286												X		
Test Counts						3	32	1	35	35	3	3	3	32	3	32	1	6	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

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	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.
AF	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".
FA	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.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
Trace Analysis	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
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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: Michelle Delandro

Report 773152-S
Project name ED PARK TEST PITS
Project ID 59033
Received Date Feb 10, 2021

Client Sample ID			TP01_0-0.1	TP02_0.2-0.5	TP03_0-0.1	TP04_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21115	S21-Fe21116	S21-Fe21117	S21-Fe21118
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	50	53
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	50	53
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	64	67	66	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP01_0-0.1	TP02_0.2-0.5	TP03_0-0.1	TP04_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21115	S21-Fe21116	S21-Fe21117	S21-Fe21118
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	82	74	83	91
p-Terphenyl-d14 (surr.)	1	%	89	86	88	95
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	105	95	99	106
Tetrachloro-m-xylene (surr.)	1	%	88	84	87	93
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	105	95	99	106
Tetrachloro-m-xylene (surr.)	1	%	88	84	87	93

Client Sample ID			TP01_0-0.1	TP02_0.2-0.5	TP03_0-0.1	TP04_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21115	S21-Fe21116	S21-Fe21117	S21-Fe21118
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
% Clay	1	%	11	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	15	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.3	-	-	-
Total Organic Carbon	0.1	%	2.0	-	-	-
% Moisture	1	%	15	18	19	12
Heavy Metals						
Iron (%)	0.01	%	3.2	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	12	6.6	14	17
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	24	18	31	35
Copper	5	mg/kg	24	27	25	30
Lead	5	mg/kg	27	16	32	25
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	16	7.8	13	13
Zinc	5	mg/kg	52	34	47	54
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	8.1	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	81	-	-	-
13C5-PFPeA (surr.)	1	%	125	-	-	-
13C5-PFHxA (surr.)	1	%	119	-	-	-
13C4-PFHpA (surr.)	1	%	108	-	-	-
13C8-PFOA (surr.)	1	%	117	-	-	-
13C5-PFNA (surr.)	1	%	108	-	-	-
13C6-PFDA (surr.)	1	%	128	-	-	-
13C2-PFUnDA (surr.)	1	%	124	-	-	-
13C2-PFDoDA (surr.)	1	%	144	-	-	-
13C2-PFTeDA (surr.)	1	%	131	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-

Client Sample ID			TP01_0-0.1	TP02_0.2-0.5	TP03_0-0.1	TP04_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21115	S21-Fe21116	S21-Fe21117	S21-Fe21118
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	81	-	-	-
D3-N-MeFOSA (surr.)	1	%	68	-	-	-
D5-N-EtFOSA (surr.)	1	%	113	-	-	-
D7-N-MeFOSE (surr.)	1	%	93	-	-	-
D9-N-EtFOSE (surr.)	1	%	91	-	-	-
D5-N-EtFOSAA (surr.)	1	%	87	-	-	-
D3-N-MeFOSAA (surr.)	1	%	96	-	-	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	105	-	-	-
18O2-PFHxS (surr.)	1	%	107	-	-	-
13C8-PFOS (surr.)	1	%	119	-	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTS (surr.)	1	%	123	-	-	-
13C2-6:2 FTSA (surr.)	1	%	122	-	-	-
13C2-8:2 FTSA (surr.)	1	%	105	-	-	-
13C2-10:2 FTSA (surr.)	1	%	104	-	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-

Client Sample ID			TP05_0-0.1	TP06_0-0.3	TP07_0.2-0.5	TP08_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21119	S21-Fe21120	S21-Fe21121	S21-Fe21122
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	62	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	79	< 50	54
TRH C10-C36 (Total)	50	mg/kg	< 50	141	< 50	54
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	72	69	82
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	120	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	120	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	82	80	81	88
p-Terphenyl-d14 (surr.)	1	%	93	90	89	95

Client Sample ID			TP05_0-0.1	TP06_0-0.3	TP07_0.2-0.5	TP08_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21119	S21-Fe21120	S21-Fe21121	S21-Fe21122
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	99	99	98	101
Tetrachloro-m-xylene (surr.)	1	%	91	87	86	93
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	99	99	98	101
Tetrachloro-m-xylene (surr.)	1	%	91	87	86	93
% Moisture	1	%	15	23	20	20
Heavy Metals						
Arsenic	2	mg/kg	18	20	21	18
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	34	29	39	26
Copper	5	mg/kg	27	27	29	15
Lead	5	mg/kg	35	37	25	26
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	14	15	12	8.4
Zinc	5	mg/kg	47	55	39	36

Client Sample ID			TP09_0-0.1	QC01	TP10_0.2-0.5	TP11_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21123	S21-Fe21124	S21-Fe21125	S21-Fe21126
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	21
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	130
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	110
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	261
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	94	93	55	51
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	210
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	210
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	85	82	85	82
p-Terphenyl-d14 (surr.)	1	%	92	87	105	93

Client Sample ID			TP09_0-0.1	QC01	TP10_0.2-0.5	TP11_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21123	S21-Fe21124	S21-Fe21125	S21-Fe21126
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	101	97	108	105
Tetrachloro-m-xylene (surr.)	1	%	92	85	98	88
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	101	97	108	105
Tetrachloro-m-xylene (surr.)	1	%	92	85	98	88
% Moisture	1	%	15	15	21	27
Heavy Metals						
Arsenic	2	mg/kg	13	11	13	12
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	28	24	23	20
Copper	5	mg/kg	23	24	35	27
Lead	5	mg/kg	30	27	20	28
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	16	15	11	15
Zinc	5	mg/kg	65	56	48	64

Client Sample ID			TP09_0-0.1	QC01	TP10_0.2-0.5	TP11_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21123	S21-Fe21124	S21-Fe21125	S21-Fe21126
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	-	-
13C4-PFBA (surr.)	1	%	86	82	-	-
13C5-PFPeA (surr.)	1	%	94	126	-	-
13C5-PFHxA (surr.)	1	%	84	116	-	-
13C4-PFHpA (surr.)	1	%	88	103	-	-
13C8-PFOA (surr.)	1	%	88	102	-	-
13C5-PFNA (surr.)	1	%	102	112	-	-
13C6-PFDA (surr.)	1	%	106	124	-	-
13C2-PFUnDA (surr.)	1	%	119	139	-	-
13C2-PFDoDA (surr.)	1	%	83	150	-	-
13C2-PFTeDA (surr.)	1	%	98	125	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	-	-
13C8-FOSA (surr.)	1	%	94	71	-	-
D3-N-MeFOSA (surr.)	1	%	92	73	-	-
D5-N-EtFOSA (surr.)	1	%	88	107	-	-
D7-N-MeFOSE (surr.)	1	%	82	82	-	-
D9-N-EtFOSE (surr.)	1	%	79	104	-	-
D5-N-EtFOSAA (surr.)	1	%	97	76	-	-
D3-N-MeFOSAA (surr.)	1	%	77	89	-	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	-	-
13C3-PFBS (surr.)	1	%	99	113	-	-

Client Sample ID			TP09_0-0.1	QC01	TP10_0.2-0.5	TP11_0-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21123	S21-Fe21124	S21-Fe21125	S21-Fe21126
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSA)						
18O2-PFHxS (surr.)	1	%	103	113	-	-
13C8-PFOS (surr.)	1	%	101	125	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	-	-
13C2-4:2 FTS (surr.)	1	%	99	116	-	-
13C2-6:2 FTSA (surr.)	1	%	94	103	-	-
13C2-8:2 FTSA (surr.)	1	%	98	95	-	-
13C2-10:2 FTSA (surr.)	1	%	104	98	-	-
PFASs Summations						
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	-	-

Client Sample ID			TP12_0.1-0.5	TP13_0.2-0.5	TP14_0-0.1	TP15_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21127	S21-Fe21128	S21-Fe21129	S21-Fe21130
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	110	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	110	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	110	141	84	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	110	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	120	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	230	< 100

Client Sample ID			TP12_0.1-0.5	TP13_0.2-0.5	TP14_0-0.1	TP15_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21127	S21-Fe21128	S21-Fe21129	S21-Fe21130
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	71	76	62	64
p-Terphenyl-d14 (surr.)	1	%	88	94	106	93
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	98	94	142	141
Tetrachloro-m-xylene (surr.)	1	%	84	90	101	91

Client Sample ID			TP12_0.1-0.5	TP13_0.2-0.5	TP14_0-0.1	TP15_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21127	S21-Fe21128	S21-Fe21129	S21-Fe21130
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloredate (surr.)	1	%	98	94	142	141
Tetrachloro-m-xylene (surr.)	1	%	84	90	101	91
% Clay	1	%	-	-	7.0	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	170	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	5.8	-
Total Organic Carbon	0.1	%	-	-	1.2	-
% Moisture	1	%	17	13	11	12
Heavy Metals						
Iron (%)	0.01	%	-	-	2.9	-
Heavy Metals						
Arsenic	2	mg/kg	10	17	38	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	29	29	25
Copper	5	mg/kg	28	32	38	23
Lead	5	mg/kg	19	26	31	31
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.1	13	15	11
Zinc	5	mg/kg	39	50	64	43
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	-	18	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorotridecanoic acid (PFTriDA) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	-	< 5	-
13C4-PFBA (surr.)	1	%	-	-	80	-
13C5-PFPeA (surr.)	1	%	-	-	109	-
13C5-PFHxA (surr.)	1	%	-	-	98	-
13C4-PFHpA (surr.)	1	%	-	-	96	-
13C8-PFOA (surr.)	1	%	-	-	104	-
13C5-PFNA (surr.)	1	%	-	-	105	-
13C6-PFDA (surr.)	1	%	-	-	115	-
13C2-PFUnDA (surr.)	1	%	-	-	117	-

Client Sample ID			TP12_0.1-0.5	TP13_0.2-0.5	TP14_0-0.1	TP15_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21127	S21-Fe21128	S21-Fe21129	S21-Fe21130
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	-	-	142	-
13C2-PFTEdA (surr.)	1	%	-	-	102	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	-	-	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	-	< 10	-
13C8-FOSA (surr.)	1	%	-	-	78	-
D3-N-MeFOSA (surr.)	1	%	-	-	75	-
D5-N-EtFOSA (surr.)	1	%	-	-	122	-
D7-N-MeFOSE (surr.)	1	%	-	-	109	-
D9-N-EtFOSE (surr.)	1	%	-	-	89	-
D5-N-EtFOSAA (surr.)	1	%	-	-	56	-
D3-N-MeFOSAA (surr.)	1	%	-	-	64	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	-	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	-	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	-	< 5	-
13C3-PFBS (surr.)	1	%	-	-	97	-
18O2-PFHxS (surr.)	1	%	-	-	111	-
13C8-PFOS (surr.)	1	%	-	-	120	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	-	-	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	-	< 5	-
13C2-4:2 FTS (surr.)	1	%	-	-	69	-
13C2-6:2 FTSA (surr.)	1	%	-	-	71	-
13C2-8:2 FTSA (surr.)	1	%	-	-	82	-
13C2-10:2 FTSA (surr.)	1	%	-	-	97	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	-	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	-	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	-	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	-	-	< 50	-

Client Sample ID			TP16_0-0.1	TP17_0.1-0.3	TP18_0-0.1	TP19_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21131	S21-Fe21132	S21-Fe21133	S21-Fe21134
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	96	111	109
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	77	59	61	88
p-Terphenyl-d14 (surr.)	1	%	102	79	75	102

Client Sample ID			TP16_0-0.1	TP17_0.1-0.3	TP18_0-0.1	TP19_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21131	S21-Fe21132	S21-Fe21133	S21-Fe21134
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloredate (surr.)	1	%	144	101	97	140
Tetrachloro-m-xylene (surr.)	1	%	100	80	79	104
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloredate (surr.)	1	%	144	101	97	140
Tetrachloro-m-xylene (surr.)	1	%	100	80	79	104
% Moisture	1	%	11	17	12	13
Heavy Metals						
Arsenic	2	mg/kg	13	5.1	8.5	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	33	9.5	21	26
Copper	5	mg/kg	28	17	18	28
Lead	5	mg/kg	32	13	22	29
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	15	< 5	8.9	16
Zinc	5	mg/kg	48	6.0	36	61

Client Sample ID			TP20_0-0.1	TP21_0-0.1	TP22_0-0.1	TP23_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21135	S21-Fe21136	S21-Fe21137	S21-Fe21138
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	82	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	78	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	160	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	123	80	65	78
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	61	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	61	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	130	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	191	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	68	72	77	69
p-Terphenyl-d14 (surr.)	1	%	87	100	91	87

Client Sample ID			TP20_0-0.1	TP21_0-0.1	TP22_0-0.1	TP23_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21135	S21-Fe21136	S21-Fe21137	S21-Fe21138
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	118	141	144	117
Tetrachloro-m-xylene (surr.)	1	%	86	99	100	90
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	118	141	144	117
Tetrachloro-m-xylene (surr.)	1	%	86	99	100	90
% Clay	1	%	30	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	42	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.8	-	-	-
Total Organic Carbon	0.1	%	2.0	-	-	-
% Moisture	1	%	12	10	12	9.8
Heavy Metals						
Iron (%)	0.01	%	4.2	-	-	-

Client Sample ID			TP20_0-0.1	TP21_0-0.1	TP22_0-0.1	TP23_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21135	S21-Fe21136	S21-Fe21137	S21-Fe21138
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	9.2	6.4	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	19	17	< 5	< 5
Copper	5	mg/kg	14	18	< 5	< 5
Lead	5	mg/kg	22	24	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	8.2	8.1	< 5	< 5
Zinc	5	mg/kg	47	35	< 5	< 5
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	8.9	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	-	-	-
13C4-PFBA (surr.)	1	%	81	-	-	-
13C5-PFPeA (surr.)	1	%	114	-	-	-
13C5-PFHxA (surr.)	1	%	111	-	-	-
13C4-PFHpA (surr.)	1	%	104	-	-	-
13C8-PFOA (surr.)	1	%	102	-	-	-
13C5-PFNA (surr.)	1	%	115	-	-	-
13C6-PFDA (surr.)	1	%	124	-	-	-
13C2-PFUnDA (surr.)	1	%	125	-	-	-
13C2-PFDoDA (surr.)	1	%	142	-	-	-
13C2-PFTeDA (surr.)	1	%	121	-	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	< 5	-	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	-	-	-
13C8-FOSA (surr.)	1	%	73	-	-	-
D3-N-MeFOSA (surr.)	1	%	61	-	-	-
D5-N-EtFOSA (surr.)	1	%	119	-	-	-
D7-N-MeFOSE (surr.)	1	%	85	-	-	-
D9-N-EtFOSE (surr.)	1	%	96	-	-	-
D5-N-EtFOSAA (surr.)	1	%	80	-	-	-
D3-N-MeFOSAA (surr.)	1	%	85	-	-	-

Client Sample ID			TP20_0-0.1	TP21_0-0.1	TP22_0-0.1	TP23_0.1-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21135	S21-Fe21136	S21-Fe21137	S21-Fe21138
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	-	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	-	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	-	-	-
13C3-PFBS (surr.)	1	%	104	-	-	-
18O2-PFHxS (surr.)	1	%	110	-	-	-
13C8-PFOS (surr.)	1	%	118	-	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	< 10	-	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	-	-	-
13C2-4:2 FTS (surr.)	1	%	112	-	-	-
13C2-6:2 FTSA (surr.)	1	%	89	-	-	-
13C2-8:2 FTSA (surr.)	1	%	106	-	-	-
13C2-10:2 FTSA (surr.)	1	%	103	-	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	-	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	-	-	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	-	-	-

Client Sample ID			TP24_0-0.1	TP25_0-0.1	TP26_0-0.1	TP27_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21139	S21-Fe21140	S21-Fe21141	S21-Fe21142
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	22
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	66
TRH C29-C36	50	mg/kg	< 50	< 50	53	99
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	53	187
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	70	99	116	135

Client Sample ID			TP24_0-0.1	TP25_0-0.1	TP26_0-0.1	TP27_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21139	S21-Fe21140	S21-Fe21141	S21-Fe21142
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	140
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	140
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	62	55	56	69
p-Terphenyl-d14 (surr.)	1	%	90	84	88	97
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			TP24_0-0.1	TP25_0-0.1	TP26_0-0.1	TP27_0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21139	S21-Fe21140	S21-Fe21141	S21-Fe21142
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloredate (surr.)	1	%	125	125	147	140
Tetrachloro-m-xylene (surr.)	1	%	91	86	90	95
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloredate (surr.)	1	%	125	125	147	140
Tetrachloro-m-xylene (surr.)	1	%	91	86	90	95
% Moisture	1	%	16	8.8	7.6	8.0
Heavy Metals						
Arsenic	2	mg/kg	4.9	7.3	8.2	8.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	16	14	19	23
Copper	5	mg/kg	19	32	27	19
Lead	5	mg/kg	13	18	29	42
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	11	14	18
Zinc	5	mg/kg	19	59	69	98

Client Sample ID			TP28_0-0.1	TP29_0-0.1	TP30_0-0.1	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21143	S21-Fe21144	S21-Fe21145	S21-Fe21146
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	62
TRH C29-C36	50	mg/kg	< 50	66	< 50	93
TRH C10-C36 (Total)	50	mg/kg	< 50	66	< 50	155

Client Sample ID			TP28_0-0.1	TP29_0-0.1	TP30_0-0.1	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21143	S21-Fe21144	S21-Fe21145	S21-Fe21146
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	122	133	86	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	130
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	130
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	78	78	69	73
p-Terphenyl-d14 (surr.)	1	%	91	77	80	86
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			TP28_0-0.1	TP29_0-0.1	TP30_0-0.1	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21143	S21-Fe21144	S21-Fe21145	S21-Fe21146
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dibutylchloroendate (surr.)	1	%	136	135	131	111
Tetrachloro-m-xylene (surr.)	1	%	91	88	83	90
Polychlorinated Biphenyls						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	136	135	131	111
Tetrachloro-m-xylene (surr.)	1	%	91	88	83	90
% Moisture	1	%	9.3	11	11	7.6
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	< 5	< 5	< 5	< 5
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	-	< 5	-	-

Client Sample ID			TP28_0-0.1	TP29_0-0.1	TP30_0-0.1	QC03
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Fe21143	S21-Fe21144	S21-Fe21145	S21-Fe21146
Date Sampled			Feb 09, 2021	Feb 09, 2021	Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	-	< 5	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	-	< 5	-	-
13C4-PFBA (surr.)	1	%	-	93	-	-
13C5-PFPeA (surr.)	1	%	-	100	-	-
13C5-PFHxA (surr.)	1	%	-	98	-	-
13C4-PFHpA (surr.)	1	%	-	94	-	-
13C8-PFOA (surr.)	1	%	-	99	-	-
13C5-PFNA (surr.)	1	%	-	115	-	-
13C6-PFDA (surr.)	1	%	-	128	-	-
13C2-PFUnDA (surr.)	1	%	-	131	-	-
13C2-PFDoDA (surr.)	1	%	-	96	-	-
13C2-PFTeDA (surr.)	1	%	-	113	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	-	< 5	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	-	< 5	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	-	< 5	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	5	ug/kg	-	< 5	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	5	ug/kg	-	< 5	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	-	< 10	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	-	< 10	-	-
13C8-FOSA (surr.)	1	%	-	99	-	-
D3-N-MeFOSA (surr.)	1	%	-	91	-	-
D5-N-EtFOSA (surr.)	1	%	-	89	-	-
D7-N-MeFOSE (surr.)	1	%	-	85	-	-
D9-N-EtFOSE (surr.)	1	%	-	72	-	-
D5-N-EtFOSAA (surr.)	1	%	-	132	-	-
D3-N-MeFOSAA (surr.)	1	%	-	108	-	-
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	-	< 5	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	-	< 5	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	-	< 5	-	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	-	< 5	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	-	< 5	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	-	< 5	-	-
13C3-PFBS (surr.)	1	%	-	104	-	-
18O2-PFHxS (surr.)	1	%	-	109	-	-
13C8-PFOS (surr.)	1	%	-	106	-	-

Client Sample ID Sample Matrix Eurofins Sample No. Date Sampled Test/Reference	LOR	Unit	TP28_0-0.1 Soil S21-Fe21143 Feb 09, 2021	TP29_0-0.1 Soil S21-Fe21144 Feb 09, 2021	TP30_0-0.1 Soil S21-Fe21145 Feb 09, 2021	QC03 Soil S21-Fe21146 Feb 09, 2021
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	-	< 5	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	10	ug/kg	-	< 10	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	-	< 5	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	-	< 5	-	-
13C2-4:2 FTS (surr.)	1	%	-	104	-	-
13C2-6:2 FTSA (surr.)	1	%	-	99	-	-
13C2-8:2 FTSA (surr.)	1	%	-	108	-	-
13C2-10:2 FTSA (surr.)	1	%	-	111	-	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	-	< 5	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	-	< 5	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	-	< 5	-	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	-	< 10	-	-
Sum of PFASs (n=30)*	50	ug/kg	-	< 50	-	-

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	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
JBS&G Suite 2			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	Feb 14, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	Feb 14, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	Feb 14, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Clay	Brisbane	Feb 16, 2021	14 Days
- Method: LTM-GEN-7040			
pH (1:5 Aqueous extract at 25°C as rec.)	Sydney	Feb 14, 2021	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Feb 17, 2021	28 Days
- Method: LTM-INO-4060 Total Organic Carbon in water and soil			
Heavy Metals	Sydney	Feb 14, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Feb 17, 2021	7 Days
- Method: LTM-INO-4030 Conductivity			
Cation Exchange Capacity	Melbourne	Feb 17, 2021	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
% Moisture	Sydney	Feb 10, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs)	Brisbane	Feb 16, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonamido substances	Brisbane	Feb 16, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
Perfluoroalkyl sulfonic acids (PFASs)	Brisbane	Feb 16, 2021	14 Days
- Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)			
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs)	Brisbane	Feb 16, 2021	180 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: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoralkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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 0-0.1	Feb 09, 2021		Soil	S21-Fe21115	X	X				X	X	X	X	X	X		X	
2	TP02 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21116		X							X		X			
3	TP03 0-0.1	Feb 09, 2021		Soil	S21-Fe21117		X							X		X			
4	TP04 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21118		X							X		X			
5	TP05 0-0.1	Feb 09, 2021		Soil	S21-Fe21119		X							X		X			
6	TP06 0-0.3	Feb 09, 2021		Soil	S21-Fe21120		X							X		X			
7	TP07 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21121		X							X		X			
8	TP08 0-0.1	Feb 09, 2021		Soil	S21-Fe21122		X							X		X			
9	TP09 0-0.1	Feb 09, 2021		Soil	S21-Fe21123		X							X		X		X	

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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NSW 2000

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Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoralkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
10	QC01	Feb 09, 2021		Soil	S21-Fe21124		X							X		X		X	
11	TP10_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21125		X							X		X			
12	TP11_0-0.2	Feb 09, 2021		Soil	S21-Fe21126		X							X		X			
13	TP12_0.1-0.5	Feb 09, 2021		Soil	S21-Fe21127		X							X		X			
14	TP13_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21128		X							X		X			
15	TP14_0-0.1	Feb 09, 2021		Soil	S21-Fe21129	X	X				X	X	X	X	X	X		X	
16	TP15_0-0.1	Feb 09, 2021		Soil	S21-Fe21130		X							X		X			
17	TP16_0-0.1	Feb 09, 2021		Soil	S21-Fe21131		X							X		X			
18	TP17_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21132		X							X		X			
19	TP18_0-0.1	Feb 09, 2021		Soil	S21-Fe21133		X							X		X			
20	TP19_0-0.1	Feb 09, 2021		Soil	S21-Fe21134		X							X		X			

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
21	TP20_0-0.1	Feb 09, 2021		Soil	S21-Fe21135	X	X				X	X	X	X	X	X		X	
22	TP21_0-0.1	Feb 09, 2021		Soil	S21-Fe21136		X							X		X			
23	TP22_0-0.1	Feb 09, 2021		Soil	S21-Fe21137		X							X		X			
24	TP23_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21138		X							X		X			
25	TP24_0-0.1	Feb 09, 2021		Soil	S21-Fe21139		X							X		X			
26	TP25_0-0.1	Feb 09, 2021		Soil	S21-Fe21140		X							X		X			
27	TP26_0-0.1	Feb 09, 2021		Soil	S21-Fe21141		X							X		X			
28	TP27_0-0.1	Feb 09, 2021		Soil	S21-Fe21142		X							X		X			
29	TP28_0-0.1	Feb 09, 2021		Soil	S21-Fe21143		X							X		X			
30	TP29_0-0.1	Feb 09, 2021		Soil	S21-Fe21144		X							X		X		X	
31	TP30_0-0.1	Feb 09, 2021		Soil	S21-Fe21145		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
32	QC03	Feb 09, 2021		Soil	S21-Fe21146		X							X		X			
33	FRAG01	Feb 09, 2021		Building Materials	S21-Fe21147			X											
34	TP01 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21148					X									
35	TP02 0-0.2	Feb 09, 2021		Soil	S21-Fe21149					X									
36	TP03 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21150					X									
37	TP04 0-0.1	Feb 09, 2021		Soil	S21-Fe21151					X									
38	TP05 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21152					X									
39	TP06 0.3-0.5	Feb 09, 2021		Soil	S21-Fe21153					X									
40	TP07 0-0.2	Feb 09, 2021		Soil	S21-Fe21154					X									
41	TP08 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21155					X									

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Sydney Laboratory - NATA Site # 18217							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																			
42	TP09_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21156					X									
43	TP10_0.0-0.2	Feb 09, 2021		Soil	S21-Fe21157					X									
44	TP11_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21158					X									
45	TP12_0.0-0.1	Feb 09, 2021		Soil	S21-Fe21159					X									
46	TP12_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21160					X									
47	TP13_0.0-0.2	Feb 09, 2021		Soil	S21-Fe21161					X									
48	TP13_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21162					X									
49	TP14_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21163					X									
50	TP15_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21164					X									
51	TP16_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21165					X									
52	TP17_0.0-0.1	Feb 09, 2021		Soil	S21-Fe21166					X									

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Sydney Laboratory - NATA Site # 18217							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																			
53	QC02	Feb 09, 2021		Soil	S21-Fe21167					X									
54	TP18_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21168					X									
55	TP19_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21169					X									
56	TP20_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21170					X									
57	TP21_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21171					X									
58	TP22_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21172					X									
59	TP23_0-0.1	Feb 09, 2021		Soil	S21-Fe21173					X									
60	TP25_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21174					X									
61	TP26_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21175					X									
62	TP27_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21176					X									
63	TP28_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21177					X									

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Sydney Laboratory - NATA Site # 18217							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																			
64	TP29_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21178					X									
65	TP30_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21179					X									
66	QC04	Feb 09, 2021		Soil	S21-Fe21180					X									
67	QA04	Feb 09, 2021		Soil	S21-Fe21283				X										
68	RINS	Feb 09, 2021		Water	S21-Fe21284				X										
69	TRIP SPIKE	Feb 09, 2021		Water	S21-Fe21285														X
70	TRIP BLANK	Feb 09, 2021		Water	S21-Fe21286												X		
Test Counts						3	32	1	35	35	3	3	3	32	3	32	1	6	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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NC	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.
TEQ	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB*	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Iron (%)	%	< 0.01			0.01	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTriDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFASs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/kg	< 10			10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5			5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	122			70-130	Pass	
TRH C10-C14	%	81			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	128			70-130	Pass	
Toluene	%	129			70-130	Pass	
Ethylbenzene	%	105			70-130	Pass	
m&p-Xylenes	%	101			70-130	Pass	
o-Xylene	%	103			70-130	Pass	
Xylenes - Total*	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	123			70-130	Pass	
TRH C6-C10	%	125			70-130	Pass	
TRH >C10-C16	%	82			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	71			70-130	Pass	
Acenaphthylene	%	73			70-130	Pass	
Anthracene	%	74			70-130	Pass	
Benz(a)anthracene	%	74			70-130	Pass	
Benzo(a)pyrene	%	79			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g,h,i)perylene	%	72			70-130	Pass	
Benzo(k)fluoranthene	%	78			70-130	Pass	
Chrysene	%	76			70-130	Pass	
Dibenz(a,h)anthracene	%	72			70-130	Pass	
Fluoranthene	%	72			70-130	Pass	
Fluorene	%	74			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	74			70-130	Pass	
Naphthalene	%	73			70-130	Pass	
Phenanthrene	%	73			70-130	Pass	
Pyrene	%	73			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chlordanes - Total	%	91			70-130	Pass	
4.4'-DDD	%	82			70-130	Pass	
4.4'-DDE	%	85			70-130	Pass	
4.4'-DDT	%	83			70-130	Pass	
a-BHC	%	87			70-130	Pass	
Aldrin	%	88			70-130	Pass	
b-BHC	%	83			70-130	Pass	
d-BHC	%	85			70-130	Pass	
Dieldrin	%	89			70-130	Pass	
Endosulfan I	%	84			70-130	Pass	
Endosulfan II	%	86			70-130	Pass	
Endosulfan sulphate	%	86			70-130	Pass	
Endrin	%	86			70-130	Pass	
Endrin aldehyde	%	107			70-130	Pass	
Endrin ketone	%	89			70-130	Pass	
g-BHC (Lindane)	%	88			70-130	Pass	
Heptachlor	%	84			70-130	Pass	
Heptachlor epoxide	%	89			70-130	Pass	
Hexachlorobenzene	%	94			70-130	Pass	
Methoxychlor	%	78			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	90			70-130	Pass	
Aroclor-1260	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	106			80-120	Pass	
Chromium	%	101			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	108			80-120	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	104			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	92			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	104			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	104			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	100			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	103			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	104			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	94			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	111			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	122			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	97			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	122			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	135			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	115			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	145			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	96			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	119			50-150	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)				%	115			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)				%	99			50-150	Pass	
LCS - % Recovery										
Perfluoroalkyl sulfonic acids (PFSA's)										
Perfluorobutanesulfonic acid (PFBS)				%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)				%	136			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)				%	118			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)				%	101			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)				%	126			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)				%	121			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)				%	104			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)				%	114			50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)				%	99			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)				%	145			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)				%	148			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)				%	91			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	S21-Fe20936	NCP	%	76				70-130	Pass	
Spike - % Recovery										
Organochlorine Pesticides					Result 1					
Endrin aldehyde	S21-Fe29047	NCP	%	81				70-130	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCA's)					Result 1					
Perfluorobutanoic acid (PFBA)	S21-Fe21899	NCP	%	103				50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe21899	NCP	%	97				50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe21899	NCP	%	107				50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe21899	NCP	%	99				50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe21899	NCP	%	109				50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe21899	NCP	%	95				50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe21899	NCP	%	99				50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe21899	NCP	%	118				50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe21899	NCP	%	117				50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-Fe21899	NCP	%	108				50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe21899	NCP	%	118				50-150	Pass	
Spike - % Recovery										
Perfluoroalkyl sulfonamido substances					Result 1					
Perfluorooctane sulfonamide (FOSA)	S21-Fe21899	NCP	%	132				50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe21899	NCP	%	117				50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe21899	NCP	%	77				50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe21899	NCP	%	113				50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe21899	NCP	%	105				50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe21899	NCP	%	107				50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe21899	NCP	%	109			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFASs)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-Fe21899	NCP	%	108			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-Fe21899	NCP	%	135			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe21899	NCP	%	133			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe21899	NCP	%	112			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe21899	NCP	%	121			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe21899	NCP	%	113			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-Fe21899	NCP	%	100			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-Fe21899	NCP	%	121			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe21899	NCP	%	100			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe21899	NCP	%	118			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe21899	NCP	%	139			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe21899	NCP	%	91			50-150	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-Fe21120	CP	%	90			70-130	Pass	
Acenaphthylene	S21-Fe21120	CP	%	93			70-130	Pass	
Anthracene	S21-Fe21120	CP	%	94			70-130	Pass	
Benz(a)anthracene	S21-Fe21120	CP	%	90			70-130	Pass	
Benzo(a)pyrene	S21-Fe21120	CP	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	S21-Fe21120	CP	%	97			70-130	Pass	
Benzo(g,h,i)perylene	S21-Fe21120	CP	%	90			70-130	Pass	
Benzo(k)fluoranthene	S21-Fe21120	CP	%	89			70-130	Pass	
Chrysene	S21-Fe21120	CP	%	90			70-130	Pass	
Dibenz(a,h)anthracene	S21-Fe21120	CP	%	93			70-130	Pass	
Fluoranthene	S21-Fe21120	CP	%	94			70-130	Pass	
Fluorene	S21-Fe21120	CP	%	93			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S21-Fe21120	CP	%	92			70-130	Pass	
Naphthalene	S21-Fe21120	CP	%	89			70-130	Pass	
Phenanthrene	S21-Fe21120	CP	%	95			70-130	Pass	
Pyrene	S21-Fe21120	CP	%	94			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-Fe21120	CP	%	98			70-130	Pass	
4,4'-DDD	S21-Fe21120	CP	%	97			70-130	Pass	
4,4'-DDE	S21-Fe21120	CP	%	101			70-130	Pass	
4,4'-DDT	S21-Fe21120	CP	%	74			70-130	Pass	
α-BHC	S21-Fe21120	CP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aldrin	S21-Fe21120	CP	%	95			70-130	Pass	
b-BHC	S21-Fe21120	CP	%	96			70-130	Pass	
d-BHC	S21-Fe21120	CP	%	91			70-130	Pass	
Dieldrin	S21-Fe21120	CP	%	91			70-130	Pass	
Endosulfan I	S21-Fe21120	CP	%	96			70-130	Pass	
Endosulfan II	S21-Fe21120	CP	%	92			70-130	Pass	
Endosulfan sulphate	S21-Fe21120	CP	%	92			70-130	Pass	
Endrin	S21-Fe21120	CP	%	108			70-130	Pass	
Endrin ketone	S21-Fe21120	CP	%	85			70-130	Pass	
g-BHC (Lindane)	S21-Fe21120	CP	%	95			70-130	Pass	
Heptachlor	S21-Fe21120	CP	%	92			70-130	Pass	
Heptachlor epoxide	S21-Fe21120	CP	%	100			70-130	Pass	
Hexachlorobenzene	S21-Fe21120	CP	%	98			70-130	Pass	
Methoxychlor	S21-Fe21120	CP	%	83			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-Fe21120	CP	%	97			70-130	Pass	
Aroclor-1260	S21-Fe21120	CP	%	107			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Fe21122	CP	%	112			75-125	Pass	
Cadmium	S21-Fe21122	CP	%	116			75-125	Pass	
Chromium	S21-Fe21122	CP	%	114			75-125	Pass	
Copper	S21-Fe21122	CP	%	112			75-125	Pass	
Lead	S21-Fe21122	CP	%	107			75-125	Pass	
Mercury	S21-Fe21122	CP	%	118			75-125	Pass	
Nickel	S21-Fe21122	CP	%	114			75-125	Pass	
Zinc	S21-Fe21122	CP	%	102			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S21-Fe21138	CP	%	70			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Fe21142	CP	%	100			75-125	Pass	
Cadmium	S21-Fe21142	CP	%	104			75-125	Pass	
Chromium	S21-Fe21142	CP	%	94			75-125	Pass	
Copper	S21-Fe21142	CP	%	100			75-125	Pass	
Lead	S21-Fe21142	CP	%	91			75-125	Pass	
Mercury	S21-Fe21142	CP	%	107			75-125	Pass	
Nickel	S21-Fe21142	CP	%	95			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S21-Fe21146	CP	%	99			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Fe21146	CP	%	88			70-130	Pass	
Toluene	S21-Fe21146	CP	%	93			70-130	Pass	
Ethylbenzene	S21-Fe21146	CP	%	102			70-130	Pass	
m&p-Xylenes	S21-Fe21146	CP	%	106			70-130	Pass	
o-Xylene	S21-Fe21146	CP	%	106			70-130	Pass	
Xylenes - Total*	S21-Fe21146	CP	%	106			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S21-Fe21146	CP	%	94			70-130	Pass	
TRH C6-C10	S21-Fe21146	CP	%	102			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S21-Fe21115	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Fe21115	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Fe21115	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Fe21115	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Fe21115	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Fe21115	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Fe21115	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S21-Fe21115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Fe21115	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract at 25°C as rec.)	S21-Fe21115	CP	pH Units	6.3	6.3	Pass	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe19168	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe19168	NCP	ug/kg	< 10	< 10	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe19168	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-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe19168	NCP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe19168	NCP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S21-Fe21117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S21-Fe21117	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan I	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S21-Fe21117	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S21-Fe21117	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S21-Fe21117	CP	%	19	20	4.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	S21-Fe21119	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S21-Fe21119	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S21-Fe21119	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S21-Fe21119	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S21-Fe21119	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S21-Fe21119	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe21121	CP	mg/kg	21	22	5.0	30%	Pass
Cadmium	S21-Fe21121	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S21-Fe21121	CP	mg/kg	39	44	13	30%	Pass
Copper	S21-Fe21121	CP	mg/kg	29	27	6.0	30%	Pass
Lead	S21-Fe21121	CP	mg/kg	25	27	7.0	30%	Pass
Mercury	S21-Fe21121	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S21-Fe21121	CP	mg/kg	12	11	4.0	30%	Pass
Zinc	S21-Fe21121	CP	mg/kg	39	39	1.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S21-Fe21125	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S21-Fe21125	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S21-Fe21125	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S21-Fe21125	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S21-Fe21125	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S21-Fe21125	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S21-Fe21125	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S21-Fe21125	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S21-Fe21125	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S21-Fe21127	CP	%	17	17	4.0	30%	Pass

Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1221	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Total PCB*	S21-Fe32527	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe21131	CP	mg/kg	13	12	11	30%	Pass
Cadmium	S21-Fe21131	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S21-Fe21131	CP	mg/kg	33	33	1.0	30%	Pass
Copper	S21-Fe21131	CP	mg/kg	28	21	25	30%	Pass
Lead	S21-Fe21131	CP	mg/kg	32	25	25	30%	Pass
Mercury	S21-Fe21131	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S21-Fe21131	CP	mg/kg	15	13	14	30%	Pass
Zinc	S21-Fe21131	CP	mg/kg	48	48	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	S21-Fe21137	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S21-Fe21137	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S21-Fe21137	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S21-Fe21137	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S21-Fe21137	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S21-Fe21137	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b,j)fluoranthene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S21-Fe21137	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S21-Fe21137	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
α-BHC	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
b-BHC	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S21-Fe21137	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S21-Fe21137	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S21-Fe21137	CP	%	12	13	4.0	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S21-Fe21139	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S21-Fe21139	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Heptachlor epoxide	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S21-Fe21139	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S21-Fe21139	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S21-Fe21139	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S21-Fe21141	CP	mg/kg	8.2	5.5	39	30%	Fail Q15
Cadmium	S21-Fe21141	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S21-Fe21141	CP	mg/kg	19	16	21	30%	Pass
Copper	S21-Fe21141	CP	mg/kg	27	24	13	30%	Pass
Lead	S21-Fe21141	CP	mg/kg	29	28	6.0	30%	Pass
Mercury	S21-Fe21141	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S21-Fe21141	CP	mg/kg	14	11	19	30%	Pass
Zinc	S21-Fe21141	CP	mg/kg	69	48	35	30%	Fail Q15
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	S21-Fe21145	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S21-Fe21145	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S21-Fe21145	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S21-Fe21145	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S21-Fe21145	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S21-Fe21145	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S21-Fe21145	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S21-Fe21145	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S21-Fe21145	CP	mg/kg	< 20	< 20	<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).
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)
Emily Rosenberg	Senior Analyst-Metal (VIC)
John Nguyen	Senior Analyst-Metal (NSW)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Sarah McCallion	Senior Analyst-PFAS (QLD)
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](#).

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: **Michelle Delandro**

Report **773152-W**
Project name **ED PARK TEST PITS**
Project ID **59033**
Received Date **Feb 10, 2021**

Client Sample ID			TRIP SPIKE	TRIP BLANK
Sample Matrix			Water	Water
Eurofins Sample No.			S21-Fe21285	S21-Fe21286
Date Sampled			Feb 09, 2021	Feb 09, 2021
Test/Reference	LOR	Unit		
TRH C6-C10	1	%	87	-
Total Recoverable Hydrocarbons				
Naphthalene	1	%	95	-
TRH C6-C9	1	%	85	-
BTEX				
Benzene	1	%	92	-
Ethylbenzene	1	%	95	-
m&p-Xylenes	1	%	110	-
o-Xylene	1	%	94	-
Toluene	1	%	96	-
Xylenes - Total	1	%	98	-
4-Bromofluorobenzene (surr.)	1	%	104	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	-	< 0.02
BTEX				
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	%	-	90

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 - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 11, 2021	7 Days
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 11, 2021	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 11, 2021	14 Days

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Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoralkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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 0-0.1	Feb 09, 2021		Soil	S21-Fe21115	X	X				X	X	X	X	X	X		X	
2	TP02 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21116		X							X		X			
3	TP03 0-0.1	Feb 09, 2021		Soil	S21-Fe21117		X							X		X			
4	TP04 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21118		X							X		X			
5	TP05 0-0.1	Feb 09, 2021		Soil	S21-Fe21119		X							X		X			
6	TP06 0-0.3	Feb 09, 2021		Soil	S21-Fe21120		X							X		X			
7	TP07 0.2-0.5	Feb 09, 2021		Soil	S21-Fe21121		X							X		X			
8	TP08 0-0.1	Feb 09, 2021		Soil	S21-Fe21122		X							X		X			
9	TP09 0-0.1	Feb 09, 2021		Soil	S21-Fe21123		X							X		X		X	

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
10	QC01	Feb 09, 2021		Soil	S21-Fe21124		X							X		X		X	
11	TP10_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21125		X							X		X			
12	TP11_0-0.2	Feb 09, 2021		Soil	S21-Fe21126		X							X		X			
13	TP12_0.1-0.5	Feb 09, 2021		Soil	S21-Fe21127		X							X		X			
14	TP13_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21128		X							X		X			
15	TP14_0-0.1	Feb 09, 2021		Soil	S21-Fe21129	X	X				X	X	X	X	X	X		X	
16	TP15_0-0.1	Feb 09, 2021		Soil	S21-Fe21130		X							X		X			
17	TP16_0-0.1	Feb 09, 2021		Soil	S21-Fe21131		X							X		X			
18	TP17_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21132		X							X		X			
19	TP18_0-0.1	Feb 09, 2021		Soil	S21-Fe21133		X							X		X			
20	TP19_0-0.1	Feb 09, 2021		Soil	S21-Fe21134		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
21	TP20_0-0.1	Feb 09, 2021		Soil	S21-Fe21135	X	X				X	X	X	X	X	X		X	
22	TP21_0-0.1	Feb 09, 2021		Soil	S21-Fe21136		X							X		X			
23	TP22_0-0.1	Feb 09, 2021		Soil	S21-Fe21137		X							X		X			
24	TP23_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21138		X							X		X			
25	TP24_0-0.1	Feb 09, 2021		Soil	S21-Fe21139		X							X		X			
26	TP25_0-0.1	Feb 09, 2021		Soil	S21-Fe21140		X							X		X			
27	TP26_0-0.1	Feb 09, 2021		Soil	S21-Fe21141		X							X		X			
28	TP27_0-0.1	Feb 09, 2021		Soil	S21-Fe21142		X							X		X			
29	TP28_0-0.1	Feb 09, 2021		Soil	S21-Fe21143		X							X		X			
30	TP29_0-0.1	Feb 09, 2021		Soil	S21-Fe21144		X							X		X		X	
31	TP30_0-0.1	Feb 09, 2021		Soil	S21-Fe21145		X							X		X			

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
32	QC03	Feb 09, 2021		Soil	S21-Fe21146		X							X		X			
33	FRAG01	Feb 09, 2021		Building Materials	S21-Fe21147			X											
34	TP01 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21148					X									
35	TP02 0-0.2	Feb 09, 2021		Soil	S21-Fe21149					X									
36	TP03 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21150					X									
37	TP04 0-0.1	Feb 09, 2021		Soil	S21-Fe21151					X									
38	TP05 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21152					X									
39	TP06 0.3-0.5	Feb 09, 2021		Soil	S21-Fe21153					X									
40	TP07 0-0.2	Feb 09, 2021		Soil	S21-Fe21154					X									
41	TP08 0.1-0.3	Feb 09, 2021		Soil	S21-Fe21155					X									

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
42	TP09_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21156					X									
43	TP10_0-0.2	Feb 09, 2021		Soil	S21-Fe21157					X									
44	TP11_0.2-0.5	Feb 09, 2021		Soil	S21-Fe21158					X									
45	TP12_0-0.1	Feb 09, 2021		Soil	S21-Fe21159					X									
46	TP12_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21160					X									
47	TP13_0-0.2	Feb 09, 2021		Soil	S21-Fe21161					X									
48	TP13_0.5-0.8	Feb 09, 2021		Soil	S21-Fe21162					X									
49	TP14_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21163					X									
50	TP15_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21164					X									
51	TP16_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21165					X									
52	TP17_0-0.1	Feb 09, 2021		Soil	S21-Fe21166					X									

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Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
53	QC02	Feb 09, 2021		Soil	S21-Fe21167					X									
54	TP18_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21168					X									
55	TP19_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21169					X									
56	TP20_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21170					X									
57	TP21_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21171					X									
58	TP22_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21172					X									
59	TP23_0-0.1	Feb 09, 2021		Soil	S21-Fe21173					X									
60	TP25_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21174					X									
61	TP26_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21175					X									
62	TP27_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21176					X									
63	TP28_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21177					X									

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Site # 23736

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

Project Name: ED PARK TEST PITS
Project ID: 59033

Order No.:
Report #: 773152
Phone: 02 8245 0300
Fax:

Received: Feb 10, 2021 2:52 PM
Due: Feb 17, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	HOLD	HOLD	Iron (%)	pH (1:5 Aqueous extract at 25°C as rec.)	Total Organic Carbon	Moisture Set	Cation Exchange Capacity	JBS&G Suite 2	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271													X		X				
Sydney Laboratory - NATA Site # 18217							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																			
64	TP29_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21178					X									
65	TP30_0.1-0.3	Feb 09, 2021		Soil	S21-Fe21179					X									
66	QC04	Feb 09, 2021		Soil	S21-Fe21180					X									
67	QA04	Feb 09, 2021		Soil	S21-Fe21283				X										
68	RINS	Feb 09, 2021		Water	S21-Fe21284				X										
69	TRIP SPIKE	Feb 09, 2021		Water	S21-Fe21285														X
70	TRIP BLANK	Feb 09, 2021		Water	S21-Fe21286												X		
Test Counts						3	32	1	35	35	3	3	3	32	3	32	1	6	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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	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
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
Method Blank							
BTEX							
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	96			70-130	Pass	
TRH C6-C10	%	89			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	86			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	93			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
o-Xylene	%	102			70-130	Pass	
Xylenes - Total*	%	100			70-130	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
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.

Authorised by:

Ursula Long

Analytical Services Manager



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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CERTIFICATE OF ANALYSIS 261400

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Alison Smith
Address	Level 1, 50 Margaret St, Sydney, NSW, 2000

Sample Details

Your Reference	59033, Ed Park Test Pits
Number of Samples	4 Soil
Date samples received	10/02/2021
Date completed instructions received	10/02/2021

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

Date results requested by	17/02/2021
Date of Issue	16/02/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Panika Wongchanda
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Lucy Zhu, Asbestos Supervisor
 Phalak Inthakesone, Organics Development Manager, Sydney
 Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date extracted	-	11/02/2021	11/02/2021
Date analysed	-	15/02/2021	15/02/2021
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	84	85

svTRH (C10-C40) in Soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date extracted	-	11/02/2021	11/02/2021
Date analysed	-	13/02/2021	13/02/2021
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	79	77

PAHs in Soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date extracted	-	11/02/2021	11/02/2021
Date analysed	-	13/02/2021	13/02/2021
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	105	105

Organochlorine Pesticides in soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date extracted	-	11/02/2021	11/02/2021
Date analysed	-	13/02/2021	13/02/2021
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	105	103

PCBs in Soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date extracted	-	11/02/2021	11/02/2021
Date analysed	-	13/02/2021	13/02/2021
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	105	103

Acid Extractable metals in soil			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date prepared	-	12/02/2021	12/02/2021
Date analysed	-	12/02/2021	12/02/2021
Arsenic	mg/kg	7	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	19	18
Copper	mg/kg	21	25
Lead	mg/kg	28	27
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	13	15
Zinc	mg/kg	58	76

Moisture			
Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date prepared	-	11/02/2021	11/02/2021
Date analysed	-	12/02/2021	12/02/2021
Moisture	%	18	9.8

Asbestos ID - soils NEPM - ASB-001

Our Reference		261400-1	261400-3
Your Reference	UNITS	QA01	QA03
Date Sampled		09/02/2021	09/02/2021
Type of sample		Soil	Soil
Date analysed	-	12/02/2021	12/02/2021
Sample mass tested	g	621.81	650.41
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—
FA and AF Estimation*	g	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001

PFAS in Soils Extended		
Our Reference		261400-1
Your Reference	UNITS	QA01
Date Sampled		09/02/2021
Type of sample		Soil
Date prepared	-	12/02/2021
Date analysed	-	12/02/2021
Perfluorobutanesulfonic acid	µg/kg	<0.1
Perfluoropentanesulfonic acid	µg/kg	<0.1
Perfluorohexanesulfonic acid - PFHxS	µg/kg	<0.1
Perfluoroheptanesulfonic acid	µg/kg	<0.1
Perfluorooctanesulfonic acid PFOS	µg/kg	0.2
Perfluorodecanesulfonic acid	µg/kg	<0.2
Perfluorobutanoic acid	µg/kg	0.2
Perfluoropentanoic acid	µg/kg	<0.2
Perfluorohexanoic acid	µg/kg	<0.1
Perfluoroheptanoic acid	µg/kg	<0.1
Perfluorooctanoic acid PFOA	µg/kg	0.1
Perfluorononanoic acid	µg/kg	<0.1
Perfluorodecanoic acid	µg/kg	<0.5
Perfluoroundecanoic acid	µg/kg	<0.5
Perfluorododecanoic acid	µg/kg	<0.5
Perfluorotridecanoic acid	µg/kg	<0.5
Perfluorotetradecanoic acid	µg/kg	<5
4:2 FTS	µg/kg	<0.1
6:2 FTS	µg/kg	<0.1
8:2 FTS	µg/kg	<0.2
10:2 FTS	µg/kg	<0.2
Perfluorooctane sulfonamide	µg/kg	<1
N-Methyl perfluorooctane sulfonamide	µg/kg	<1
N-Ethyl perfluorooctanesulfonamide	µg/kg	<1
N-Me perfluorooctanesulfonamid oethanol	µg/kg	<1
N-Et perfluorooctanesulfonamid oethanol	µg/kg	<5
MePerfluorooctanesulf- amid oacetic acid	µg/kg	<0.2
EtPerfluorooctanesulf amid oacetic acid	µg/kg	<0.2
Surrogate ¹³ C ₈ PFOS	%	99
Surrogate ¹³ C ₂ PFOA	%	97
Extracted ISTD ¹³ C ₃ PFBS	%	79
Extracted ISTD ¹⁸ O ₂ PFHxS	%	95
Extracted ISTD ¹³ C ₄ PFOS	%	92
Extracted ISTD ¹³ C ₄ PFBA	%	101

PFAS in Soils Extended		
Our Reference		261400-1
Your Reference	UNITS	QA01
Date Sampled		09/02/2021
Type of sample		Soil
Extracted ISTD ¹³ C ₃ PFPeA	%	83
Extracted ISTD ¹³ C ₂ PFHxA	%	111
Extracted ISTD ¹³ C ₄ PFHpA	%	95
Extracted ISTD ¹³ C ₄ PFOA	%	104
Extracted ISTD ¹³ C ₅ PFNA	%	97
Extracted ISTD ¹³ C ₂ PFDA	%	100
Extracted ISTD ¹³ C ₂ PFUnDA	%	103
Extracted ISTD ¹³ C ₂ PFDoDA	%	95
Extracted ISTD ¹³ C ₂ PFTeDA	%	67
Extracted ISTD ¹³ C ₂ 4:2FTS	%	84
Extracted ISTD ¹³ C ₂ 6:2FTS	%	99
Extracted ISTD ¹³ C ₂ 8:2FTS	%	94
Extracted ISTD ¹³ C ₈ FOSA	%	93
Extracted ISTD d ₃ N MeFOSA	%	80
Extracted ISTD d ₅ N EtFOSA	%	83
Extracted ISTD d ₇ N MeFOSE	%	104
Extracted ISTD d ₉ N EtFOSE	%	104
Extracted ISTD d ₃ N MeFOSAA	%	96
Extracted ISTD d ₅ N EtFOSAA	%	95
Total Positive PFHxS & PFOS	µg/kg	0.2
Total Positive PFOS & PFOA	µg/kg	0.3
Total Positive PFAS	µg/kg	0.5

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Method ID	Methodology Summary
Org-029	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. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. 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. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			11/02/2021	[NT]	[NT]	[NT]	[NT]	11/02/2021	[NT]
Date analysed	-			15/02/2021	[NT]	[NT]	[NT]	[NT]	15/02/2021	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	126	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	118	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	94	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			11/02/2021	[NT]	[NT]	[NT]	[NT]	11/02/2021	[NT]
Date analysed	-			13/02/2021	[NT]	[NT]	[NT]	[NT]	13/02/2021	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	80	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	80	[NT]
Surrogate o-Terphenyl	%		Org-020	79	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			11/02/2021	[NT]	[NT]	[NT]	[NT]	11/02/2021	[NT]
Date analysed	-			13/02/2021	[NT]	[NT]	[NT]	[NT]	13/02/2021	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	107	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	99	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			11/02/2021	[NT]	[NT]	[NT]	[NT]	11/02/2021	[NT]
Date analysed	-			13/02/2021	[NT]	[NT]	[NT]	[NT]	13/02/2021	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	117	[NT]	[NT]	[NT]	[NT]	110	[NT]

Client Reference: 59033, Ed Park Test Pits

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date extracted	-			11/02/2021	[NT]	[NT]	[NT]	[NT]	11/02/2021	[NT]
Date analysed	-			13/02/2021	[NT]	[NT]	[NT]	[NT]	13/02/2021	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	117	[NT]	[NT]	[NT]	[NT]	110	[NT]

Client Reference: 59033, Ed Park Test Pits

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date prepared	-			12/02/2021	[NT]	[NT]	[NT]	[NT]	12/02/2021	[NT]
Date analysed	-			12/02/2021	[NT]	[NT]	[NT]	[NT]	12/02/2021	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	99	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	99	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: PFAS in Soils Extended						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Date prepared	-			12/02/2021	[NT]	[NT]	[NT]	[NT]	12/02/2021	[NT]
Date analysed	-			12/02/2021	[NT]	[NT]	[NT]	[NT]	12/02/2021	[NT]
Perfluorobutanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluoropentanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluoroheptanesulfonic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorooctanesulfonic acid PFOS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorodecanesulfonic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	90	[NT]
Perfluorobutanoic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluoropentanoic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	113	[NT]
Perfluorohexanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Perfluoroheptanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorooctanoic acid PFOA	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorononanoic acid	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Perfluorodecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	88	[NT]
Perfluoroundecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluorododecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorotridecanoic acid	µg/kg	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	87	[NT]
Perfluorotetradecanoic acid	µg/kg	5	Org-029	<5	[NT]	[NT]	[NT]	[NT]	106	[NT]
4:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
6:2 FTS	µg/kg	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
8:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	105	[NT]
10:2 FTS	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	114	[NT]
Perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
N-Methyl perfluorooctane sulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
N-Ethyl perfluorooctanesulfonamide	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
N-Me perfluorooctanesulfonamidethanol	µg/kg	1	Org-029	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
N-Et perfluorooctanesulfonamidethanol	µg/kg	5	Org-029	<5	[NT]	[NT]	[NT]	[NT]	97	[NT]
MePerfluorooctanesulfonamidacetic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	112	[NT]
EtPerfluorooctanesulfonamidacetic acid	µg/kg	0.2	Org-029	<0.2	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate ¹³ C ₈ PFOS	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate ¹³ C ₂ PFOA	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PFAS in Soils Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	87	[NT]
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	90	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	122	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	111	[NT]
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	109	[NT]
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	79	[NT]	[NT]	[NT]	[NT]	66	[NT]
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD d ₃ N MeFOSA	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD d ₅ N EtFOSA	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD d ₇ N MeFOSE	%		Org-029	126	[NT]	[NT]	[NT]	[NT]	112	[NT]

Client Reference: 59033, Ed Park Test Pits

QUALITY CONTROL: PFAS in Soils Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	[NT]
Extracted ISTD d ₉ N EtFOSE	%		Org-029	126	[NT]	[NT]	[NT]	[NT]	117	[NT]
Extracted ISTD d ₃ N MeFOSAA	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD d ₅ N EtFOSAA	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	96	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

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

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

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SAMPLE RECEIPT ADVICE

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Alison Smith

Sample Login Details

Your reference	59033, Ed Park Test Pits
Envirolab Reference	261400
Date Sample Received	10/02/2021
Date Instructions Received	10/02/2021
Date Results Expected to be Reported	17/02/2021

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	4 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	22.5
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils NEPM - ASB-001	PFAS in Soils Extended	On Hold
QA01	✓	✓	✓	✓	✓	✓	✓	✓	
QA02									✓
QA03	✓	✓	✓	✓	✓	✓	✓		
QA04									✓

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.

IMSO FormsO13 – Chain of Custody - Generic

Ursula Long

From: Michelle Delandro <MDelandro@jbbsg.com.au>
Sent: Tuesday, 23 February 2021 8:44 AM
To: #AU04_Enviro_Sample_NSW
Cc: Ursula Long
Subject: RE: Attention: Eurofins Sample Receipt Advice - Report 775582 : Site ED PARK GME (59033)

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL *

Hi Sample Receipt,

Can you please submit the TS/TB for TRH/BTEX analysis?

In addition, can you please remove the pH/EC analysis form the RINS0222 bottle?

Regards,

Michelle



Michelle Delandro | Project Manager | JBS&G

Sydney | Melbourne | Adelaide | Perth | Brisbane | Canberra | Darwin | Wollongong | Bunbury

Level 1, 50 Margaret Street Sydney NSW 2000

T: 02 8245 0300 | M: 0417 287 561 | E: mdelandro@jbbsg.com.au | W: www.jbbsg.com.au

[Contaminated Land](#) | [Groundwater Remediation](#) | [Approvals and Assessments](#) | [Auditing and Compliance](#) | [Hygiene and Hazardous Materials](#) | [Due Diligence and Liability](#) | [Fire Management Planning](#) | [Stakeholder and Risk Management](#)

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From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>
Sent: Tuesday, 23 February 2021 12:06 AM
To: Michelle Delandro <MDelandro@jbbsg.com.au>
Subject: Attention: Eurofins Sample Receipt Advice - Report 775582 : Site ED PARK GME (59033)

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

Dear Valued Client,

Trip spike and blank received extra and placed on hold. QA01-20210222 (PFAS, 500mL unpreserved, amber, metals and four vials) forwarded to Envirolab.

Australia

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

Sydney
Unit F3, Building F
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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
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Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

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Mayfield East NSW 2304
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Phone : +61 2 4968 8448

New Zealand

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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

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: ED PARK GME
Project ID: 59033

Order No.:
Report #: 775582
Phone: 02 8245 0300
Fax:

Received: Feb 22, 2021 5:50 PM
Due: Mar 1, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Conductivity (at 25°C)	pH (at 25 °C)	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						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	MW1	Feb 22, 2021		Water	S21-Fe42562	X	X	X		X	
2	MW2	Feb 22, 2021		Water	S21-Fe42563	X	X	X		X	
3	MW3	Feb 22, 2021		Water	S21-Fe42564	X	X	X		X	
4	QC01-20210222	Feb 22, 2021		Water	S21-Fe42565	X	X	X		X	
5	RINS0222	Feb 22, 2021		Water	S21-Fe42566			X		X	
6	BLANK	Feb 22, 2021		Water	S21-Fe42567					X	
7	TS	Feb 22, 2021		Water	S21-Fe42568						X
8	TB	Feb 22, 2021		Water	S21-Fe42569				X		



Environment Testing

Australia

Melbourne

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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

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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

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

Christchurch

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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: ED PARK GME
Project ID: 59033

Order No.:
Report #: 775582
Phone: 02 8245 0300
Fax:

Received: Feb 22, 2021 5:50 PM
Due: Mar 1, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail	Conductivity (at 25°C)	pH (at 25 °C)	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794					X	
Perth Laboratory - NATA Site # 23736						
Mayfield Laboratory						
External Laboratory						
Test Counts	4	4	5	1	6	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: Michelle Delandro

Report 775582-W
Project name ED PARK GME
Project ID 59033
Received Date Feb 22, 2021

Client Sample ID			MW1 Water	MW2 Water	MW3 Water	QC01- 20210222 Water
Sample Matrix			S21-Fe42562	S21-Fe42563	S21-Fe42564	S21-Fe42565
Eurofins Sample No.			Feb 22, 2021	Feb 22, 2021	Feb 22, 2021	Feb 22, 2021
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
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
BTEX						
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	%	85	97	94	94
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	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) ^{N04}	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) ^{N01}	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
Polycyclic Aromatic Hydrocarbons						
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 ^{N07}	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

Client Sample ID			MW1 Water S21-Fe42562 Feb 22, 2021	MW2 Water S21-Fe42563 Feb 22, 2021	MW3 Water S21-Fe42564 Feb 22, 2021	QC01- 20210222 Water S21-Fe42565 Feb 22, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	141	124	126	137
p-Terphenyl-d14 (surr.)	1	%	133	117	123	132
Conductivity (at 25°C)	10	uS/cm	14000	8700	13000	13000
pH (at 25 °C)	0.1	pH Units	6.8	7.1	7.1	7.1
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.006	0.004	0.006	0.005
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium (filtered)	0.001	mg/L	0.003	0.003	0.003	0.003
Copper (filtered)	0.001	mg/L	0.007	0.005	0.004	0.004
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	0.022	0.064	0.016	0.015
Zinc (filtered)	0.005	mg/L	0.034	0.022	0.009	0.009
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	79	97	84	87
13C5-PFPeA (surr.)	1	%	86	104	92	94
13C5-PFHxA (surr.)	1	%	103	110	105	108
13C4-PFHpA (surr.)	1	%	114	124	122	119
13C8-PFOA (surr.)	1	%	135	130	136	145
13C5-PFNA (surr.)	1	%	118	123	124	120
13C6-PFDA (surr.)	1	%	106	96	109	108
13C2-PFUnDA (surr.)	1	%	102	89	106	99
13C2-PFDoDA (surr.)	1	%	100	87	103	94
13C2-PFTeDA (surr.)	1	%	120	113	121	112
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			MW1 Water S21-Fe42562 Feb 22, 2021	MW2 Water S21-Fe42563 Feb 22, 2021	MW3 Water S21-Fe42564 Feb 22, 2021	QC01- 20210222 Water S21-Fe42565 Feb 22, 2021
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	96	94	100	98
D3-N-MeFOSA (surr.)	1	%	95	100	101	104
D5-N-EtFOSA (surr.)	1	%	113	114	116	113
D7-N-MeFOSE (surr.)	1	%	62	64	66	64
D9-N-EtFOSE (surr.)	1	%	61	64	63	62
D5-N-EtFOSAA (surr.)	1	%	71	59	62	58
D3-N-MeFOSAA (surr.)	1	%	68	62	68	68
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	104	115	111	105
18O2-PFHxS (surr.)	1	%	122	122	126	128
13C8-PFOS (surr.)	1	%	112	113	124	119
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	0.10	0.23	0.28
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTS (surr.)	1	%	79	79	77	79
13C2-6:2 FTSA (surr.)	1	%	130	128	131	136
13C2-8:2 FTSA (surr.)	1	%	120	93	112	113
13C2-10:2 FTSA (surr.)	1	%	148	124	152	149
PFASs Summations						
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	< 0.01	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	0.1	0.23	0.28
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	0.1	0.23	0.28

Client Sample ID			RINS0222	BLANK	TS	TB
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Fe42566	S21-Fe42567	S21-Fe42568	S21-Fe42569
Date Sampled			Feb 22, 2021	Feb 22, 2021	Feb 22, 2021	Feb 22, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	-	-	< 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	-	-	-
BTEX						
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	%	85	-	-	131
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-	-	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	-	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-	-	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	-	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	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	-	-	-
Polycyclic Aromatic Hydrocarbons						
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 ^{N07}	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	%	INT	-	-	-
p-Terphenyl-d14 (surr.)	1	%	INT	-	-	-
TRH C6-C10	1	%	-	-	71	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	-	-	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-	-	-
Chromium (filtered)	0.001	mg/L	< 0.001	-	-	-
Copper (filtered)	0.001	mg/L	< 0.001	-	-	-

Client Sample ID			RINS0222	BLANK	TS	TB
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Fe42566	S21-Fe42567	S21-Fe42568	S21-Fe42569
Date Sampled			Feb 22, 2021	Feb 22, 2021	Feb 22, 2021	Feb 22, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Lead (filtered)	0.001	mg/L	< 0.001	-	-	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	-	-	-
Nickel (filtered)	0.001	mg/L	< 0.001	-	-	-
Zinc (filtered)	0.005	mg/L	< 0.005	-	-	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C4-PFBA (surr.)	1	%	92	96	-	-
13C5-PFPeA (surr.)	1	%	105	103	-	-
13C5-PFHxA (surr.)	1	%	108	111	-	-
13C4-PFHpA (surr.)	1	%	112	121	-	-
13C8-PFOA (surr.)	1	%	125	138	-	-
13C5-PFNA (surr.)	1	%	124	129	-	-
13C6-PFDA (surr.)	1	%	117	125	-	-
13C2-PFUnDA (surr.)	1	%	91	93	-	-
13C2-PFDoDA (surr.)	1	%	82	84	-	-
13C2-PFTeDA (surr.)	1	%	91	99	-	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
13C8-FOSA (surr.)	1	%	59	56	-	-
D3-N-MeFOSA (surr.)	1	%	64	63	-	-
D5-N-EtFOSA (surr.)	1	%	73	74	-	-
D7-N-MeFOSE (surr.)	1	%	49	49	-	-
D9-N-EtFOSE (surr.)	1	%	48	45	-	-
D5-N-EtFOSAA (surr.)	1	%	61	62	-	-
D3-N-MeFOSAA (surr.)	1	%	69	72	-	-
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-

Client Sample ID			RINS0222	BLANK	TS	TB
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			S21-Fe42566	S21-Fe42567	S21-Fe42568	S21-Fe42569
Date Sampled			Feb 22, 2021	Feb 22, 2021	Feb 22, 2021	Feb 22, 2021
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	-	-
13C3-PFBS (surr.)	1	%	104	110	-	-
18O2-PFHxS (surr.)	1	%	117	126	-	-
13C8-PFOS (surr.)	1	%	120	124	-	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	-	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	-	-
13C2-4:2 FTS (surr.)	1	%	84	86	-	-
13C2-6:2 FTSA (surr.)	1	%	120	129	-	-
13C2-8:2 FTSA (surr.)	1	%	94	111	-	-
13C2-10:2 FTSA (surr.)	1	%	103	98	-	-
PFASs Summations						
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	-	-
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	100	-
TRH C6-C9	1	%	-	-	71	-
BTEX						
Benzene	1	%	-	-	79	-
Ethylbenzene	1	%	-	-	90	-
m&p-Xylenes	1	%	-	-	97	-
o-Xylene	1	%	-	-	83	-
Toluene	1	%	-	-	96	-
Xylenes - Total	1	%	-	-	87	-
4-Bromofluorobenzene (surr.)	1	%	-	-	140	-

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 23, 2021	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 23, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 22, 2021	7 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 23, 2021	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 22, 2021	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Feb 22, 2021	7 Days
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 22, 2021	28 Days
Conductivity (at 25°C) - Method: LTM-INO-4030 Conductivity	Sydney	Feb 23, 2021	28 Days
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Sydney	Feb 23, 2021	1 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 24, 2021	14 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 24, 2021	14 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 24, 2021	14 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Feb 24, 2021	14 Days

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: ED PARK GME
Project ID: 59033

Order No.:
Report #: 775582
Phone: 02 8245 0300
Fax:

Received: Feb 22, 2021 5:50 PM
Due: Mar 1, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Conductivity (at 25°C)	pH (at 25 °C)	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						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	MW1	Feb 22, 2021		Water	S21-Fe42562	X	X	X		X	
2	MW2	Feb 22, 2021		Water	S21-Fe42563	X	X	X		X	
3	MW3	Feb 22, 2021		Water	S21-Fe42564	X	X	X		X	
4	QC01-20210222	Feb 22, 2021		Water	S21-Fe42565	X	X	X		X	
5	RINS0222	Feb 22, 2021		Water	S21-Fe42566			X		X	
6	BLANK	Feb 22, 2021		Water	S21-Fe42567					X	
7	TS	Feb 22, 2021		Water	S21-Fe42568						X
8	TB	Feb 22, 2021		Water	S21-Fe42569				X		

Australia

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000
Project Name: ED PARK GME
Project ID: 59033

Order No.:
Report #: 775582
Phone: 02 8245 0300
Fax:

Received: Feb 22, 2021 5:50 PM
Due: Mar 1, 2021
Priority: 5 Day
Contact Name: Michelle Delandro

Eurofins Analytical Services Manager : Ursula Long

Sample Detail	Conductivity (at 25°C)	pH (at 25 °C)	Eurofins Suite B7 (filtered metals)	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217	X	X	X	X		X
Brisbane Laboratory - NATA Site # 20794					X	
Perth Laboratory - NATA Site # 23736						
Mayfield Laboratory						
External Laboratory						
Test Counts	4	4	5	1	6	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

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	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
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
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	
Method Blank							
BTEX							
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	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
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	
Method Blank							
Conductivity (at 25°C)	uS/cm	< 10			10	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs)							
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	
Method Blank							
Perfluoroalkyl sulfonamido substances							
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	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
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	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
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	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	96			70-130	Pass	
Ethylbenzene	%	94			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total*	%	95			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	90			70-130	Pass	
TRH C6-C10	%	102			70-130	Pass	
TRH >C10-C16	%	73			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	84			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	84			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	98			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g,h,i)perylene	%	93			70-130	Pass	
Benzo(k)fluoranthene	%	91			70-130	Pass	
Chrysene	%	87			70-130	Pass	
Dibenz(a,h)anthracene	%	105			70-130	Pass	
Fluoranthene	%	89			70-130	Pass	
Fluorene	%	88			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
Phenanthrene	%	82			70-130	Pass	
Pyrene	%	91			70-130	Pass	
LCS - % Recovery							
Conductivity (at 25°C)	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	89			80-120	Pass	
Cadmium (filtered)	%	95			80-120	Pass	
Chromium (filtered)	%	98			80-120	Pass	
Copper (filtered)	%	101			80-120	Pass	
Lead (filtered)	%	97			80-120	Pass	
Mercury (filtered)	%	101			80-120	Pass	
Nickel (filtered)	%	100			80-120	Pass	
Zinc (filtered)	%	100			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	98			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	80			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	98			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	96			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	90			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	92			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	95			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	99			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	81			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	143			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	96			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	112			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	131			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	%	115			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	%	127			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	108			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonic acids (PFSAs)							

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanesulfonic acid (PFBS)				%	85			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)				%	86			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)				%	87			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)				%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)				%	88			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)				%	96			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)				%	98			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)				%	71			50-150	Pass	
LCS - % Recovery										
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)										
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)				%	79			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)				%	90			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)				%	102			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)				%	95			50-150	Pass	
Test	Lab Sample ID	QA Source		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	S21-Fe42719	NCP		%	86			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	S21-Fe42719	NCP		%	84			70-130	Pass	
Toluene	S21-Fe42719	NCP		%	84			70-130	Pass	
Ethylbenzene	S21-Fe42719	NCP		%	83			70-130	Pass	
m&p-Xylenes	S21-Fe42719	NCP		%	79			70-130	Pass	
o-Xylene	S21-Fe42719	NCP		%	84			70-130	Pass	
Xylenes - Total*	S21-Fe42719	NCP		%	81			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
Naphthalene	S21-Fe42719	NCP		%	82			70-130	Pass	
TRH C6-C10	S21-Fe42719	NCP		%	87			70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic (filtered)	S21-Fe42565	CP		%	81			75-125	Pass	
Cadmium (filtered)	S21-Fe42565	CP		%	81			75-125	Pass	
Chromium (filtered)	S21-Fe42565	CP		%	85			75-125	Pass	
Copper (filtered)	S21-Fe42565	CP		%	86			75-125	Pass	
Lead (filtered)	S21-Fe42565	CP		%	86			75-125	Pass	
Mercury (filtered)	S21-Fe42565	CP		%	93			75-125	Pass	
Nickel (filtered)	S21-Fe42565	CP		%	83			75-125	Pass	
Zinc (filtered)	S21-Fe42565	CP		%	83			75-125	Pass	
Spike - % Recovery										
Perfluoroalkyl carboxylic acids (PFCAs)					Result 1					
Perfluorobutanoic acid (PFBA)	S21-Fe42567	CP		%	93			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S21-Fe42567	CP		%	81			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S21-Fe42567	CP		%	95			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S21-Fe42567	CP		%	101			50-150	Pass	
Perfluorooctanoic acid (PFOA)	S21-Fe42567	CP		%	87			50-150	Pass	
Perfluorononanoic acid (PFNA)	S21-Fe42567	CP		%	91			50-150	Pass	
Perfluorodecanoic acid (PFDA)	S21-Fe42567	CP		%	98			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S21-Fe42567	CP		%	97			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S21-Fe42567	CP		%	92			50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	S21-Fe42567	CP		%	87			50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe42567	CP	%	89			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S21-Fe42567	CP	%	88			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe42567	CP	%	88			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe42567	CP	%	84			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe42567	CP	%	79			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe42567	CP	%	69			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe42567	CP	%	90			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe42567	CP	%	95			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S21-Fe42567	CP	%	82			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S21-Fe42567	CP	%	90			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe42567	CP	%	87			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe42567	CP	%	94			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe42567	CP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe42567	CP	%	92			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S21-Fe42567	CP	%	96			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S21-Fe42567	CP	%	79			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S21-Fe42567	CP	%	79			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe42567	CP	%	94			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe42567	CP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe42567	CP	%	100			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S21-Fe45166	NCP	mg/L	0.15	0.16	10	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Fe45166	NCP	mg/L	0.005	0.006	18	30%	Pass	
Toluene	S21-Fe45166	NCP	mg/L	0.003	0.003	3.0	30%	Pass	
Ethylbenzene	S21-Fe45166	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S21-Fe45166	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	

Duplicate								
BTX				Result 1	Result 2	RPD		
o-Xylene	S21-Fe45166	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Xylenes - Total*	S21-Fe45166	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S21-Fe45166	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
TRH C6-C10	S21-Fe45166	NCP	mg/L	0.17	0.19	11	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Conductivity (at 25°C)	S21-Fe44908	NCP	uS/cm	560	550	1.0	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe42565	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe42565	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-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe42565	CP	ug/L	0.28	0.28	1.0	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe42565	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	S21-Fe42566	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH C15-C28	S21-Fe42566	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH C29-C36	S21-Fe42566	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S21-Fe42566	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	S21-Fe42566	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	S21-Fe42566	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium (filtered)	S21-Fe42566	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium (filtered)	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead (filtered)	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S21-Fe42566	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S21-Fe42566	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc (filtered)	S21-Fe42566	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorononanoic acid (PFNA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol (N-EtFOSE)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S21-Fe42566	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-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	S21-Fe42566	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S21-Fe42566	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S21-Fe42566	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
Andrew Sullivan	Senior Analyst-Organic (NSW)
Charl Du Preez	Senior Analyst-Inorganic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
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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CERTIFICATE OF ANALYSIS 262550

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Michelle Delandro
Address	Level 1, 50 Margaret St, Sydney, NSW, 2000

Sample Details

Your Reference	59033, Ed Park GME
Number of Samples	1 Water
Date samples received	23/02/2021
Date completed instructions received	23/02/2021

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.

Report Details

Date results requested by	02/03/2021
Date of Issue	02/03/2021
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Alexander Mitchell Maclean, Senior Chemist
 Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Priya Samarawickrama, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date extracted	-	24/02/2021
Date analysed	-	24/02/2021
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ 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	%	100
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	105

svTRH (C10-C40) in Water		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date extracted	-	24/02/2021
Date analysed	-	02/03/2021
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	79

PAHs in Water		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date extracted	-	24/02/2021
Date analysed	-	24/02/2021
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	%	105

HM in water - dissolved		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date prepared	-	25/02/2021
Date analysed	-	25/02/2021
Arsenic-Dissolved	µg/L	2
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	15
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	16
Zinc-Dissolved	µg/L	18

PFAS in Waters Extended		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date prepared	-	26/02/2021
Date analysed	-	26/02/2021
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	<0.01
Perfluoroheptanoic acid	µg/L	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01
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	0.32
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 ¹³ C ₈ PFOS	%	100
Surrogate ¹³ C ₂ PFOA	%	105
Extracted ISTD ¹³ C ₃ PFBS	%	102
Extracted ISTD ¹⁸ O ₂ PFHxS	%	112
Extracted ISTD ¹³ C ₄ PFOS	%	113
Extracted ISTD ¹³ C ₄ PFBA	%	94

PFAS in Waters Extended		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Extracted ISTD ¹³ C ₃ PFPeA	%	92
Extracted ISTD ¹³ C ₂ PFHxA	%	111
Extracted ISTD ¹³ C ₄ PFHpA	%	106
Extracted ISTD ¹³ C ₄ PFOA	%	109
Extracted ISTD ¹³ C ₅ PFNA	%	107
Extracted ISTD ¹³ C ₂ PFDA	%	104
Extracted ISTD ¹³ C ₂ PFUnDA	%	111
Extracted ISTD ¹³ C ₂ PFDoDA	%	108
Extracted ISTD ¹³ C ₂ PFTeDA	%	83
Extracted ISTD ¹³ C ₂ 4:2FTS	%	67
Extracted ISTD ¹³ C ₂ 6:2FTS	%	79
Extracted ISTD ¹³ C ₂ 8:2FTS	%	70
Extracted ISTD ¹³ C ₈ FOSA	%	97
Extracted ISTD d ₃ N MeFOSA	%	101
Extracted ISTD d ₅ N EtFOSA	%	107
Extracted ISTD d ₇ N MeFOSE	%	115
Extracted ISTD d ₉ N EtFOSE	%	105
Extracted ISTD d ₃ N MeFOSAA	%	85
Extracted ISTD d ₅ N EtFOSAA	%	86
Total Positive PFHxS & PFOS	µg/L	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01
Total Positive PFAS	µg/L	0.32

Miscellaneous Inorganics		
Our Reference		262550-1
Your Reference	UNITS	QA01-20210222
Date Sampled		22/02/2021
Type of sample		Water
Date prepared	-	23/02/2021
Date analysed	-	23/02/2021
pH	pH Units	7.3
Electrical Conductivity	µS/cm	13,000

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	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.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	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. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. 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. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			24/02/2021	[NT]	[NT]	[NT]	[NT]	24/02/2021	[NT]
Date analysed	-			24/02/2021	[NT]	[NT]	[NT]	[NT]	24/02/2021	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	95	[NT]
Surrogate toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	95	[NT]
Surrogate 4-BFB	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	100	[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	-			24/02/2021	[NT]	[NT]	[NT]	[NT]	24/02/2021	[NT]
Date analysed	-			02/03/2021	[NT]	[NT]	[NT]	[NT]	02/03/2021	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	122	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	122	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate o-Terphenyl	%		Org-020	108	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			24/02/2021	[NT]	[NT]	[NT]	[NT]	24/02/2021	[NT]
Date analysed	-			24/02/2021	[NT]	[NT]	[NT]	[NT]	24/02/2021	[NT]
Naphthalene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	74	[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]	82	[NT]
Fluorene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Phenanthrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	84	[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]	81	[NT]
Pyrene	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	82	[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]	80	[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]	78	[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	114	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			25/02/2021	[NT]	[NT]	[NT]	[NT]	25/02/2021	[NT]
Date analysed	-			25/02/2021	[NT]	[NT]	[NT]	[NT]	25/02/2021	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[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]	93	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[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]	104	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	262550-1
Date prepared	-			26/02/2021	[NT]	[NT]	[NT]	[NT]	26/02/2021	26/02/2021
Date analysed	-			26/02/2021	[NT]	[NT]	[NT]	[NT]	26/02/2021	26/02/2021
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	106
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	90	91
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	94	96
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	92	98
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	101
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	91	91
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	95	96
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	95	108
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	86
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	111
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	99
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	93	90
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	96	89
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	105	93
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	100	93
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	98	95
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	103	107
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	103
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	106
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	92	93
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	106	114
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	105	105
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	102	114
N-Ethyl perfluorooctanesulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	103	100
N-Me perfluorooctanesulfonamidethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	101	101
N-Et perfluorooctanesulfonamidethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	104	106
MePerfluorooctanesulfonamidacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	101	104
EtPerfluorooctanesulfonamidacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	104	105
Surrogate ¹³ C ₈ PFOS	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	102	103
Surrogate ¹³ C ₂ PFOA	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	100

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	262550-1
Extracted ISTD ¹³ C ₃ PFBS	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	102	96
Extracted ISTD ¹⁸ O ₂ PFHxS	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	108	112
Extracted ISTD ¹³ C ₄ PFOS	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	109	108
Extracted ISTD ¹³ C ₄ PFBA	%		Org-029	112	[NT]	[NT]	[NT]	[NT]	111	94
Extracted ISTD ¹³ C ₃ PFPeA	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	105	88
Extracted ISTD ¹³ C ₂ PFHxA	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	104	111
Extracted ISTD ¹³ C ₄ PFHpA	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	106	104
Extracted ISTD ¹³ C ₄ PFOA	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	107	108
Extracted ISTD ¹³ C ₅ PFNA	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	107	106
Extracted ISTD ¹³ C ₂ PFDA	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	101	106
Extracted ISTD ¹³ C ₂ PFUnDA	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	109	107
Extracted ISTD ¹³ C ₂ PFDoDA	%		Org-029	118	[NT]	[NT]	[NT]	[NT]	116	103
Extracted ISTD ¹³ C ₂ PFTeDA	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	84	78
Extracted ISTD ¹³ C ₂ 4:2FTS	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	107	67
Extracted ISTD ¹³ C ₂ 6:2FTS	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	109	76
Extracted ISTD ¹³ C ₂ 8:2FTS	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	99	69
Extracted ISTD ¹³ C ₈ FOSA	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	100	93
Extracted ISTD d ₃ N MeFOSA	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	105	93
Extracted ISTD d ₅ N EtFOSA	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	104	105
Extracted ISTD d ₇ N MeFOSE	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	111	109

QUALITY CONTROL: PFAS in Waters Extended					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	262550-1
<i>Extracted ISTD d₉ N EtFOSE</i>	%		Org-029	113	[NT]	[NT]	[NT]	[NT]	108	109
<i>Extracted ISTD d₃ N MeFOSAA</i>	%		Org-029	104	[NT]	[NT]	[NT]	[NT]	111	85
<i>Extracted ISTD d₅ N EtFOSAA</i>	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	105	87

QUALITY CONTROL: Miscellaneous Inorganics					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/02/2021	[NT]	[NT]	[NT]	[NT]	23/02/2021	[NT]
Date analysed	-			23/02/2021	[NT]	[NT]	[NT]	[NT]	23/02/2021	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	103	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

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.

IMSO FormsO13 - Chain of Custody - Generic

SAMPLE RECEIPT ADVICE

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Michelle Delandro

Sample Login Details

Your reference	59033, Ed Park GME
Envirolab Reference	262550
Date Sample Received	23/02/2021
Date Instructions Received	23/02/2021
Date Results Expected to be Reported	02/03/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	16
Cooling Method	Ice Pack
Sampling Date Provided	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**

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHsin Water	HM in water - dissolved	PFAS in Waters Extended	pH	Electrical Conductivity
QA01-20210222	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Appendix F Decontamination and Calibration Sheets

Field Equipment Calibration and Decontamination



PROJECT NAME: Ed Park GME	PROJECT NO: 59033
FIELD DATES: 22/2/21	FIELD STAFF: CY/LB

CALIBRATION SUMMARY
EQUIPMENT: WQM
CALIBRATION STANDARD: Air Met

DATE	TIME	READING (ppm.)	COMMENTS
Air met Calibration sheet			

DECONTAMINATION SUMMARY			
EQUIPMENT: Bladder pump, IP, WQM			
1. Was the equipment decontaminated appropriately prior to sampling at each location?	☒ Y	☐ N	☐ NA
2. Was excess soil removed by scraping, brushing or wiping with disposable towels?	☒ Y	☐ N	☐ NA
3. Was the equipment contaminated with grease, tar or similar material? If so, was the equipment steam cleaned or rinsed with pesticide-grade acetone:hexane?	☐ Y	☐ N	☒ NA
4. Was phosphate-free detergent used to wash the equipment?	☒ Y	☐ N	☐ NA
5. Was the equipment rinsed with clean water?	☒ Y	☐ N	☐ NA
6. Was the equipment then rinsed with deionised water?	☒ Y	☐ N	☐ NA
7. Were all sample containers cleaned and acid or solvent washed prior to sample collection?	☐ Y	☐ N	☒ NA
WERE ANY ADDITIONAL DECONTAMINATION MEASURES REQUIRED? PROVIDE DETAILS. New pair of PPEAS free gloves used for each met			

Multi Parameter Water Meter



airmet

Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **18G103307**

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad Display	Operation	✓	
	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3. EC	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 10.00		pH 10.00		355386	pH 9.87
2. pH 7.00		pH 7.00		355072	pH 7.03
3. pH 4.00		pH 4.00		351412	pH 4.16
4. mV		229.6mV		358632/358634	229.5mV
5. EC		2.76mS		350510	2.75mS
6. D.O		0.00ppm		10959	0.00ppm
7. Temp		21.7°C		MultiTherm	22.1°C

Calibrated by: Kylie Rawlings

Calibration date: **17/02/2021**

Next calibration due: **19/03/2021**

Appendix G Test Pit and Monitoring Well Logs

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,602.37
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,625.57
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Silty CLAY, dark brown, dry, low plasticity, heterogeneous, inclusions of roots and very small gravels.		TP01_0-0.1	1.2	No odour, staining or asbestos. QA/QC01.
		0.2		CH	CLAY, red/grey mottle, dry, high plasticity, homogeneous, stiff.		TP01_0.1-0.3	1.5	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,650.29
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,581.51
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Silty CLAY, dark brown, dry, medium plasticity, heterogeneous, soft, inclusions of roots.		TP02_0-0.2	2	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey mottle, dry, high plasticity, homogeneous, firm.		TP02_0.2-0.5	1.7	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,693.83
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,562.31
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Silty CLAY, dark brown, damp, low plasticity, heterogeneous, soft, inclusions of clay clasts, roots and gravels.		TP03_0-0.1	0.9	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey mottle, dry, high plasticity, homogeneous, stiff.		TP03_0.1-0.3	1.1	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,735.18
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,543.45
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, dry, low plasticity, heterogeneous, stiff, inclusions of shale gravels.		TP04_0-0.1	2.1	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff, inclusions of shale gravels.		TP04_0.1-0.3	3.4	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,783.79
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,516.36
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, dry, low plasticity, inclusions of shale gravels, roots and sticks.		TP05_0-0.1	1.1	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP05_0.1-0.3	1.1	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,830.92
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,482.31
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, dry, medium plasticity, inclusions of shale gravels, and organic matter.		TP06_0-0.3	2.9	Slight organic odour. No staining or asbestos.
		0.2							
		0.3		CH	CLAY, red/grey, high plasticity, inclusions of shale gravels. Additional brown/yellow mottle with depth.		TP06_0.3-0.5	2.2	No odour, staining or asbestos.
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,799.29
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,456.69
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, inclusions of gravels and organic matter.		TP07_0-0.2	0.8	No odour, staining or asbestos.
		0.2		CH	CLAY, deep red, dry, high plasticity, stiff.		TP07_0.2-0.5	1.5	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,747.11
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,483.01
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, damp, medium plasticity, inclusions of gravel and organic matter.		TP08_0-0.1	1	No odour, staining or asbestos. QA/QC02
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP08_0.1-0.3	0.7	No odour, staining or asbestos.
		0.3		Shale	SHALE, weathered, grey.				
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,711
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,492.72
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, dry, low plasticity, inclusions of shale gravels, roots and sticks.		TP09_0-0.1	2	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, damp, firm, medium-high plasticity.		TP09_0.1-0.3	2.4	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,669.13
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,517.28
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, damp, medium plasticity, soft, inclusions of gravel and organic matter.		TP10_0-0.2	1.9	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, damp, high plasticity, soft, inclusions of shale gravels.		TP10_0.2-0.5	1.6	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,617.46
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,543.41
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, damp, medium plasticity, soft, inclusions of gravel and organic matter.		TP11_0-0.2	4.5	Slight organic odour. No staining or asbestos.
		0.2		CH	CLAY, red/grey and orange mottle with depth, high plasticity, soft/firm.		TP11_0.2-0.5	2.8	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,572.3
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,566.67
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, dark brown, damp, medium plasticity, inclusions of gravel and organic matter.		TP12_0-0.1	2.3	No odour, staining or asbestos.
		0.2		Fill	Reworked Natural: CLAY, grey/red, damp, high plasticity, firm.		TP12_0.1-0.5	2.2	No odour, staining or asbestos.
		0.3		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP12_0.5-0.8	1.8	No odour, staining or asbestos.
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1.0							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							
		2.0							
		2.1							
		2.2							
		2.3							
		2.4							
		2.5							
		2.6							
		2.7							
		2.8							
		2.9							
		3.0							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,559.72
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,528.85
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations	
Test Pit		0.1		Fill	Fill: Gravelly CLAY, brown, dry, low plasticity, soft, inclusions of organic matter.		TP13_0-0.2	2	No odour, staining or asbestos.	
		0.2			Fill		Reworked Natural: CLAY, grey/red/brown, damp, low/medium plasticity, firm.	TP13_0.2-0.5	2.3	No odour, staining or asbestos.
		0.3			CH		CLAY, red/grey, dry, high plasticity, stiff.	TP13_0.5-0.8	1.9	No odour, staining or asbestos.
		0.4								
		0.5								
		0.6								
		0.7								
		0.8								
		0.9								
		1								
1.1										
		1.2								
		1.3								
		1.4								

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,614.35
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,506.67
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Gravelly CLAY, brown, dry, no plasticity, firm.		TP14_0-0.1	1.6	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP14_0.1-0.3	0.9	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,654.37
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,480.24
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, medium plasticity, stiff, inclusions of gravel.		TP15_0-0.1	1.3	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP15_0.1-0.3	0.6	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,693.87
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,450.17
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, medium plasticity, stiff, inclusions of gravel.		TP16_0-0.1	0.2	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP16_0.1-0.3	0.6	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,734.14
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,430.59
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, medium plasticity, stiff, inclusions of gravel.		TP17_0-0.1	0.7	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP17_0.1-0.3	0.4	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,769.96
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,417.2
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, stiff, inclusions of gravel.		TP18_0-0.1	1.8	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP18_0.1-0.3	1.6	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,744.73
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,378.64
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, medium plasticity, stiff, inclusions of gravel.		TP19_0-0.1	2.2	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP19_0.1-0.3	2	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,704.92
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,401.65
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, stiff, inclusions of gravel.		TP20_0-0.1	0.9	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP20_0.1-0.3	0.9	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,668.33
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,421.64
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, grey/brown, dry, low plasticity, stiff, inclusions of gravel.		TP21_0-0.1	0.9	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP21_0.1-0.3	0.7	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,623.75
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,438.56
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, red/brown, dry, low plasticity, soft, inclusions of gravel.		TP22_0-0.1	0.5	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, firm.		TP22_0.1-0.3	0.2	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,591.92
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,465.41
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, red/brown, dry, low plasticity, soft, inclusions of gravel.		TP23_0-0.1	1.8	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, low/medium plasticity, firm.		TP23_0.1-0.3	3.6	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,530.82
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,502.84
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		CH	CLAY, red/grey, damp, high plasticity, firm.		TP24_0-0.1	4	No odour, staining or asbestos.
		0.2							
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,502.99
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,457.39
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Gravelly CLAY, red and grey mottle with depth, dry, medium plasticity, soft.		TP25_0-0.1	2.3	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, firm.		TP25_0.1-0.3	2.1	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,552.18
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,427.05
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Gravelly CLAY, brown, dry, low plasticity, soft, inclusions of organic matter.		TP26_0-0.1	2.3	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP26_0.1-0.3	1.9	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,607.81
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,404.79
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: Gravelly CLAY, brown, dry, low plasticity, soft, inclusions of organic matter.		TP27_0-0.1	4.2	No odour, staining or asbestos. QA/QC03
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff.		TP27_0.1-0.3	3.8	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,644.88
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,390.05
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, soft, inclusions of gravel.		TP28_0-0.1	2.1	No odour, staining or asbestos.
		0.2		CH	CLAY, red/grey/orange, dry, high plasticity, stiff.		TP28_0.1-0.3	2.4	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,691.15
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,363.54
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

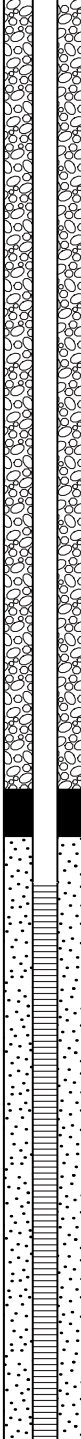
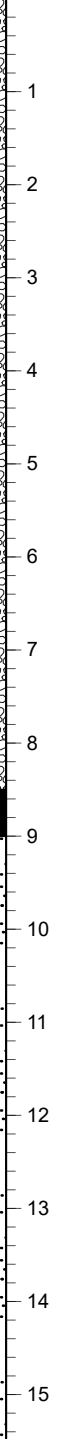
COMMENTS

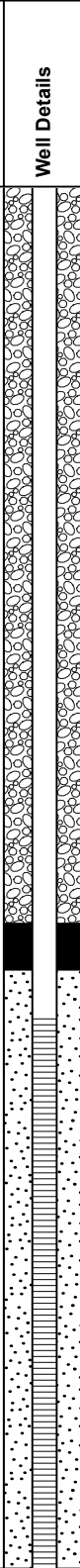
Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, soft, inclusions of gravel and organic matter.		TP29_0-0.1	2	Slight organic odour. No staining or asbestos.
		0.2		CH	CLAY, red/grey, dry, high plasticity, stiff, inclusions of roots.		TP29_0.1-0.3	3.6	Slight organic odour. No staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

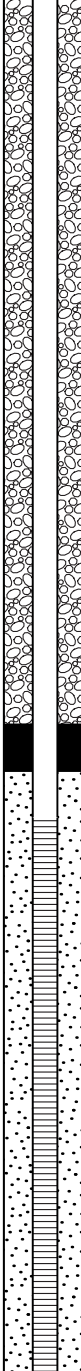
PROJECT NUMBER 59033	DRILLING COMPANY Ken Coles Excavations	EASTING 301,740.32
PROJECT NAME Edmondson Park Feb 2021	DRILLING DATE 09-Feb-21	NORTHING 6,239,338.72
CLIENT Landcom	DRILL RIG	COORD SYS GDA94_MGA_zone_56
ADDRESS Buchan Ave, Edmondson Park, NSW	DRILLING METHOD Test Pit	COORD SOURCE GPS
	DIMENSIONS 0.3 x 0.6 m	LOGGED BY AS

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
Test Pit		0.1		Fill	Fill: CLAY, brown, dry, low plasticity, soft, inclusions of gravel.		TP30_0-0.1	2	No odour, staining or asbestos. QA/QC04
		0.2		CH	CLAY, red/grey, dry, medium plasticity, stiff.		TP30_0.1-0.3	1.5	No odour, staining or asbestos.
		0.3							
		0.4							
		0.5							
		0.6							
		0.7							
		0.8							
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							

PROJECT NUMBER 59033				DRILLING COMPANY Matrix Drilling				EASTING 301,616.5			
PROJECT NAME Edmondson Park Feb 2021				DRILLING DATE 08-Feb-21				NORTHING 6,239,619.06			
CLIENT Landcom				DRILL RIG				ELEVATION N/A			
PERMIT NO. N/A				DRILLING METHOD Solid Flight Auger				COORD SYS GDA94_MGA_zone_56			
ADDRESS Buchan Ave, Edmondson Park, NSW				TOTAL DEPTH 15.5 m bgl				COORD SOURCE GPS			
				DIAMETER 150 mm				LOGGED BY AS			
COMPLETION				CASING Class 18 PVC - 50mm				SCREEN INTERVAL 9.5 - 15.5 m bgl			
COMMENTS											
Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations	
SFA					Fill	Fill: Silty CLAY, brown, dry, no plasticity, heterogeneous, soft, inclusions of gravel, brick and concrete.				No odour, staining or asbestos.	
			1		CH					No odour, staining or asbestos.	
					Shale	CLAY, brown, dry, high plasticity, homogeneous, stiff.				No odour, staining or asbestos.	
			2			SHALE, weathered, grey/light brown, dry, no plasticity, soft, inclusions of shale fragments from 3m. Harder shale from 8.8m.				No odour, staining or asbestos.	
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								
			11								
			12								
			13								
			14								
			15								
						Termination Depth at: 15.5 m.				Water strike at 15m.	

PROJECT NUMBER 59033				DRILLING COMPANY Matrix Drilling				EASTING 301,636.75			
PROJECT NAME Edmondson Park Feb 2021				DRILLING DATE 08-Feb-21				NORTHING 6,239,387.46			
CLIENT Landcom				DRILL RIG				ELEVATION N/A			
PERMIT NO. N/A				DRILLING METHOD Solid Flight Auger				COORD SYS GDA94_MGA_zone_56			
ADDRESS Buchan Ave, Edmondson Park, NSW				TOTAL DEPTH 15 m bgl				COORD SOURCE GPS			
				DIAMETER 150 mm				LOGGED BY AS			
COMPLETION				CASING Class 18 PVC - 50mm				SCREEN INTERVAL 9 - 15 m bgl			
COMMENTS											
Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations	
SFA					Fill CH	Fill: Silty CLAY, brown, dry, no plasticity, heterogeneous, soft, inclusions of gravel, brick and wood chips.				No odour, staining or asbestos.	
			1		Shale	CLAY, brown/grey, dry, high plasticity, homogeneous, stiff.				No odour, staining or asbestos.	
			2		SHALE, weathered, grey/light brown, dry, no plasticity, soft, inclusions of shale fragments from 2m. Harder shale from 11m.	No odour, staining or asbestos.					
			3								
			4								
			5								
			6								
			7								
			8								
			9								
			10								
			11								
			12								
			13								
			14								
			15								

PROJECT NUMBER 59033			DRILLING COMPANY Matrix Drilling			EASTING 301,763.51				
PROJECT NAME Edmondson Park Feb 2021			DRILLING DATE 08-Feb-21			NORTHING 6,239,384.62				
CLIENT Landcom			DRILL RIG			ELEVATION N/A				
PERMIT NO. N/A			DRILLING METHOD Solid Flight Auger			COORD SYS GDA94_MGA_zone_56				
ADDRESS Buchan Ave, Edmondson Park, NSW			TOTAL DEPTH 14.8 m bgl			COORD SOURCE GPS				
			DIAMETER 150 mm			LOGGED BY AS				
COMPLETION			CASING Class 18 PVC - 50mm			SCREEN INTERVAL 8.8 - 14.8 m bgl				
COMMENTS										
Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA					Fill	Fill: Silty CLAY, brown, dry, no plasticity, heterogeneous, soft, inclusions of gravel and sticks.				No odour, staining or asbestos.
			1		CH					
			2		Shale	SHALE, weathered, grey/light brown, dry, no plasticity, soft, inclusions of shale fragments from 2.5m. Harder shale from 6m.				No odour, staining or asbestos.
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							
			11							
			12							
			13							
			14							
			15			Termination Depth at: 14.8 m.				

Appendix H Groundwater Field Notes

Groundwater Sampling Form

PROJECT NAME: <u>Ed Park GME</u>	PROJECT NO: <u>59033</u>
SAMPLING DATES: <u>22/2/21</u>	SAMPLERS: <u>LB/KY</u>
TYPE OF INVESTIGATION: <u>GME</u>	PROJECT MANAGER: <u>MD</u>
WELL ID: <u>MW01</u>	WEATHER: <u>sunny</u>

Casing Diameter (mm): <u>50</u>	Depth to NAPL (mBTC): <u>-</u>
Well Completion: <u>Flush-Mount</u> / Monument	Depth to SWL (mBTC): <u>11.56</u>
Well Cap Type: <u>Locking Cap</u> / ~~PVD~~ / Other	NAPL Thickness (m): <u>-</u>
Well Condition: <u>Good</u> / Compromised	Depth to EoH (mbtoc): <u>17.48</u>
Calculated Well Volume (L):	Water Column Depth (m): <u>5.92</u>
Sampling Method:	NAPL Visually Verified? <u>No</u>
Purge Volume <u>4 Casings Vol. (L)</u>	
Low Flow <u>Pump Submersion depth (mBTC)</u>	

TIME	VOLUME PURGED L	DSSOLVED OXYGEN ☐ % ☒ mgL/ppm	TEMP °C	pH pH units	EC µS/cm	ORP mV	Comments Inc SWL for low flow (mBTC)
<u>1.42</u>	<u>0</u>	<u>3.32</u>	<u>28.2</u>	<u>6.97</u>	<u>15469</u>	<u>-10.7</u>	<u>11.57</u>
<u>1.47</u>	<u>0.5</u>	<u>3.89</u>	<u>25.1</u>	<u>6.80</u>	<u>14787</u>	<u>20.8</u>	<u>11.48</u>
<u>1.51</u>	<u>1</u>	<u>4.55</u>	<u>24.3</u>	<u>6.84</u>	<u>14474</u>	<u>27.6</u>	<u>11.57</u>
<u>1.55</u>	<u>1.5</u>	<u>3.78</u>	<u>24.9</u>	<u>6.83</u>	<u>14724</u>	<u>25.6</u>	<u>11.54</u>
<u>1:59</u>	<u>2</u>	<u>4.24</u>	<u>25.1</u>	<u>6.82</u>	<u>15009</u>	<u>24.0</u>	<u>11.57</u>
<u>2:03</u>	<u>2.5</u>	<u>3.98</u>	<u>26.2</u>	<u>6.87</u>	<u>15413</u>	<u>20.5</u>	<u>11.57</u>
<u>2.07</u>	<u>30</u>	<u>4.07</u>	<u>26.0</u>	<u>6.94</u>	<u>15467</u>	<u>17.4</u>	<u>11.58</u>
Acceptable Variations*		+/-10%	+/-0.2 °C	+/-0.05 pH	+/-3%	+/-10mV	Results Acceptable: <u>YES</u> / NO

LOW FLOW: Typical flowrate = 0.2-0.4 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or drytwice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Clarity: <u>Mildly turbid</u>	Sheen: <u>YES / NO</u>
Colour: <u>Grey</u>	Odour: <u>YES / NO</u>

Primary sample ID:	MH1	No.	Container / Preservative
Duplicate sample:	YES / NO ID:		1 x PFAS
Triplicate sample:	YES / NO ID:		4 x vials
Rinsate sample:	YES / NO ID:		1 x amber
Sample on ice:	YES / NO		1 x glass
Field Filter Method:	0.45µm filter / not filtered		1 x metals
Water Quality Metre:	YSI		
Gauging Equipment:	IP		
Pump Type:	Bladder		
NOTES:			

Calculated Well Volume (L) = Water Column Depth (m) * Conversion Factor (from table)

Casing Diameter	25mm	50mm	100mm	150mm	300mm
Conversion Factor	0.98	1.96	7.85	49.1	196.3

Volume of water in well (L) = π * radius of gravel pack (m)² * height of water column (m)

*SA EPA Guidelines (June 2007) as referenced in NEPM

Groundwater Sampling Form

PROJECT NAME: <u>Ed Park GME</u>	PROJECT NO: <u>59033</u>
SAMPLING DATES: <u>22/2/21</u>	SAMPLERS: <u>104 / LL</u>
TYPE OF INVESTIGATION: <u>GME</u>	PROJECT MANAGER: <u>MD</u>
WELL ID: <u>MW3</u>	WEATHER: <u>PMG</u>

Casing Diameter (mm): <u>50</u>	Depth to NAPL (mbTOC): <u>-</u>
Well Completion: <u>Flush Mount / Monument</u>	Depth to SWL (mbTOC): <u>6.35</u>
Well Cap Type: <u>Locking Cap / PVC / Other</u>	NAPL Thickness (m): <u>-</u>
Well Condition: <u>Good / Compromised</u>	Depth to EoH (mbtoc): <u>15.19</u>
Calculated Well Volume (L):	Water Column Depth (m): <u>8.84</u>
Sampling Method:	NAPL Visually Verified? <u>No</u>
Purge Volume <u>4 Casings Vol. (L)</u>	
Low Flow <u>Pump Submersion depth (mbTOC)</u>	

TIME	VOLUME PURGED L	DSSOLVED OXYGEN ☐ % ☒ mgL/ppm	TEMP °C	pH pH units	EC <u>(uS/cm)</u> µS/cm	ORP mV	Comments Inc SWL for low flow (mbTOC)
10.10	0	3.45	22.6	7.09	7420	86.4	6.63
10.15	0.5	2.26	21.4	7.09	13416	51.2	6.66
10.18	1	3.17	22.9	7.13	13498	16.5	6.92
10.22	2	3.46	21.0	7.16	13452	-3.7	7.02
10.27	2.5	3.30	22.2	7.25	13652	-18.5	7.04
10.35	3	4.01	22.8	7.29	13619	-40.6	7.21
10.40	3.5	4.17	20.4	7.72	13215	-51	7.38
10.45	4	4.17	20.3	7.44	13134	-60.3	7.49
10.49	4.5	3.20	20.5	7.12	13085	-63.5	7.50
10.53	5	3.32	20.6	7.30	13143	-64.8	7.56
10.57	5.5	3.52	20.1	7.31	12984	-68.1	7.62
Acceptable Variations*		+/-10%	+/- 0.2 °C	+/-0.05 pH	+/-3%	+/-10mV	Results Acceptable: YES / NO

LOW FLOW: Typical flow rate = 0.2-0.4 L/min - Max. drawdown = 0.1 m - Well stable when 3 consecutive readings (either 3 min apart or 1L apart)

PURGE: Min. sampling volume is 4 casing volumes or dry twice - 1 casing volume (50mm wells) = 2 L/m - 1 casing volume (100mm wells) = 8 L/m

Clarity: <u>Turbid</u>	Sheen: <u>YES / NO</u>
Colour: <u>Grey</u>	Odour: <u>YES / NO</u>

Primary sample ID:	MW3	No.	Container / Preservative
Duplicate sample:	☒ YES / NO ID: Q201-2021.0222		1 x PFAS
Triplicate sample:	☒ YES / NO ID: Q201-2021.0222		4 x vials
Rinsate sample:	☒ YES / NO ID: RINS0222		1 x metals
Sample on ice:	☒ YES / NO		1 x green
Field Filter Method:	☒ 0.45µm filter / not filtered		1 x amber
Water Quality Metre:	Air Mt YSI		
Gauging Equipment:	IP		
Pump Type:	Bladder		
NOTES:			

Calculated Well Volume (L) = Water Column Depth (m) * Conversion Factor (from table)

Casing Diameter	25mm	50mm	100mm	150mm	300mm
Conversion Factor	0.98	1.96	7.85	49.1	196.3

Volume of water in well (L) = π * radius of gravel pack (m)² * height of water column (m)

*SA EPA Guidelines (June 2007) as referenced in NEPM

Primary sample ID:	<u> </u>	No.	Container / Preservative
Duplicate sample:	YES / <u>NO</u> ID:		<u>1 x PFAS</u>
Triplicate sample:	YES / <u>NO</u> ID:		<u>4 x vials</u>
Rinsate sample:	YES / <u>NO</u> ID:		<u>1 x metals</u>
Sample on ice:	<u>YES</u> / NO		<u>1 x green</u>
Field Filter Method:	0.45µm filter / not filtered		<u>1 x small</u>
Water Quality Metre:	<u>YSI</u>		<u>amber</u>
Gauging Equipment:	<u>1P</u>		
Pump Type:	<u>Bladder</u>		
NOTES:			

Calculated Well Volume (L) = Water Column Depth (m) * Conversion Factor (from table)

Casing Diameter	25mm	50mm	100mm	150mm	300mm
Conversion Factor	0.98	1.96	7.85	49.1	196.3

Volume of water in well (L) = π * radius of gravel pack (m)² * height of water column (m)

*SA EPA Guidelines (June 2007) as referenced in NEPM

Groundwater Gauging Data



PROJECT NAME: 59033	PROJECT NO: Ed Park GME
FIELDWORK DATES: 22/2/21	SAMPLERS: 107/148
TYPE OF INVESTIGATION (GME/ESA etc):	PROJECT MANAGER: MO

[illegible]

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