GRINDLEY CONSTRUCTION PTY LTD

AUGUST 2022

CONFIDENTIAL

VALIDATION REPORT

STAGE 3, WENTWORTHVILLE PUBLIC SCHOOL, 70-100 FULLAGAR ROAD, WENTWORTHVILLE NSW 2145



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Validation Report

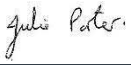
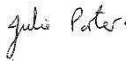
Stage 3, Wentworthville Public School, 70-100 Fullagar Road, Wentworthville NSW 2145

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ABBREVIATIONS

ABC	Ambient background concentration
ACM	Asbestos Containing Material
ACL	Added contaminant limit
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene
CEC	Cation Exchange Capacity
COLA	Converted outdoor learning area
DA	Development Application
DGI	Data Gap Investigation
DQI	Data Quality Indicator
DQO	Data Quality Objective
ENM	Excavated Natural Material
EPA	Environment Protection Authority
LAA	Licenced asbestos assessor
LOR	Limit of reporting
mBGL	Metres below ground level
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measures
OC	Occupation Certificate
OCP	Organochlorine pesticide
OPP	Organophosphorus pesticide
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PQL	practical quantitation limit
QA/QC	Quality Assurance / Quality Control
TRH	Total recoverable hydrocarbon
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Carbon
RAP	Remedial Action Plan
RPD	Relative percentage difference
SOP	Standard Operating Procedure

EXECUTIVE SUMMARY

WSP Australia Pty Ltd (WSP) was commissioned by Grindley Construction Pty Ltd (Grindley Construction) to provide a validation report for the Stage 3 remediation extent (Figure 2, Appendix A) at Wentworthville Public School, 70-100 Fullagar Road, Wentworthville New South Wales.

The purpose of this validation report is to detail the outcome of contaminated fill removal and capping / containment works at the site; including air monitoring results, soil validation laboratory results, capping installation methodology and validation of the cap.

Works were undertaken at the site between 29 March 2022 and 14 July 2022. GLC Civil Projects Pty Ltd was the remediation contractor, with guidance from WSP.

WSP provided asbestos air monitoring between 29 March 2022 and 11 May 2022, whilst contaminated soils were exposed at the site. WSP's Licenced Asbestos Assessor (LAA) James Green (Licence # LAA001470) was on-site to periodically observe the capping works and then subsequently complete a final clearance inspection, dated 17 June 2022, certifying that the remediated area does not pose a health and safety risk to site users from asbestos after installation of the geotextile fabric and soil cap, contingent on the maintenance of the cap.

The capping layer, constructed in an area referred to as the "kiss and drop in-situ capping area", was designed by WSP and comprised a layer of geotextile material over contaminated fill, which was followed by validated roadbase gravel material, finished with concrete hardstand. This capping methodology is deemed suitable to reduce the risk to receptors at the site. Validation of the cap was undertaken by WSP field staff throughout the installation process with visual clearance supported by photographs.

One existing building on the site (Block F) has been refurbished and the concrete hardstand remains in-situ. Although WSP was not present for the original installation of the concrete hardstand, WSP inspected the integrity of the concrete footprint and noted no cracking or other potential pathways of underlying contaminated fill with proposed site users. One demountable building on the site ("temporary demountable asphalt area") was removed in July 2022. The demountable sat atop an asphalt hardstand layer which was to remain in-situ, undisturbed. Demountable footings did not extend into underlying fill. WSP inspected the integrity of the asphalt hardstand and noted the surface to be in good condition and no potential pathways of underlying contaminated fill with proposed site users. As the surficial concrete and asphalt layers are hardstand, there is no requirement to meet a minimum thickness as described in the RAP (WSP, 2020) and therefore soils capped within the Block F building footprint and temporary demountable asphalt area are considered suitable to reduce the risk to receptors at the site.

Impacted soils within areas outside of the constructed capping layers (area north of Block F) were excavated to the natural clay surfaces. Validation of this area was then achieved through the completion of an asbestos visual clearance inspection and collection of a combination of chemical and asbestos % w/w validation samples from the base and walls of the excavation.

Based on the implementation of the RAP, involving remedial works for the site between 29 March 2022 and 14 July 2022, WSP makes the following conclusions:

- No ACM was identified on the natural clay surface within areas subject to excavation of ACM impacted soils. As such all ACM % w/w concentrations were below adopted HSLs. As the validation works did not identify ACM above the adopted criteria, there is no evidence of an ongoing ACM risk to site users.
- Potential contaminants of concern (TRH, BTEXN, PAH, heavy metals, OPP and PCB) were not identified during the Stage 3 investigation works. As a result, no chemical soil validation of material on site was required. There is no evidence of a chemical risk to site users.
- With regards to the exposed boundary walls within contaminated fill, either soil validation samples have been collected, or a high visibility geofabric marker layer has been applied to excavation walls intersecting contaminated fill. Based on the clearance inspection and wall validation sample analytical results, WSP considers that exposed fill

walls have been adequately validated (where required). Excavation walls covered with geofabric have been included in the LTEMP.

- With regards to cap and containment, the area encompassed by the kiss and drop in-situ services capping area is Green Village Capping area is 54 m^2 (based on survey completed by WSP on 17 June 2022). The as-built survey of the kiss and drop in-situ services capping area completed on 20 January 2022 by Grindley indicates that a suitable capping thickness for paved areas has been achieved across the capping area. Therefore, WSP consider that the kiss and drop in-situ services capping works have been completed to meet the design concepts as set out in the RAP (WSP, 2020).
- With regards to waste disposal, the recorded disposal tonnes equate to approximately 219 tonnes (ex-situ volume). WSP consider the sampling and analytical results are representative of the disposed materials and have been disposed at a facility licenced to accept that material.
- With regards to imported material, WSP was present to inspect imported material upon arrival to the site and reconciled importation dockets with the source sites. Supporting documentation has been provided to WSP of the quarried material which in conjunction with WSP's confirmatory sampling shows all imported material satisfies the requirements of the WSP, 2020 RAP. WSP considers imported material does not present a risk to site users.

WSP considers the remediation and validation works undertaken within the site were conducted in accordance with the RAP and relevant guidelines and legislation. This is subject to the implementation of a long-term environmental management plan (LTEMP) for the relevant areas (Block F, temporary demountable asphalt area and kiss and drop in-situ services capping area) to ensure the ongoing integrity of the installed capping system.

1 INTRODUCTION

WSP Australia Pty Ltd (WSP) was commissioned by Grindley Construction Pty Ltd (Grindley) to provide a validation report for a portion of Grindley's development area at Wentworthville Public School, 70-100 Fullagar Road, Wentworthville, New South Wales (NSW). Refer to Appendix A, Figure 1 for location of the school.

Grindley has been engaged by the NSW Department of Education as Principal Contractor for the demolition and upgrade of a portion of the school. The upgrade will provide 30 new permanent teaching spaces and a library by replacing demountable and existing buildings with permanent facilities and will be undertaken in three separate development stages.

Development consent requirements state that a site audit statement (SAS) and site audit report (SAR) be provided which comment on the suitability of the site for the proposed land use. As part of the audit process, Grindley has appointed a NSW EPA accredited site auditor (Rebekah Hall of Geosyntec Consultants Pty Ltd, 'the site auditor') to audit the remediation and validation process.

The auditable areas have been divided into three stages (Stage 1 – 3) to match the staged development. Remedial works associated with the Stage 1 redevelopment were split into two separate areas and were completed between 2020 and 2021. Two separate validation reports were then issued by WSP for Stage 1:

- *PS119057-CLM-REP-WWPS_EasternVal_Final*; and
- *PS119057-CLM-REP-WWPS_WesternStg1_Validation_Final*.

Following completion of Stage 1, remedial works associated with the Stage 2 redevelopment were then undertaken between 2021 and 2022. A validation report was then issued by WSP for Stage 2:

- PS127030-CLM-REP-WWPS_Stage 2_Rev2_Final.

This remediation validation report pertains to the Stage 3 remedial works. The 'site' and validation extent of this report comprises the Stage 3 auditable boundary and also encompasses a small portion of land within the Stage 2 auditable boundary, which could not be completed during the Stage 2 remedial works. The remediation / validation extent boundary pertaining to this report is shown in Appendix A, Figure 2 and Figure 3. The audit stages are overlayed with the remediation extent. Remediation works within the Stage 3 site commenced in January 2022.

The purpose of this validation report is to assess the compliance of remediation and validation works at the site with the requirements of the WSP (March, 2020) *Remediation Action Plan for Proposed Development at Wentworthville Public School,* 70-100 Fullagar Road, Wentworthville New South Wales (RAP), to allow the preparation of an SAS and SAR and enable the new development to be occupied by site users.

1.1 OBJECTIVE

The objectives of this validation report are to document:

- how remedial works carried out at the site were undertaken in accordance with the WSP, 2020 RAP. In particular the remediation of identified contaminated soil within the site;
- site suitability for the future use of the site as a primary school; and
- final landform associated with areas (Block F, kiss and drop services capping area and the Stage 2 asphalt demountable area) which have encapsulated contaminated soil that will be captured in the long-term environmental management plan (LTEMP).

1.2 SCOPE OF WORKS

The scope of works involved in this validation report comprised:

- Review of relevant previous reports provided by Grindley Construction and comment on the reliability of the data and findings;
- Review of supporting information which includes material characterisation; internal material tracking, material tracking for offsite disposal and imported materials; and adherence of the remedial activities to the RAP;
- Review of validation sampling and analysis data against adopted health and ecological guidelines; and
- Preparation of this validation report, providing commentary if remediation works have been completed as prescribed by the RAP and provide an opinion of site suitability for intended users to enable re-occupation of the site.

2 SITE INFORMATION

2.1 SITE LOCATION AND IDENTIFICATION

Site details are provided in Table 2-1

Table 2-1 Site identification details

ITEM	DESCRIPTION
Site address	The address of Wentworthville Public School, which contains the site is 70-100 Fullagar Road, Wentworthville NSW.
Site definition	The site and validation extent comprise soils capped beneath Block F, soils underlying the newly constructed 'Block F extension' and kiss and drop drive-through, as well as outdoor common areas within the Stage 3 validation audit areas. A portion of the Stage 2 remediation boundary is also included in the site, which consists of an existing asphalt pavement (soil cap). This area formerly had temporary demountable buildings placed atop the asphalt layer. The site boundary is defined in Appendix A, Figure 2.
Legal Identification	The site comprises part Lot 1 in Deposited Plan (DP) 1245593
Local government	Cumberland Council (formerly Holroyd Council)
Zoning	R2 – low density residential land use under the Cumberland Council Local Environment Plan (LEP) zoning maps (March 2021).
Area (m^2)	Total validation area – 1,200 m^2 (refer to Appendix J), comprising: - Building F and adjoining "Northern" and "Eastern and Southern" validation areas – 970 m^2 - Former Temporary Demountable and adjoining Asphalt Area – 230 m^2
Current Site use	Primary school
Future site use	Continued use as a primary school
Surrounding land uses	Other surrounding land uses include the following: — To the north – Fullagar Road, residential properties and Wentworthville train station beyond — To the east – Station Street, residential properties and Parramatta beyond — To the south – Monash Street, the Western Motorway and residential properties beyond — To the west – Garfield Street, Cumberland Highway with Ringrose Park and residential properties beyond.
Topography	The site is situated at approximately 40 meters Australian Height Datum (mAHD). Topography at the school generally slopes from the south-west to north-east.

	Surface water runoff from the site is anticipated to flow towards the east / north-east. The nearest surface water body is Finlaysons Creek located approximately 180 m east of the site. No preferential water courses have been identified within a 180 m radius of the site.
Geology	The Department of Minerals and Energy, 1991, 1:100,000 Penrith Geological Map Sheet 9030 indicates that the regional geology in the vicinity of the site is identified as Bringelly Shale described as shale, carbonaceous claystone, laminite of the Wianamatta Group. There are no geological units containing asbestos within a 2000m buffer of the site that are mapped on the publicly accessible web mapping site https://www.arcgis.com/apps/PublicInformation/index.html The site is underlain by residual soils (REbt) of the Blacktown Group. Soils from the Blacktown group are derived from the Wianamatta Group Shales and Hawkesbury Shale. Soils comprise shallow to moderately deep red and brown podzolic soils on crests, upper slopes and well drained areas with deep yellow podzolic soils and soloths on lower slopes and in areas of poor drainage. For further details, refer to the WSP, 2020 RAP.
Site History	Historical records indicate that the site currently identified onsite is registered under the minister of education (previously identified as Her Most Gracious Majesty Queen Victoria) from 1880 to date, indicating that the land has been used as a school campus since then. Aerial imagery shows that the site comprised of a small building in 1943, towards the South East corner of the site. The 1961 imagery shows that the small building has been extended with an irregular shaped building and three new buildings constructed at the northern portion. One building has been removed from the northern portion in 1975. The northern car park appears to have been constructed in 1986. Since the 1990s the site has remained largely unchanged to its pre-developemnt configuration with the exception of some demountables and shaded areas. The surrounding area towards north-west of site gradually developed between 1943 to its current configuration as a school campus. For more detail on site history, reference can be made to previous WSP report *"Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI)" (2018)* and *"Remediation Action Plan (RAP)" (2020)*.
Current Site Condition	The site has been remediated and construction works for the block F extension / kiss & drop and landscaping associated with the common outdoor areas are well progressed. Refurbishment of the existing portion of block F has mostly been completed. Temporary demountable buildings formerly placed atop the asphalt capping area have been removed.

3 LEGISLATIVE GUIDANCE

The legislative framework for the validation report is based on guidelines that have been issued and/or endorsed by the NSW Environment Protection Authority (EPA) under the following acts and/or policies:

- Section 105 of the Contaminated Land Management Act 1997 (CLM Act; NSW).
- State Environmental Planning Policy (Resilience and Hazards) 2021.
- Protection of the Environment Operations Act 1997 (POEO Act; NSW).
- Waste Avoidance and Resource Recovery Act 2001 (WARR Act); NSW.
- Work Health and Safety Act 2011 (NSW).

The validation report was prepared in accordance with the following:

- Department of Health Western Australia 2021 *Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia*.
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM, as amended 2013).
- National Occupational Health and Safety Commission 1995, *Exposure Standards for Atmospheric Contaminants in the Occupational Environment*.
- NSW EPA 1995, *Contaminated Sites: Sampling Design Guidelines*.
- NSW EPA 2017 *Guidelines for the NSW Site Auditor Scheme* (3rd Edition).
- NSW EPA 2020, *Guidelines for Consultants Reporting on Contaminated Sites*.
- WA DER, 2009; *Guidelines for the Assessment, Remediation and Management of Asbestos - Contaminated Sites.*
- NSW EPA 2022; *Practice Note, Preparing Environmental Management Plans.*
- NSW EPA 2014, *Waste Classification Guidelines – Part 1: Classifying Waste*.

4 PREVIOUS INVESTIGATIONS

The site has been subject to a number of historical geotechnical and environmental investigations since 2017. A summary of the most relevant investigations pertaining to the site are provided below.

4.1 WSP 2018 PSI/DSI

The PSI/DSI investigation (WSP, 2018) was undertaken across a portion of the school and prior to the current development and audit stages. No sample locations were advanced within the Stage 3 validation extent.

Refer to WSP, 2020 RAP for a complete summary of the WSP 2018 PSI/DSI.

4.2 EIS PRELIMINARY ENVIRONMENTAL SCREENING

Environmental Investigation Services Pty Ltd (EIS) undertook a limited combined geotechnical and environmental investigation across the school to identify potential contamination ref: *Preliminary Environmental Screening – Proposed School Additions – Wentworthville Public School NSW* (EIS, 2017).

Fill material was encountered in all boreholes around the school. Two boreholes were advanced within the validation extent (BH6 and BH8). TRH, BTEXN, PAHs, heavy metals, organophosphate pesticides (OCP), organophosphorus pesticides (OPP), polychlorinated biphenyl's (PCBs) and asbestos was analysed at these two locations. All reported analytes were with non-detect, or were below the adopted site criteria, with the exception of Total PAHs at 1.1 mg/kg in BH6 (0.1-0.2).

Historical sample locations are provided in Appendix A, figures 5 and 6.

4.3 JK ENVIRONMENTS SALINITY ASSESSMENT

Following the EIS 2017 investigation, JK Environments Pty Ltd (JKE, formerly EIS) selected five boreholes for assessment of salinity in fill and natural material up to a depth of 1.95 m ref *Preliminary Salinity Assessment for Proposed School Development at Wentworthville Public School 70-100 Fullagar Street, Wentworthville NSW* (JKE, 2019). One borehole (BH102) was advanced within the site / validation extent. Chemical analysis was limited; however, the following soil physical parameters were obtained:

- Samples obtained from BH102 was classed as non-saline; and
- Soil pH Values were noted to range between 5.0 and 7.6.

4.4 WSP, MARCH 2020: REMEDIATION ACTION PLAN

The objective of the RAP was to mitigate asbestos and other potential contamination on site to ensure it did not pose a threat and render the site suitable for the proposed development within the primary school. ACM in soil was identified as the contaminant on site, requiring remediation and management during both redevelopment and ongoing use as a primary school. The RAP also outlined the various validation requirements depending on the selected remediation approach. The validation acceptance criteria and procedures for different cap and containment scenarios, as well as re-use and suitability assessment of on-site soils (for both fill and natural soil profiles) and the importation and disposal of soils were detailed.

The RAP has had several revisions since original submission in March 2020, in particular to include the findings of additional investigations within the Stage 1 audit area. The RAP was reviewed and approved by the site auditor, then implemented by Grindley for the duration of the remediation works.

For stage 3, the RAP discussed that development works were located around the existing special needs building (Block F), and would involve:

- Refurbishment of the existing Block F;
- Construction of new building extensions on the southern site of Block F; and
- Associated landscaping on the northern and southern sides.

The identified remedial approach was off-site disposal and cap and containment (where possible). It was noted that original cut and fill plans generally showed the landscaped area north of Block F to be but, with minor areas of fill. However, the southern side of Block F showed areas of filling only, beneath the proposed building extension. WSP discussed that dependant on staging and design plans, it may be possible to level/transfer existing fill material from area of cut to fill, although this would only be possible if the design levels and tie-ins to the existing Block F could accommodate a minimum 0.3 m capping layer, and no structural issues were presented by retaining the fill on-site. If this could not be achieved, it was noted to have been more feasible to dispose excavated fill off site.

The RAP detailed that soil chemical/asbestos data for Stage 3 was limited, therefore it was anticipated that a waste classification/material assessment would be completed to categorise material within Stage 3 for off-site disposal, as well to assess for potential re-use and/or retainment of soil materials on site. A waste classification (refer to WC1, Section 4.6) and Material Reuse Suitability Assessment, using the waste classification data (refer to Section 4.5) were completed to support this.

It was detailed in the RAP that remediation works within Stage 3 would be considered complete once:

- all contaminated soil within Stage 3 has either been capped or disposed off-site with supporting evidence including, but not limited to inspections, material certificates, waste classifications, survey information etc; and
- any exposed natural soil within Stage 3 has been appropriately validated.

4.5 WSP, MARCH 2022: MATERIAL REUSE SUITABILITY ASSESSMENT

In March 2022, WSP was requested to review existing soil chemical data collected during a perimeter waste classification for Stage 3 (refer to WC1 in Section 4.6). The primary objective of this data review was to determine the suitability of in-situ material within Stage 3 to be reused on site, in order to reduce potentially unnecessary off-site disposal of soil materials.

As soil investigations had not previous been completed within the Stage 3 boundary, during January 2022 WSP completed a waste classification assessment of the area. This investigation targeted all in-situ soils within Stage 3, with the exception of soils beneath the existing Block F concrete footprint and beneath the existing asphalt area, which are both to remain in-situ and be managed under the LTEMP. The waste classification assessment identified that the depth of fill varied across the investigation area at depths between 0.2 and 0.5 mBGL, with an average fill depth of 0.4 mBGL. Based on field observations, fill materials encountered within the investigation area were separated into two separate assessment areas as a result of their soil characteristics. These were as follows:

- “Northern classification area”: Consisted of a turf layer, followed by dark brown silty SAND topsoil with rootlets and sub-angular rocks, underlain by natural orange to orange / grey CLAY with minor red mottling; and
- “Eastern and southern classification area”: Trace roadbase gravels, overlying grey-brown sandy GRAVEL with inclusions of concrete aggregate and trace amounts of plastic, brick and ash, underlain by orange to orange / grey CLAY with minor red mottling.

Analytical results indicated that asbestos (friable) was detected at two locations (TP3_0.2 and TP4_0.2). No potential ACM was encountered during field screening. Chemical analytical results were within the acceptance criteria of general solid waste (non-putrescible). As a result, materials consistent with those encountered in the “northern classification

area" were classified as special waste asbestos, in a matrix consistent with general solid waste (non-putrescible). The remaining materials, consistent with those encountered in the "eastern and southern classification area" was classified as general solid waste (non-putrescible).

Due to the presence of asbestos in the "northern classification area" this material was not suitable for reuse and was to be disposed off-site at an appropriately licensed landfill facility under WSP's waste classification report (refer to WC1 in Section 4.6). However, soil analytical results for fill soils in the "eastern and southern classification area" were compared to the adopted site criteria as stated in the WSP (June 2020) RAP. Analytical results for soil material in this area was within the limits of the adopted site criteria and was also within compliance of the NSW EPA 1995, *Sampling Design Guidelines*. Therefore, considering the sampling density, chemical/asbestos w/w% results and 10 L visual screening for asbestos (which did not identify any asbestos in the "eastern and southern classification area"), WSP considered that the material is suitable to either remain in-situ, or could be reused on site as part of the Stage 3 development works.

To add further assurance of the absence of asbestos within this area, ongoing visual inspections were recommended to be undertaken by an LAA and Grindley during redevelopment and in the event that the material was excavated for subsequent re-use.

4.6 WSP 2022: WASTE CLASSIFICATIONS

In accordance with the RAP, WSP prepared two waste classifications for the site/validation extent. The first waste classification was prepared prior to excavation/remedial works, with the data then used to provide insight on suitability for potential reuse (refer to Section 4.5). The second classification was then completed when material suitable for reuse on site became surplus and was mixed with roadbase gravels and subsequently required off-site disposal.

The waste classification reports are presented in Appendix B. The waste classifications completed for the site are summarised in Table 4.1 below:

Table 4-1 Summary of waste classifications

REPORT REF	SOURCE AREA	WASTE CLASSIFICATION
WSP, 2022 WC1	**Stage 3 Perimeter**	The waste classification investigation area encompassed in-situ soil material within the Stage 3 redevelopment, outside of the existing Block F building footprint. The investigation area was approximately 500 m^2 and the in-situ volume covered under this waste classification was 200 m^3. Bitumen and roadbase gravels were present in the southern portion of the waste classification area. Bitumen was removed and stockpiled separately to expose the underlying soils, prior to sampling. The northern portion of the classification area was grassed. During the investigation, it was noted that fill materials extended from 0.2 to 0.5 mBGL, with an average fill depth of 0.4 mBGL. Two separate soil profiles were encountered during the field investigation. These were subsequently separated into the "northern classification area" and "eastern and southern classification area". In total, 15 soil samples were collected from 11 test pits. All sample analytical results were below the Contaminant Threshold (CT1) criteria for general solid waste, with the exception of one detection of lead, exceeding the CT1 waste classification criteria of 100 mg/kg at 140 mg/kg in TP06_0.2. A 95% upper confidence limit (UCL) was completed for lead, which was 66.74 mg/kg, fulfilling the CT1 criteria for general solid waste. Asbestos was detected in two soil samples (TP3_0.2 and TP4_0.2) in the form of bonded fibre cement sheet fragments. Asbestos fines / fibrous asbestos (AF/FA) (<7 mm fraction) was also detected in both TP3_0.2 and TP4_0.2. As soil materials are

		homogenous in the "northern classification area" (TP1 – TP4), the asbestos impacted area was inferred to encompass the extent of this area. Asbestos was not detected in any soil samples within the "eastern and southern classification area". No suspected visual ACM or olfactory evidence of contamination was observed during collection of samples from in-situ material, or during 10 L ACM field screening. Based on the analytical results, WSP issued a waste classification report (ref: "*PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001"* (WSP, 2022 WC2)), and provided the following classifications: – "Eastern and Southern Classification Area": General solid waste (non-putrescible); and – "Northern Classification Area": Special waste (asbestos - friable), in a matrix consistent with general solid waste (non-putrescible).
WSP, 2022 WC2	**South of Building F** "Stockpile A"	The waste classification encompassed one stockpile (stockpile A), which was temporarily stockpiled in the eastern portion of the Stage 3 redevelopment area. The stockpile was generated as a result of soil material/roadbase gravels to the south of Block F being unsuitable for the proposed development from a geotechnical point of view. Therefore this material was excavated and stockpiled separately, requiring off-site disposal. Fill material from this source location was previously classified as general solid waste (non-putrescible) under WSP's waste classification report (WC1), however due to reworking and addition of imported roadbase material, the material required additional assessment. In total, three soil samples were collected from the stockpiled material. All soil analytical results were below the CT1 criteria for general solid waste. No suspected visual ACM or olfactory evidence of contamination was observed during collection of samples from the stockpiled material, or during 10 L ACM field screening. WSP issued a waste classification report (ref: "*PS127030-Wentworthville Public School_Stage 3 SP A_CLM-LTR-001*" (WSP, 2022 WC2)), and a classification of "general solid waste – non-putrescible" was provided.

5 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a representation or overall picture of the site that shows the possible relationships between a contaminant source, exposure pathway and receptors. This is known as the source-pathway-receptor (SPR) analysis. For a potential risk to be present, all three of the following components must exist:

- a potential source of contamination;
- a receptor that could be adversely affected by the contaminants (such as people, or an ecosystem); and
- a pathway that allows the receptor to be exposed to or affected by the contaminant (e.g. direct contact with asbestos impacted soil or contaminated vapour inhalation).

The CSM for the site is explained below.

Table 5-1 Source Pathway Receptor Analysis

SOURCE	PATHWAY	RECEPTOR	SPR LINKAGE	RISK ASSESSMENT
Asbestos impacted soil material	Direct contact and inhalation	Site workers and current and future sensitive user of the site	Incomplete	**Unlikely:** The majority of asbestos impacted fill material on site has been excavated and capped with geotextile, followed by asphalt hardstand in one area (kiss and drop services), existing concrete building footprint (Block F) and existing asphalt (former demountable area). Remaining asbestos impacted material was disposed off-site. Areas that were not capped have residual natural clay, or fill material, which has been assessed/validated to be free of asbestos and suitable to remain on site at the surface.
		Maintenance workers within capping areas	Complete	**Likely:** Any excavation or maintenance works undertaken in the capped areas will be required to follow the LTEMP.

Based on the CSM, the following summarises the key findings:

- Asbestos impacted fill material is unlikely to present significant risk to site receptors due to the implementation of the RAP. Asbestos impacted soil remaining in-situ has either been capped with a geotextile layer, followed by the application of roadbase gravels and installation of an asphalt roadway (kiss and drop services) or capped beneath existing concrete hardstand building footprints in Block F or existing asphalt in the Stage 2 former demountable area. Remaining asbestos impacted soils were disposed off-site and no longer present a risk to site users. All the remaining exposed areas have been remediated, with only validated residual clay remaining, or in-situ fill materials (in the eastern and southern assessment areas) assessed/ validated to confirm their suitability to remain on site. Excavation walls in areas surrounding those identified to contain asbestos have either been covered with a geofabric textile layer, minimising exposure to impacted soils, or validated to confirm the absence of asbestos. Furthermore, the southern portion of the Stage 3 site has been covered with concrete hardstand, for development of the Block F extension;
- Future excavation works beneath the Block F concrete building footprint or beneath the kiss and drop asphalt roadway will need to adhere to the LTEMP; and
- Based on the analytical results there are no exposed soils impacted with TRH, BTEX, PAH and heavy metals on site.

6 IMPLEMENTATION OF THE RAP

6.1 A SUMMARY OF REMEDIAL STRATEGY

The RAP outlines various remedial options (as summarised in Section 4.4) with both cap and containment and off-site disposal being feasible options for Stage 3. Cap and containment was selected for areas which were to remain in-situ, beneath existing concrete hardstand and asphalt layers (original Block F building footprint and Stage 2 former demountable area). Opportunities for cap and containment outside of areas to remain undisturbed in-situ were dependent on the proposed Stage 3 cut and fill plans. Following consideration, it was deemed impractical to install a physical capping barrier in areas outside of the existing concrete hardstand and asphalt layer areas (with the exception of in-situ services to remain beneath the kiss and drop driveway). For these areas, off-site disposal was selected as the secondary remedial approach.

These remedial methods were chosen due to:

- practicality of options (i.e. sufficient design levels for the installation of physical capping layers and design considerations);
- cost effectiveness of isolating, capping and containing on site relative to off-site disposal;
- long term sustainability advantages of minimising waste to external landfill; and
- removing impacted surplus soils off-site which could not be effectively capped removes the need to devise an alternative on-site remediation strategy and reduced the extent of impacted areas documented in the ongoing environmental management plan.

Plans showing areas remediated, and areas of remaining contamination can be reference in Appendix A, Figure 3.

6.2 REMEDIATION OBJECTIVES AND VALIDATION ASSESSMENT CRITERIA (VAC)

6.2.1 OBJECTIVES

The objective of the remediation works was to remediate identified contamination impacts at the site in accordance with the WSP, 2020 RAP to render the site suitable for ongoing use as a primary school. The methodology for the remediation and validation of the site, as outlined the WSP 2020 RAP and explained in Section 6.1 was considered appropriate to achieve this objective.

6.2.2 ASSESSMENT CRITERIA

The following tables (also presented within Section 5 of the RAP) provide the adopted criteria for contaminants of potential concern (COPC) at the site.

Table 6-1 Adopted health investigation levels

ANALYTE	HIL A – LOW DENSITY RESIDENTIAL[1] (mg/kg)
Metals	
Arsenic	100
Cadmium	20
Chromium IV	100
Copper	6000
Lead	300
Mercury	40
Nickel	400
Zinc	7400
Polycyclic aromatic hydrocarbons (PAH)	
Carcinogenic PAHs as benzo(a)pyrene toxicity equivalent quotient (TEQ)	3
Total PAHs	300

(1) NEPM (2013) Schedule B1, Table 1A (1)

Table 6-2 Adopted health screening levels

ANALYTE	HSL A – RESIDENTIAL (SAND 0 – 1 M)[1] (MG/KG)
Benzene	0.5
Toluene	160
Ethylbenzene	55
Xylenes	40
Naphthalene	3
Total recoverable hydrocarbon (TRH) C_6 - C_{10} Fraction minus BTEX (F1)	45
TRH >C_{10}-C_{16} less Naphthalene (F2)	110

(1) NEPM (2013) Schedule B1, Table 1A (3)

NL – Non limiting

Table 6-3 Asbestos health screening levels

Analyte	HSL (w/w per cent)
	RESIDENTIAL A
Bonded ACM	0.01 per cent
FA an AF (friable asbestos)	0.001 per cent
All forms of asbestos	No visible asbestos for surface soil

Table 6-4 Adopted EILs/ESLs

ANALYTE	EIL – URBAN RESIDENTIAL / PUBLIC OPEN SPACE (MG/KG)	ESL – URBAN RESIDENTIAL / PUBLIC OPEN SPACE (MG/KG)
Metals		
Arsenic	100	-
Copper	190	-
Nickel	170	-
Zinc	400	-
Polycyclic aromatic hydrocarbons		
benzo(a)pyrene	-	0.7
Petroleum hydrocarbons		
F3	-	1,300
F4	-	5,600
Toluene	-	105

1. ESL and EIL concentrations for; F1 (180 mg/kg), F2 (120 mg/kg), benzene (65 mg/kg), ethylbenzene (125 mg/kg), xylenes (45 mg/kg), chromium IV (190 mg/kg) and lead (1,100 mg/kg) have been excluded as these are above site adopted HILs.

6.3 DESCRIPTION OF REMEDIAL ACTIVITIES

Details of the remediation work undertaken within the site are provided in the following subsections. In summary, the site was separated into three separate areas based on remediation type, as detailed below:

- Excavation, off-site disposal and surface validation of the exposed natural clay surface and exposed fill walls within the in-situ area which was unsuitable for site use from a human health or ecological perspective. This location included the northern portion of Stage 3, adjacent Block F.
- Capping of soils unsuitable for site use from a human health or ecological perspective;
  - Kiss and drop in-situ services;
  - Capping of soil beneath existing undisturbed concrete building footprint or existing undisturbed asphalt surfaces:
    - Block F; and
    - Stage 2 former demountable area.
- Validation of in-situ material suitable to remain on-site from a human health or ecological perspective;
  - The “eastern and southern” classification areas.

The specific areas of remediation and type are presented in Appendix A, Figure 3.

6.3.1 EXCAVATION, OFF-SITE DISPOSAL AND VALIDATION

For areas on site which were unsuitable to remain at the surface (or at depth) from a human health and ecological perspective, and were unable to be capped on site based on proposed finished ground levels, these impacted soils were

excavated, transported off site and the remaining exposed excavation base and wall surfaces were subject to validation assessment as per Section 6.2 of the RAP.

The area subject to excavation, off-site disposal and validation was referred to as the "northern area", located to the north of Block F within Stage 3 (refer to Appendix A, Figure 3). In summary, the following methodology (in general) was completed:

- In-situ waste classification of the material (refer to WC1, Section 4.6);
- Supervision by WSP during the excavation and off-site disposal of the fill material to expose the natural soil surface; and
- Completion of an asbestos visual clearance inspection and collection of soil validation samples from the base and walls (if applicable) of the validation area.

Works to remove the ACM impacted fill material began on 29 March 2022 and were completed on 11 May 2022. Under supervision by a WSP LAA, fill materials were progressively stripped from the underlying natural soil surfaces. Between 29 and 31 March 2022, ACM fill materials were stripped, exposing the natural soil surface across the majority of the excavation area. During excavation works, remaining fill materials surrounding in-situ services (which Grindley instructed were to remain in-situ) in the southern portion of the excavation area were covered with a high visibility geofabric marker layer, which was then pinned securely into place (refer to Section 6.3.2). The WSP LAA then conducted a visual clearance inspection of the excavation area on 31 March 2022 and collected % w/w asbestos soil validation samples from the following locations:

- Exposed natural soil surfaces (BW_01 to BW_06);
- The western excavation wall (WV_01 and WV_02), which intersected soils remediated during Stage 1; and
- The eastern excavation wall (WV_03 and WV_04), which intersected soils identified to be suitable to remain in-situ as per WSP's material suitability memo (refer to Section 4.5).

Excavation walls not sampled for validation were covered with a high visibility geofabric marker layer, which was fixed securely to the wall surfaces with pins. This was completed for the northern excavation wall (wall adjacent the northern site boundary) and southern excavation wall (wall adjacent the Block F building footprint).

WSP was then contacted by Grindley in April 2022 to confirm that additional excavation of ACM fill material beneath the geofabric marker layer installed above in-situ services on 31 March 2022 was required. This was due to increased depth requirements for the proposed kiss and drop roadway pavement. WSP then attended site on 3 May 2022 to undertake supervision for the additional fill removal works. Following additional removal works, a new high visibility geofabric marker layer was then pinned in place over the ACM fill material/services remaining in-situ, and along exposed fill walls (along Block F). The WSP LAA then conducted a visual clearance inspection of the excavation area on 3 May 2022 and collected % w/w asbestos soil validation samples from the additional natural soil surfaces which had now been exposed. These samples are detailed as followed:

- Exposed natural soil surfaces (BV_07 to BV_10).

WSP was then again contacted by Grindley in May 2022 to confirm that a portion of in-situ services were to be relocated and additional ACM fill material beneath the geofabric marker layer was to be removed to further lower the required levels for the proposed kiss and drop roadway. WSP then attended site on 11 May 2022 to undertake supervision for the additional removal works. Following removal works, a new high visibility geofabric marker layer was then pinned in place over the ACM fill material/services remaining in-situ (refer to Section 6.3.2). The WSP LAA then inspected the previously exposed natural soil surfaces to confirm no cross-contamination had occurred and also to ensure that the high visibility geofabric marker layer had suitably covered the ACM fill remaining in-situ. No additional natural soil surfaces had been exposed and therefore no additional asbestos % w/w validation samples were collected.

Refer to Appendix A, Figure 5 for soil sample and wall validation locations and Appendix C for photographs taken during the remedial works.

The overall validation area subject to excavation and validation (refer to Appendix A, Figure 3) was approximately 162 $m^{2(1)}$. The validation sampling undertaken across this area comprised:

- Base Samples – Total of 10 samples were submitted for asbestos % w/w analysis and one sample[2] was submitted for chemical analysis.

The sampling density for validation of exposed natural soil surfaces as stated in Section 6.2.1 of the RAP is 2x the sampling density as stated in the contaminated sites management series CSMS density / NSW EPA, 1995 guidelines (five samples required for an area of 500 m^2). The total number of base samples collected for asbestos % w/w exceeds this requirement. It is noted that only one chemical sample was collected from the excavation base and no samples from excavation walls. Analytical results from the Stage 3 material suitability memo (refer to Section 4.5) and WC1 (refer to Section 4.6) indicate that chemical analytes are not a contaminant of concern and validation testing for chemical analytes is not required.

The analytical results summary for validation sampling completed in each area is provided in Section 9.1. Photographs collected at various milestones during the excavation, off-site disposal and validation are provided in Appendix C. Soil chemical and asbestos summary tables are provided in Appendix G.

6.3.1.1 OFF-SITE DISPOSAL

During the excavation and off-site disposal works (Refer Section 6.3.1), excavated in-situ fill materials unsuitable for reuse was transported to a licenced facility to receive the waste. Refer to Section 7.1 for further details regarding disposal.

During disposal of the ACM containing fill material, in general a 10-tonne excavator loaded trucks directly into a skip bin, which was placed directly adjacent the remedial area and site entrance off Fullagar Road. Trucks picking up and dropping off skip bins remained on asphalt hardstand and did not come into contact with contaminated soils. Skip bins were not overloaded, and care was taken to minimise spillage during loading of the bins.

6.3.1.2 WALL VALIDATION / CAPPING

Following excavation / off-site disposal works, wall validation involved either the application of a high visibility geofabric marker layer to exposed fill excavation walls or the collection of 500 mL soil samples for asbestos % w/w analysis where the surface was not clearly natural soil (refer to Section 6.3.1). Walls which required validation are shown in Appendix A, Figure 5. Each of the validation types are further detailed below:

<u>Excavation Walls Covered with Geofabric</u>

Following excavation of asbestos contaminated fill materials, exposed fill walls along the northern perimeter of Stage 3 and directly north of the Block F concrete footprint were covered with a high-visibility geotextile layer (refer to Appendix C, Photographs 7, 11, 15 and 16). Excavation walls covered with a geofabric marker layer are identified in the LTEMP.

<u>Excavation walls not covered with Geofabric</u>

In remaining areas where wall validation was required and a high visibility geotextile was not applied to exposed fill surfaces (as per the above), the following was completed:

- Visual inspection and collection of 500 mL soil samples for Asbestos % w/w analysis at approximate 5 m intervals along the excavation walls (refer to Appendix A, Figure 5). Excavation wall Asbestos % w/w soil analytical results

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1 Overall remediation area was estimated based on the "excavation, disposal & exposed base/wall validation" areas as presented in Appendix A, Figure 3 and remediation boundary survey drawings provided in Appendix J.

2 One sample of natural material (TP3), collected during WC1 remained in-situ as part of the remedial works and has been used as part of the validation dataset. Other chemical samples collected from within the validation area during WC1 (from TP1, TP2 and TP4) were subsequently excavated and removed (therefore obsolete).

are provided in Appendix G. Visual inspection for the western boundary confirmed that excavation walls were excavated into previously remediated areas on site, as part of the Stage 1 Western remedial works – refer to Appendix A, Figure 5.

The perimeter of walls not covered with geofabric, requiring validation was 12 m[(3)]. All excavation walls were < 1m deep and averaged 0.3 m depth. The approximate perimeter of excavations which required validation was 12 m[(3)], suggesting a total recommended sampling density of 3 wall samples. A total of 4 wall samples were submitted for asbestos % w/w analysis. The number of samples collected exceeds this requirement.

It is noted that a majority of exposed fill walls were covered with geofabric (refer to Appendix A, Figure 5).

6.3.2 KISS AND DROP CAPPING AREA

During the excavation, off-site disposal and validation works (refer to Section 6.3.1), a majority of ACM fill materials were excavated and removed from the site. However, a small portion of fill materials surrounding in-situ services which were unsuitable to remain at the surface (from a human health and ecological perspective), were to be capped beneath an asphalt kiss and drop roadway. The boundary of capping extent is dictated by fill material remaining in-situ within the service trench to the north of Block F. This capping extent is shown in Appendix A, Figure 3 and on survey drawings in Appendix J.

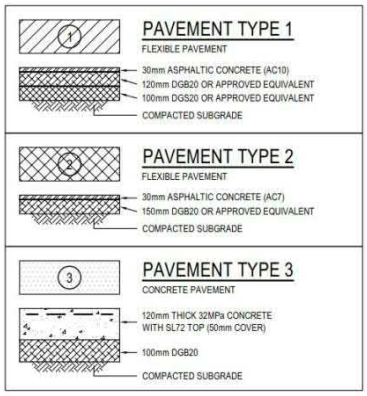
Due to changes in final design for the kiss and drop roadway, the geofabric marker layer applied to the suspected ACM fill materials within this area applied on 31 March and 3 May 2022 was subsequently removed during additional fill excavation/removal works. On 11th May 2022, a final high visibility geofabric marker was applied to all suspected ACM fill material within the service trench, beneath the proposed kiss and drop roadway. The marker layer was pinned securely to the soil surface using 150 mm retaining pins, photographed, inspected by a WSP LAA and surveyed by Grindley. A photograph taken of this geofabric marker layer is provided in Appendix C, photograph 15 and survey drawings are provided in Appendix J.

Following assessments completed by WSP, roadbase gravels sourced from the Lynwood Hardrock Quarry (refer to Section 7.2.1 for material validation assessment) were approved for import to the site for use as part of the kiss and drop capping construction on 6 and 20 April 2022. This material was stockpiled and used as areas were progressively inspected and validated by WSP on 31 March, 3 May and 11 May 2022. The roadbase gravel material was applied to the geofabric marker layer and compacted by 27 May 2022 (refer to Appendix C, Photograph 16) to form a minimum 150 mm subgrade level. A minimum 120 mm concrete layer was then applied over the roadbase gravels (pavement type 3) within the capping layer boundary on 29 June 2022. Capping thicknesses for roadbase gravels and concrete were dictated by the capping designs stated for paved areas in Section 3.4.2 of the WSP RAP. A small portion of the kiss and drop capping area extended directly north of the existing Block F building footprint. This area was capped beneath roadbase gravels sourced from the Lynwood Hardrock Quarry with a minimum thickness of 100 mm, followed by a 120 mm thick concrete pavement (pavement type 3).

On 14 July 2022, Grindley completed a final survey of the kiss and drop asphalt/concrete footpath capping areas (refer to Appendix J for as-built final survey). Results of the survey indicate that the capping design for paved areas has been achieved across the full extent of the capping area.
Figure 6.1 below illustrates the capping design for paved areas as provided in the RAP. The below design is compliant with the installed capping layer.

[3] Overall remediation perimeter was estimated based on the excavation walls which required validation, that were not subsequently covered with geofabric (refer to Appendix A, Figure 5).

Figure 6.1 Capping design for paved areas



6.3.3 EXISTING HARDSTAND CAPPING

Block F Capping Area (Concrete)

The footprint of one building on site was to remain undisturbed as part of the redevelopment works (Block F), with only refurbishment works of the existing building being undertaken. Refer to Appendix A, Figure 3 for location.

As per Section 3.4.2 of the RAP, concrete hardstand is considered an appropriate capping media. It is noted that the concrete hardstand was developed prior to occupation by Grindley and thicknesses of concrete and underlying subgrade are not known.

On 17 June 2022, WSP attended site to inspect accessible areas of the Block F concrete building footprint. During inspection, all accessible hardstand areas appeared to be in good condition, with no cracking or potential integrity issues noted. Photographs taken during inspection on the 17 June 2022 are provided in Appendix C, Photograph 31).

As a result, WSP considers the existing concrete hardstand capping within the Block F building footprints to be adequate for use with the area to be included in the site LTEMP.

Temporary Demountable Area (Asphalt)

The footprint of the temporary demountable area which is to remain in-situ as part of the redevelopment works is located in the southern portion of the site, refer to Appendix A, Figure 3 for location.

Demountable buildings were decommissioned and removed by a contractor engaged directly by Schools Infrastructure NSW (SINSW) between 8th and 10th July 2022. Footings of the former demountable buildings were placed directly on the asphalt surface and did not extend beneath the surface. Following removal works, the integrity of the existing asphalt capping layer was inspected and appeared to be in good condition. Photographs taken of the asphalt capping layer are provided in Appendix C, photographs 29 and 30.

6.3.4 AREAS SUITABLE FOR SITE USE

Eastern and Southern Area

Prior to remedial works being undertaken on site, WSP completed a soil investigation for the purposes of identifying the extent of asbestos contamination in Stage 3 (refer to Section 4.5) and providing a waste classification report for the material (refer to Section 4.6, *WC1*). The soil investigation identified that in-situ material in the northern portion of Stage 3 (refer to Appendix A, Figure 3) was unsuitable to remain on site in the current state due to the presence of asbestos. However, the investigation also identified that fill materials in the eastern and southern area (refer to Appendix A, Figure 3) were concluded by WSP to be suitable to remain in-situ, or be excavated and reused as part of the redevelopment works on site.

During the remedial works, the eastern and southern area was clearly delineated by temporary fencing erected with appropriate signage. As a result of cut and fill plans, a majority of material in the eastern and southern area remained in-

situ, with minor amounts excavated and disposed off-site under WSP's waste classification report. At several stages during the remedial/redevelopment works, as per WSP's recommendations in the material reuse report (refer to Section 4.5), WSP's LAA regularly inspected the material for potential indications of asbestos (refer to Appendix C, photographs 13, 17, 21, 22 and 26). A final clearance inspection of the material by the WSP LAA was also completed on 17 June 2022. No potential ACM was encountered during any of these inspections.

A majority of the fill material identified to remain on site in the eastern and southern area was covered by a new concrete hardstand, forming the Block F extension. As part of landscaping works along the edges of the eastern and southern area, an organic garden mix material was imported from Hi-Quality, via the Suez Eastern Creek processing depot on 1 July 2022 (refer to Section 7.2.2.1 for further information on the imported organic garden mix material)..

6.3.5 ASBESTOS WORK SEGREGATION AND DECONTAMINATION

A portable decontamination trailer was established for contractors to use throughout friable asbestos works on site. This trailer provided an area to remove and safely dispose asbestos PPE (e.g. suits, masks etc.) and to wash down boots and other non-disposable equipment. Asbestos works were primarily undertaken during school holiday periods and weekends to avoid interaction with sensitive site users. Approval by the school principal was gained by Grindley for any asbestos works which were undertaken during school hours.

Separation of asbestos and non-asbestos work zones were established for each asbestos work event. At the completion of each asbestos work event, excavators were decontaminated on geofabric with hand tools and hoses to remove excess dirt within a designated decontamination area. The geotextile material was then scrapped and transported off site to landfill with asbestos soil waste. Refer to Appendix C, Photograph 8 for a photo showing the standard equipment decontamination process. Documentation of decontamination processes is also provided in selected clearance certificates included in Appendix F.

6.3.6 AIR MONITORING

WSP conducted asbestos air monitoring between 29 March and 11 May 2022 on days when asbestos related or asbestos removal works were conducted. Air monitoring ceased once all impacted soil at the site had been covered with geotextile fabric as a physical barrier between the contaminated soils and sensitive receptors or removed from site. In total, 5 asbestos air monitoring shifts were completed during the remedial works. The air monitoring certificates are provided in Appendix I.

7 DISPOSED AND IMPORTED MATERIAL

7.1 WASTE DISPOSAL

Waste was classified by WSP within the site as per Section 4.6. A total of 219[4] tonnes of material was disposed off-site. Waste disposal details are provided in Table 7.1. All waste generated from the Stage 3 area was disposed by GLC Civil Projects Pty Ltd to either of the following two facilities:

- Bingo Waste Services Pty Ltd, operating at Eastern Creek Ecology Park, 1 Kangaroo Avenue, Eastern Creek, NSW 2766. EPL: 13426; or
- MET Sydney Pty Ltd, operating at 134 Carnarvon Street, Silverwater, NSW 2128. EPL: 20948.

Table 7-1 Waste disposal summary

DATES	LOCATION	TONNES (PER DAY)	CLASSIFICATION	REPORT	MATERIAL	FACILITY
29/03/2022	Northern Classification Area	28.52	*'Special Waste (asbestos) – within a soil matrix chemically consistent with general solid waste – non-putrescible'*	WSP, 2022 WC1	Silty sand topsoil with rootlets and sub-angular rock fragments	**Bingo Waste Services Pty Ltd** Eastern Creek Ecology Park, 1 Kangaroo Avenue, Eastern Creek, NSW 2766 EPL: 13426
30/03/2022		28.20				
31/03/2022		26.34				
3/05/2022		40.96				
4/05/2022	Stockpile A	24.64	*'General solid waste – non-putrescible'*	WSP, 2022 WC2	Silty clay with minor amounts of sand and moderate amounts of roadbase gravels	**MET Sydney Pty Ltd** 134 Carnarvon Street, Silverwater, NSW 2128 EPL: 20948
6/05/2022	Stage 3 General	14.14	*'Mixed heavies with fines'* [1]	N/A	Stockpiled concrete and asphalt	
11/05/2022	Northern Classification Area	16.32	*'Special Waste (asbestos) – within a soil matrix chemically consistent with*	WSP, 2022 WC1	Silty sand topsoil with rootlets and sub-angular rock fragments	**Bingo Waste Services Pty Ltd** Eastern Creek Ecology Park,

[4] The quantity of material classified for waste disposal under WSP's Waste Classification reports (WC1 to WC2) was approximately 460 tonnes (260 m^3 + bulking factor for fill of 1.8). The total amount of material disposed off-site (excluding stockpiled concrete/asphalt) is 219 T. This tonnage is considerably lower than that which was classified under the Waste Classification reports. This discrepancy is noted to be a result of the following; differences between real-world and desktop estimates and overestimation, where less material was transported off site than initially classified and variances in material densities.

DATES	LOCATION	TONNES (PER DAY)	CLASSIFICATION	REPORT	MATERIAL	FACILITY
			general solid waste – non-putrescible'			1 Kangaroo Avenue, Eastern Creek, NSW 2766 EPL: 13426
16/05/2022	Eastern & Southern Classification Area	14.18	*'General solid waste – non-putrescible'*	WSP, 2022 WC1	Sandy gravel with inclusions of concrete aggregate	**MET Sydney Pty Ltd** 134 Carnarvon Street, Silverwater, NSW 2128 EPL: 20948
17/05/2022	Eastern & Southern Classification Area	25.56	*'General solid waste – non-putrescible'*	WSP, 2022 WC1	Sandy gravel with inclusions of concrete aggregate	

(1) Consistent with NSW EPA pre-classified *General solid waste – non-putrescible'* 'construction and demolition waste'.

Copies of the waste disposal dockets, and vehicle register[5] are included in Appendix D.

During the Stage 3 works, concrete and bitumen was removed from surfaces across the redevelopment area and stockpiled separately, pending transport off site to MET Sydney Pty Ltd, located at 134 Carnarvon Street, Silverwater, NSW 2128 for recycling. This material was transported off-site on 6 May 2022, as "mixed heavies with fines". A total of 14.14 tonnes of mixed concrete and bitumen was transported to Met Sydney Pty Ltd for recycling.

Copies of the bitumen disposal dockets are included in Appendix D.

7.2 IMPORTED MATERIAL

7.2.1 LYNWOOD HARDROCK QUARRY

For validated areas, quarried material was required to be imported to provide a suitable engineering base for locations where concrete was to be placed on site (Block F extension, kiss and drop roadway and associated footpaths etc). Grindley generally imported the material in bulk, which was stockpiled and then used in validated areas beneath proposed concrete hardstand areas as required.

Although quarried material cannot be classified as VENM as it does not satisfy the definition of "waste" (EPA 2020), the material is consistent with the requirements of the RAP and site suitability criteria.

The imported material details are provided in Table 7.2.

Table 7-2 Imported material summary

DATES	TONNES PER DAY	BOGIES PER DAY	SOURCE ADDRESS	REPORT REFERENCES	STOCKPILE / MATERIAL
06/04/2022	53.4	3		Construction Sciences - 2020 Extraction Zone PSI VENM	

[5] Truck vehicle registers were provided by Grindley for all asbestos material exported off site under WSP's Waste Classification reports. Truck vehicle registers were not provided for GSW material exported from the site. GSW was exported during the following dates; 4/05/22, 16/05/22 and 17/05/22. Waste disposal dockets have been provided for the GSW material.

DATES	TONNES PER DAY	BOGIES PER DAY	SOURCE ADDRESS	REPORT REFERENCES	STOCKPILE / MATERIAL
08/04/2022	87.6	5	**Holcim Rooty Hill Aggregate Depot** 21 Kellog Road, Rooty Hill. Material delivered by haulage company – GLC Civil COD.	Assessment Report (November 2019) ENM exemption for primary scalp material from Lynwood quarry Report by Construction Sciences Pty Ltd (June 2019) Blue metal Aggregate 20mm – Concrete Aggregate Quality/Durability Report by Construction Sciences Pty Ltd (February 2020)	Blue metal aggregate – 20 mm
11/04/2022	17.78	1			
13/04/2022	80.26	4			
14/04/2022	69.68	4			
19/04/2022	49.54	3			
20/04/2022	35.18	2			

To satisfy the importation requirements of the WSP, 2020 RAP, WSP completed additional testing (14/05/2020) of the material sourced from Lynwood Hardrock Quarry – Lynwood Quarry, Marulan, NSW as part of the Stage 1 school development works. Three soil samples (each comprising a composite and discrete sample) were collected and analysed as part of confirmatory testing. Concentrations of TRH, BTEXN, PAH, foreign material, asbestos (presence/absence) were below their respective laboratory limits of reporting (LORs) (Laboratory Report 719520-S). Concentrations of heavy metals were within the acceptance criteria for excavated natural material (ENM). WSP also reviewed source site documentation and undertook inspections at several stages during importation to verify that the physical appearance of the material was the same as that presented in the provided documentation and that assessed during the Stage 1 school remediation.

It is noted that the blue metal aggregate material originally assessed as part of the Stage 1 remedial works was imported to site directly from the Holcim Lynwood Hardrock Quarry Lynwood Quarry in Marulan, NSW. During import as part of the Stage 3 works (and a majority of the Stage 2 works) the aggregate material was sourced directly from the Holcim Rooty Hill Aggregate Depot – 21 Kellog Road, Rooty Hill NSW.

To verify that this source site consisted of the same material that WSP assessed as part of the Stage 1 works, on 2 December 2021, WSP contacted Holcim Pty Ltd to confirm the source of material stored at the Holcim Rooty Hill Aggregate Depot – 21 Kellog Road, Rooty Hill NSW. WSP was informed that quarried material sourced from the Holcim Lynwood Hardrock Quarry Lynwood Quarry, Marulan, NSW is commonly transported to the Holcim Rooty Hill Aggregate Depot – 21 Kellog Road, Rooty Hill for storage. During both the Stage 2 and Stage 3 works, WSP inspected the material arriving on site during supervision on several occasions to ensure consistency with the material initially assessed, to that which was arriving on site from the Rooty Hill storage depot.

Table 7-3 Lynwood Hardrock Quarry Summary Table

SOURCE ADDRESS	LYNWOOD HARDROCK QUARRY – LYNWOOD QUARRY, 278 STONEY CREEK ROAD, MARULAN, NSW
History of potentially contaminating activities	A search of the NSW EPA contaminated land record of notices found that the site, nor any site within 1 km is listed. The site performs activities licensed by the Environment Protection Authority (EPA) under Schedule 1 of the Protection of the Environment Operations Act 1997. Under EPL 12939, the site the site is permitted for crushing, grinding or separating and for extractive activities.

	The site is listed as having a low probability of acid sulfate soils occurring and is not within an area of naturally occurring asbestos.
Material description and observations.	Blue Metal Aggregate (20mm)
Total volume imported to site.	393.44 tonnes
Sampling density and pattern.	Three samples (each comprising a composite and discrete sample) were collected from stockpiled material during the stage 1 works in 2020. Locations were evenly distributed across the stockpile.
Sampling method.	Chemical samples collected using a grab method with nitrile gloves changed between sample locations. Foreign material samples were collected using a stainless-steel shovel.
List of COPCs.	TRH, BTEXN, PAH, heavy metals, foreign material and asbestos (presence/absence)
Brief written summary of results.	Concentrations of TRH, BTEXN, PAH, foreign material, asbestos (presence/absence) were below their respective laboratory limits of reporting (LORs) (Laboratory Report 719520-S). Concentrations of heavy metals were within the acceptance criteria for ENM.
WSP conclusions on suitability for importation.	This material cannot be classified as VENM, due to it being a processed product, however the lack of concentrations of contaminants exceeding ENM guidelines indicates that the source material is consistent with the environmental quality of VENM.

Supporting documentation including the certificate covering letter for the material, quarry licence, waste classifications, and importation dockets/register is included in Appendix E - E1.1 and E1.2.

7.2.2 LANDSCAPING / CAPPING MATERIAL

7.2.2.1 ORGANIC GARDEN MIX (HI-QUALITY)

In proposed landscaped areas within the Stage 3 remediation area, an organic Garden Mix product was provided by Hi-Quality from the Suez Eastern Creek Depot source site. A total of 37 tonnes of organic garden mix was imported from the Suez source site, with details summarised in Table 7-6 below.

Table 7-4 Organic Garden Mix Imported material summary

DATES	TONNES PER DAY	SOURCE ADDRESS	SUPPLIER / HAULAGE COMANY	REPORT REFERENCES	STOCKPILE / MATERIAL
27/05/2022	3	Suez Depot (2 Wallgrove Road, Eastern Creek)	Hi-Quality / Whole Landscapes	*Anna Bay Sand Dune VENM Assessment* by Hunter Civilab Pty Ltd (August 2020) Suez *Organic Garden Mix* Product Data Sheet (February 2022)	Organic Garden Mix
1/07/2022	34				

To support the approval of importation and in compliance with the importation requirements of the WSP, 2020 RAP, WSP collected confirmatory samples assessments to verify suitability of both source sites. Three bulka bags of the organic garden mix material were imported to site from the SUEZ Depot source site for assessment by WSP on site. The summary of the confirmatory sampling is provided in Table 7-5 below.

From discussions with Suez (now Veolia Pty Ltd), the garden mix material is processed at the Suez Eastern Creek Depot, located at 2 Wallgrove Road, Eastern Creek NSW. Following processing, the material is purchased by Hi-Quality and transported to their St Marys depot, located at 37 Lee Holm Road, St Marys NSW. This material was then transported direct from the Hi-Quality St Marys depot to the Wentworthville Public School site.

Table 7-5 Hi-Quality Ltd Organic Garden Mix Imported material summary

Source Address	SUEZ DEPOT – 2 WALLGROVE ROAD, EASTERN CREEK NSW
Authorised activities	The site performs activities licensed by the Environment Protection Authority (EPA) under Schedule 1 of the Protection of the Environment Operations Act 1997. Under EPL 12517, the site the site is permitted for composting and waste processing (non-thermal treatment).
Material description and observations	Organic sandy loam soil
Total volume imported to site	37 tonnes
Sampling density and pattern	Three discreet confirmatory samples were collected by WSP on 27 May 2022, one from each of the three bulka bags, imported directly from the SUEZ Eastern Creek Depot to the Wentworthville Public School site on 27 May 2022.
Sampling method	All samples were collected using a trowel and nitrile gloves. The trowel that was used for placing soil samples into jars was decontaminated between sampling locations using a phosphate-free detergent (Decon 90) and water solution, and subsequently rinsing again in water. All samples were collected using a new pair of nitrile gloves per sample. In-field visual screening of the material was conducted.
Samples collected	Hi Qual_Soil_01, Hi Qual_Soil_02 and Hi Qual_Soil_03.
List of COPCs	TRH, BTEXN, PAHs, Metals, OCP/OPP, PCBs and asbestos (assessed by NEPM 10L and 500 mL samples).
Brief written summary of results	Analytical results reported trace detections of various PAH compounds, below the adopted criteria. The results also reported elevated concentrations of TRH in the C10-C16, C16-C34 and C34-C40 fractions below the adopted criteria. Concentrations of heavy metals were detected above the EQL, but were well below the adopted criteria in a majority of samples. All other CoPC were below laboratory detection limits or within acceptable background concentrations. No asbestos was observed or detected.
WSP conclusions on suitability for importation	The source of the PAH detections were not considered representative of the material. The detections did not exceed site acceptance criteria. WSP considered this material was suitable for import if sourced from this approved supplier.

Copies of the imported material register, importation dockets, material covering letter, material reports and results are included in Appendix E - E1.1 and E1.3.

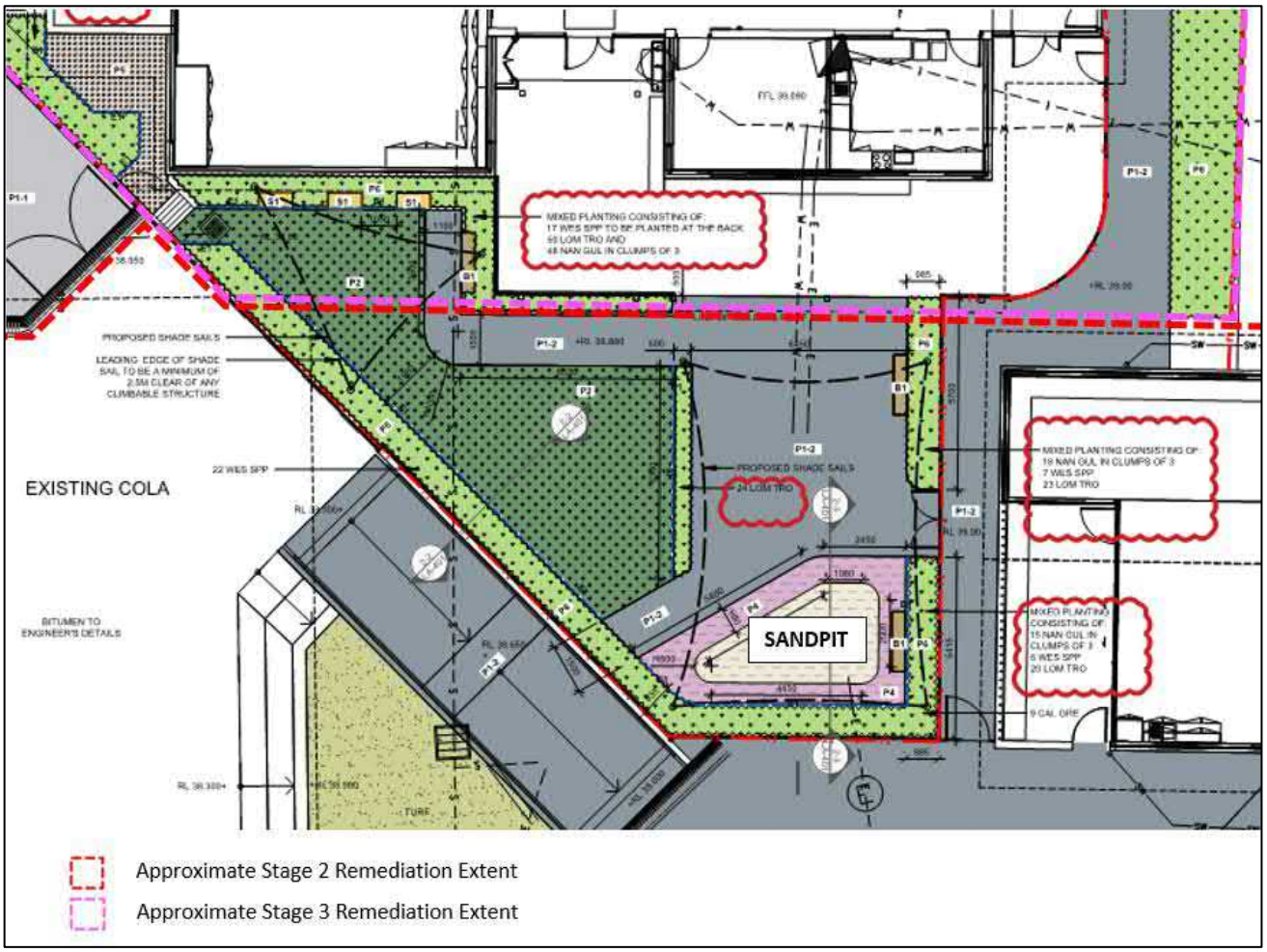
7.2.2.2 PLAYGROUND SAND (AUSTRALIAN NATIVE LANDSCAPES)

In areas of the site which required stabilising prior to the application of concrete hardstand, and for a children's playground (sandpit; refer to Figure 7.1) located within the Stage 2 remediation area, a playground sand mix was imported from Australian Native Landscapes (ANL) Seven Hills source site. A total of 8 tonnes of playground sand was imported from the source, with details of this site summarised in Table 7-6 below.

Table 7-6 Playground Sand Imported material summary

DATES	TONNES PER DAY	SOURCE ADDRESS	SUPPLIER / HAULAGE COMANY	REPORT REFERENCES	STOCKPILE / MATERIAL
24/05/2022	3	4-6 Tollis Place, Seven Hills NSW 2147	ANL / Whole Landscapes	*Assessment of VENM, SS & LM Johnson Pty Ltd Quarry – Anna Bay* by Douglas Partners Pty Ltd (August 2020) ANL Specification Q3 – Tilling & Sandpit Sand (September 2020)	Virgin sand
27/05/2022	1				
19/07/2022	4				

Figure 7.1 Playground area – Stage 2



To support the approval of importation and in compliance with the importation requirements of the WSP, 2020 RAP, and verify this source site which provided the playground sand material, WSP collected confirmatory samples for assessment to verify suitability of the source site. Three bulka bags of the material were imported to site from the Seven Hills source site for assessment by WSP on site. The summary of the confirmatory sampling is provided in Table 7-7 below.

WSP contacted the ANL head office and spoke with Stewart Robson of ANL on 22 June 2022 to confirm the source location of the above-mentioned sand material. ANL confirmed the sand material is sourced from Anna Bay (refer to Appendix E - E1.4 for the Douglas Partners VENM certificate). This material is then transported to the ANL Badgerys Creek Facility, located at 210 Martin Road, Badgerys Creek NSW 2555 for processing under EPL 4625. The sand material is then distributed to various retail suppliers for sale. Material sent to the site was then sourced from the Seven Hills retail supplier.

Table 7-7 Playground sand Imported material summary

Source Addresses	ANL SEVEN HILLS - 4-6 TOLLIS PLACE, SEVEN HILLS NSW 2147
Authorised activities	The processing site (Badgerys Creek) performs activities licensed by the Environment Protection Authority (EPA) under Schedule 1 of the Protection of the Environment Operations Act 1997. Under EPL 4625, the site is permitted for composting/non-thermal treatment of general waste and waste storage – other types of wastes (including foundry sand and VENM).
Material description and observations	Virgin sand

Total volume imported to site	8 tonnes
Sampling density and pattern	Three discreet confirmatory samples were collected by WSP on 27 May 2022, one from each of the three bulka bags, imported directly from the ANL Seven Hills site to the Wentworthville Public School site on 27 May 2022.
Sampling method	All samples were collected using a trowel and nitrile gloves. The trowel that was used for placing soil samples into jars was decontaminated between sampling locations using a phosphate-free detergent (Decon 90) and water solution, and subsequently rinsing again in water. All samples were collected using a new pair of nitrile gloves per sample. In-field visual screening of the material was conducted.
Samples collected	ANL_Sand_01, ANL_Sand_02 and ANL_Sand_03.
List of COPCs	TRH, BTEXN, PAHs, Metals, OCP/OPP, PCBs and asbestos (assessed by NEPM 10L and 500 mL samples).
Brief written summary of results	All CoPC's were below laboratory detection limits or within acceptable background concentrations. No asbestos was observed or detected.
WSP conclusions on suitability for importation	WSP considered this material was suitable for import if sourced from this approved supplier.

Copies of the imported material register, importation dockets, material reports and results are included in Appendix E - E1.1 and E1.4.

8 SAMPLING & ANALYSIS PLAN & METHODOLOGY

Following the findings of the WSP 2022 Material suitability/waste classification assessment for Stage 3, it was determined that friable asbestos failed the applicable HIL/EIL criteria in the northern area within the Stage 3 redevelopment area. Therefore, in order to manage the exceedances, a combination of remedial methodologies including soil capping and off-site disposal were adopted. The extent of the asbestos contaminated fill was delineated in the WSP 2022 material reuse suitability assessment (refer to Section 4.5).

In areas proposed for remediation via soil capping (kiss and drop in-situ services), friable asbestos was detected. This detection was within the fill material historically used to backfill services within this area. Refer to Appendix J for capping area.

To validate soils where unsuitable fill material was excavated, and in accordance with Section 6.2 of the WSP RAP 2020, grid-based (minimum 10 x 10 m) validation sampling was undertaken in the kiss and drop area (outside of the kiss and drop in-situ services capping area) when:

- natural clay surfaces were exposed;
- final excavation depths were reached; and
- The primary means of asbestos validation was visual inspection by an LAA of exposed clay surfaces where overlying contaminated fill material did not identify friable asbestos. A visual inspection and 500 mL AF/FA samples were collected from exposed clay surfaces in a minimum 10 x 10 m grid, where overlying contaminated fill material contained friable impacts. For in-situ excavation walls where the exposed surfaces were not clearly natural, either 500 mL soil AF/FA samples were collected or walls were lined with a high-visibility geofabric marker layer.

Validation samples were collected between 31 March 2022 and 3 May 2022 from exposed natural clay surfaces and in-situ fill walls (where required) in the kiss and drop validation area. A table summarising the final validation data and purpose is provided in Section 9.1.

The excavation and sampling methods are detailed in Table 8-1 below, and final validation sampling locations are presented in Figure 5, Appendix A. The specific types of remediation and areas are shown in Appendix A, Figure 3.

Table 8-1 Field Methodologies

TASK	METHODOLOGY
Soil screening (wall sample locations with fill remaining in-situ)	At each location a 10 L soil sample of surface material (0.0 – 0.1 m) was collected and passed through a 7mm sieve or spread out on contrasting coloured plastic sheet and inspected for ACM fragments. Any ACM fragments were collected and placed in a clip lock sample bag for weighing and asbestos presence analysis.
Soil Screening (friable asbestos areas)	To validate asbestos impacts in exposed clay surfaces following fill removal, a 10 L soil sample in line with the required sampling densities within each area was collected and passed through a 7 mm sieve or spread out on contrasting coloured plastic sheet and inspected for ACM fragments. Any ACM fragments were collected and placed in a zip-lock sample bag for weighing and asbestos presence analysis. A 500 mL AF/FA sample was then also collected from each sample location. For in-situ excavation walls where the exposed surfaces were not clearly natural, the walls were either inspected and a 500 mL soil AF/FA sample was collected, or walls were lined with a high-visibility geofabric marker layer.

TASK	METHODOLOGY
Air monitoring	During the asbestos remedial works, airborne asbestos fibre monitoring was undertaken by the field consultant using calibrated portable air sampling pumps. Monitoring locations were determined by the field consultant and four monitors (minimum) were placed on the boundaries of the surrounding work area. At the end of each monitoring period, the cowls containing the sample filters were collected and analysed at a NATA-accredited laboratory. Monitoring works were conducted in accordance with NOHSC Guidance Note on the Membrane Filter Method for Estimating Asbestos Fibres 2nd Edition (NOHSC:3003 [2005]).
Soil sampling	Soil samples were collected directly from the excavator bucket and / or trowel while using nitrile gloves. All samples collected were placed in dedicated laboratory supplied glass jars (chemical) and zip-lock plastic bags (asbestos).
Sample handling/ preservation	Soil samples were stored in an insulated cooler box with ice immediately after sampling. The samples were kept chilled prior to and during delivery to national association of testing authorities (NATA) accredited laboratory via a courier under appropriate 'chain of custody' documentation.
Decontamination	The trowel that was used for placing soil samples into jars was decontaminated between sampling locations using a phosphate-free detergent (Decon 90) and water solution, and subsequently rinsing again in water. All samples were collected using a new pair of nitrile gloves per sample.
Quality Assurance/ quality control (QAQC)	The following QA/QC samples were collected: • Soil duplicate samples (intra-lab and inter-lab) were collected in the field at a rate of 1 in 20 primary samples for analysis. Field duplicate soil samples were collected from soil immediately adjacent to the primary sample by placing approximately equal portions of the primary sample into two sample jars. Trip spike and trip blank samples were carried throughout the excavation and soil sampling for assessment of potential volatile losses and cross contamination.

9 VALIDATION RESULTS & DISCUSSION

9.1 SUMMARY OF ANALYTICAL RESULTS

The final validation data set comprised of 14 chemical and 23 asbestos soil samples, as well as four locations where assessment was limited to visual asbestos field screening (as part of the EIS 2017 and WSP 2022 assessments). This is summarised as follows:

- Three chemical and two asbestos presence/absence samples on 3 December 2017 as part of the EIS Site Investigation. Of which, the two chemical samples and one asbestos sample was from the southern portion of Stage 3 and the remaining chemical/asbestos samples were from the temporary demountable asphalt area;
- 11 chemical and 7 asbestos % w/w samples between 17 and 18 January 2022 as part of the WSP Waste Classification / Material reuse suitability assessments across the Stage 3 extent. Four 10L soil samples collected from natural clay lithology were screened in the field. Four additional chemical and asbestos %w/w samples collected of fill material during the January 2022 waste classification assessment were removed from the validation dataset, as these were subsequently excavated during remedial works;
- Two chemical and two asbestos % w/w samples on 31 March 2022 (prior to subsequent excavation and removal) as part of chemical characterisation of fill material within the kiss and drop service trenches. Removed from the validation dataset, as these were subsequently excavated during remedial works;
- 14 asbestos %w/w samples between 31 March 2022 and 3 May 2022 from the exposed clay layers or exposed fill walls within the kiss and drop excavation area, which are further detailed below:
  - Four asbestos % w/w wall samples of exposed fill, adjacent areas validated as clean;
  - 10 asbestos % w/w base samples of exposed clay layers.

Refer to Appendix A, Figure 3 for areas subject to excavation, disposal and exposed base/wall validation and Figures 5 and Figure 6 for validation sample locations. Specific descriptions of the material type sampled as part of the validation assessment (i.e. exposed clay layer or exposed fill wall) are provided on the summary tables in Appendix G.

9.1.1 CHEMICAL RESULTS

In-situ Chemical Analysis (Stage 3)

All 20 soil chemical samples (inclusive of the six fill samples which were removed during remedial works) were below the detection limits for BTEXN, PCB, OCP and OPP. Minor detections of TRH (F2 and/or C16-C34 and/or C34-C40) were recorded in five fill samples (TP6_0.2, TP8_0.2, TP9_0.2, TP10_0.2 and TP11_0.2) and minor PAHs (B(a)P, B(a)P TEQ and/or PAHs (Sum)) were detected in a majority of fill samples, all below the adopted site criteria. No detections of TRH or PAHs were detected in natural soil samples. Trace concentrations of Benzo(a)pyrene was detected in one sample of natural material (TP3_0.4). All samples for exposed clay surfaces were below the site acceptance criteria for human health and ecology. Heavy metal detections were recorded for arsenic, chromium, copper, lead, mercury, nickel and zinc, and all results were below site acceptance criteria for human health and ecology.

As all chemical results were noted to be below the adopted site criteria, additional chemical analysis to validate soils on site was not required.

The analytical summary tables are included in Appendix G, with laboratory certificates provided in Appendix I - I1.1.

9.1.2 ASBESTOS RESULTS

A total of 23 asbestos samples were included as part of the validation dataset. Four additional samples were subject to included visual field screening only (TP3_0.4, TP5_0.5, TP8_0.5 and TP10_0.4), which were collected during the WSP 2022 Waste Classification / Material reuse suitability assessments (refer to Section 4.5).

In all final excavation locations where asbestos (bonded or friable) was identified, samples for asbestos 500mL % w/w analysis were collected from the exposed clay surfaces and exposed fill walls (where applicable) within each validation area as per the required sampling densities.

All asbestos validation analytical results were non-detect. In addition to the above, two base samples were collected from in-situ fill material within the kiss and drop service trench area during validation sampling on 31 March 2022 (ST_01 and ST_02). These two samples were removed from the validation data set, as these base samples were subsequently excavated and removed as part of additional fill removal works in this area, which was then covered with a high visibility geofabric marker layer. The two above-mentioned samples were negative for asbestos.

The asbestos results are included in Appendix G, which all above-mentioned asbestos sample results.

9.2 VISUAL VALIDATION OF SURFACES

During the course of soil scraping works, separate clearance certificates for the site and equipment used were issued by an LAA. Following completion of surface scraping and removal of all excavated asbestos contaminated material from within the site, an LAA then conducted a final clearance inspection of the full Stage 3 area to ensure that all ACM impacted soil was removed on the 17 June 2022 (refer to Appendix A, Figure 4 for clearance locations). The visual inspections also confirmed there was no evidence of aesthetic impacts on the surface or other visual or olfactory indicators of contamination.

As part of the final visual clearance inspection completed on the 17 June 2022, material determined by WSP to be suitable for re-use within the Stage 3 remedial area, as per the material suitability memo (refer to Section 4.5) were inspected to confirm there was no evidence of aesthetic impacts on the surface or olfactory indicators of contamination.

Refer to Appendix A, Figure 4 for clearance certificate extents, with clearance certificate reports included in Appendix F.

9.3 CAPPING LAYER

9.3.1 KISS AND DROP SERVICES

WSP was present on site during the capping layer installation process for the kiss and drop in-situ services capping area. This installation process was completed on 11 May 2022. The geotextile layer was inspected and photographed by WSP on 11 May 2022 (refer to Appendix C, photograph 15).

It is noted that geofabric marker layers were applied to fill in the kiss and drop capping area on 31 March 2022 and 3 May 2022. These two geofabric marker layers were subsequently removed as part of additional excavation works which were required by Grindley in order to achieve greater depths for the kiss and drop asphalt roadway installation. The geofabric marker layer applied over the in-situ fill/services in the kiss and drop capping area on 11 May 2022 was the final geofabric surface. Following this, validated imported material approved for cap construction (Lynwood Hardrock Quarry, roadbase gravels) which was imported to site and stockpiled between 6 April 2022 and 20 April 2022, was used applied to the capping area and compacted as per project requirements. An example of the imported roadbase gravel is provided in Appendix C, photograph 12 and the final compacted surface, prior to asphalt application is shown as photograph 16.

A final concrete layer was applied to the roadbase gravels within the kiss and drop drive-through area on 29 June 2022.

A small portion of the kiss and drop capping area (south-western corner of the "in-situ services" capping area, refer to Appendix A, Figure 3), was outside of the kiss and drop roadway. This area was capped with the approved Lynwood Hardrock Quarry roadbase gravels, which was followed by the pouring of a concrete hardstand.

With regards to the concrete and roadbase gravel capping layers, survey drawings from those collected at milestones during the capping process (i.e. following geofabric marker layer application, but prior to cap construction and then following capping layer construction) are provided in Appendix J.

As per Section 6.1.2 of the RAP, validation for paved areas where ACM has been capped should document the following:

- Installation of the geotextile layer;
- LAA confirm no residual contaminated soils are present on top of the geotextile layer and issue a clearance certificate;
- Surveyor should survey the level of the geotextile layer and complete a supplementary survey following the pouring of concrete or asphalt application;
- Environmental consultant should collect photographic evidence of the progress of capping layer construction works.

Based on the above recommendations (as per Section 6.1.2 of the RAP) and following comparison of the initial survey levels, prior to geofabric application to the survey completed of the as-built surfaces, results indicate that appropriate paved capping of the kiss and drop services area has been achieved. This capping area is to be included in the sites LTEMP.

9.3.2 EXISTING CAPPING AREAS

Block F Concrete Capping & Temporary Demountable Asphalt Capping Area

The footprint of one building on site was to remain undisturbed (Block F) as part of the redevelopment and refurbishment works of the existing building was undertaken. The existing asphalt area beneath a temporary demountable building in the southern portion of the site was also to remain undisturbed, following removal of the demountable structures.

As per Section 3.4.2 of the RAP, concrete hardstand and flexible pavement is considered an appropriate capping media. It is noted that both the concrete hardstand of Block F and asphalt hardstand in the temporary demountable areas were developed prior to occupation by Grindley and thicknesses of capping layers and underlying subgrades are not known. It is also unlikely that a high visibility geotextile marker layer was applied to the suspected contaminated soils prior to construction.

On 17 June 2022, WSP attended site to conduct a final visual clearance inspection and inspect accessible areas of the Block F concrete footprint and asphalt hardstand. During inspection, all accessible hardstand areas appeared to be in good condition, with no cracking or potential integrity issues noted.

As a result, WSP considers the existing concrete hardstand capping within the Block F building footprint and asphalt in the temporary demountable capping area appears to be adequate for use and both areas are to be included in the site LTEMP.

10 QUALITY ASSURANCE & QUALITY CONTROL

10.1 DATA QUALITY OBJECTIVES

Systematic planning is critical to successful implementation of an environmental assessment and is used to define the type, quantity and quality of data needed to inform decisions. The United States Environmental Protection Agency has defined a process for establishing data quality objectives (DQOs), which is referenced in the NEPM (2013). DQOs ensure that:

- the study objectives are set;
- appropriate types of data are collected (based on contemporary land use and chemicals of concern); and
- the tolerance levels are set for potential decision-making errors.

The DQO process is a seven-step iterative planning approach. The outputs of the DQO process are qualitative and quantitative statements which are developed in the first six steps. They define the purpose of the data collection effort, clarify what the data should represent to satisfy this purpose and specify the performance requirements for the quality of information to be obtained from the data. The output from the first six steps is then used in the seventh step to develop the data collection design that meets all performance criteria and other design requirements and constraints.

The data quality objectives (DQOs) for this investigation were designed to meet the objectives of the WSP RAP (2020). The DQOs adopted for this investigation are described in Table 10.1.

Table 10-1 Data quality objectives discussion

STEP	OBJECTIVE	COMMENTS
1	State the problem	The site has historically been used as a kindergarten and primary school. The site is undergoing redevelopment and upgrades for certain areas across the school property. Areas underlain by fill material impacted by asbestos have been identified across the redevelopment. The 'problem' is that the areas impacted by contamination require environmental management and remediation during and post construction works. The management and remediation of the site requires validation so that an Occupation Certificate (OC) can be issued.
2	Identify the decisions/goals	The goal of the remedial works is to remediate the areas of soil impacted at the site via a combination of encapsulation and off-site disposal of impacted soils, to mitigate the potential human health and/or environmental risks for the proposed land use. The goal of the site validation works is to verify remediation was done in accordance with WSP RAP 2020 and complies with adopted health and ecological criteria with no evidence of ongoing risk to site users for the proposed land-use as a primary school.

STEP	OBJECTIVE	COMMENTS
3	Identify inputs to the decision	The following inputs were considered: • concentrations of contaminants presented in previous and current investigations. • WSP RAP, 2020. • Asbestos air-monitoring and clearance certificates provided by an LAA. • NSW EPA (2014) Waste Classification Guidelines, Part 1: Classifying Waste. • Quality of imported backfill materials including consideration of NSW EPA (2014) Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment operations (Waste) Regulation.
4	Define the boundaries of the study	The site is located at 70-100 Fullagar Road, Wentworthville NSW and comprises part Lot 69 to 92 in Deposited Plan 963. The lateral extent of the validation is the site boundaries (refer to Site Survey in Appendix J). The vertical extent is bounded by the depths of fill material underlying the site (maximum depth of 0.5 mBGL). Temporal boundaries for this validation are from 29 March 2022 through to 14 July 2022 (completion of remediation works).
5	Develop a decision rule	The purpose of this step is to define the parameters of interest, specify the action levels and combine the outputs of the previous DQO steps into an 'if…then…' decision rule that defines the conditions that would cause the decision maker to choose alternative actions. The parameters of interest are the concentrations of COPCs in validation samples collected at the site. An assessment of the concentrations of COPCs against the adopted validation criteria (as outlined in Section 9) is undertaken to determine the potential risks to receptors associated with residual material at the site following remediation, and the suitability of the site for the proposed land use as a primary school. Should concentrations exceed the validation criteria outlined in Section 9, further investigation, management and/or remediation may be necessary to further characterise or delineate the identified impacts and/or mitigate the risk to identified receptors, in accordance with WSP RAP 2020.
6	Specify performance and acceptance criteria	The acceptable limits on decision errors to be applied in the investigation and the manner of addressing possible decision errors have been developed based on the data quality indicators (DQIs) of precision, accuracy, representativeness, comparability and completeness and are presented in Tables 10.2 and 10.3.
7	Optimise the plan for obtaining data	To ensure the site validation works satisfy the DQOs, the following was implemented to optimise the design for obtaining data: • validation samples will be located based on the findings of previous environmental investigations and remedial works conducted at the site, and will be collected at a minimum frequency outlined in with the WSP RAP, 2020; and • validation samples will be analysed for COPCs based on the requirements outlined in the RAP (WSP RAP, 2020) and additional COPCs for any additional contaminant sources or unexpected finds (as required). In addition to the above, DQIs (for accuracy, comparability, completeness, precision and reproducibility) have also been established to set acceptance limits on field methodologies and laboratory data collected and are presented in Tables 10.2 and 10.3.

10.2 DATA QUALITY INDICATORS

10.2.1 FIELD DATA QUALITY INDICATORS

The QA/QC program adopted in the field was assessed against various data quality indicators. A summary discussion of the field data quality indicators (DQIs) is provided in Table 10.1.

Analytical results and relative percent difference (RPD) calculations for the intra- and inter-laboratory field replicates are provided in Appendix H. The precision of the results for each analyte between the primary sample and the field replicates were determined by calculating the RPD, as follows:

$$RPD = \frac{(Concentration\,1 - Concentration\,2)\ x\ 100}{(Concentration\,1 + Concentration\,2)\ /\ 2}$$

Based on Australian Standard AS 4482.1-2005, a field replicate RPD within the range of 30% to 50% is considered acceptable. Generally higher RPD values occur for organic compounds where low concentrations of an analyte are recorded.

Table 10-2 Field data quality indicators

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Appropriate sampling strategy used and representative samples collected	Yes	Disposable nitrile gloves were used and were changed between locations during soil sampling. The sampling methodology was in accordance with WSPs Standard Operating Procedures (SOPs), which is in line with and based on the Australian Standards for the sampling of contaminated soils. Various suitable qualified environmental scientists and hazardous materials consultants (LAA) conducted the site inspections and investigations.
Appropriate and well documented sample collection, handling, transportation and decontamination procedures	Yes	All samples collection and transportation were conducted in accordance with WSP Standard Operating Procedures which have been developed in accordance with industry guidelines, standards and best practice.
Chain of custody documentation completed	Yes	All samples were transported under appropriately detailed chain of custody documentation. Signed chain of custody documents are included with the laboratory certificates provided in Appendix G.
Blind field duplicates collected	Yes	Four intra-laboratory (QA01 (18.01.22), QA02 (18.01.22), QA01_310322 and QA01_270522) and three[6] inter-laboratory QA01A (18.01.22), QA02A (18.01.22), QA01A-270522) soil samples were collected during the site works and were submitted to the laboratory for the analysis of selected contaminants. Intra- and inter-laboratory duplicates were collected at a rate of one duplicate pair per 20 primary samples. Results of QA/QC analysis are provided in Appendix H.
Acceptable RPD results	Yes	All TRH, BTEX and PAHs pairs above the LOR were below the adopted RPD value of 30%.

[6] One inter-laboratory duplicate sample (QA01A_270522) was lost during transit from the primary lab (SGS) to the secondary lab (Eurofins) and was not analysed.

QA/QC REQUIREMENT	COMPLETED	COMMENTS
		Heavy metals; arsenic, chromium, copper, lead, nickel and zinc all recorded RPDs above the nominal 30% - 50% RPD criteria in one or more duplicate sample. RPD exceedances ranged from 32% - 130%. The RPD exceedances are likely to be due to sample heterogeneity and possible variance in the laboratory extraction or analytical methods. All RPD results are within an order of magnitude of the criteria, and percentage variance can be exacerbated by concentrations nearer the detection limit. Overall, the RPD results support a reliable and representative data set. QA/QC results are presented in Appendix H.
Required numbers of blank and spike samples collected and/or prepared	Yes	Two sets of soil trip blanks and trip spikes accompanied the transport of samples during the remediation works. These were to assess for potential volatile losses and the ensure no cross contamination occurred in transit. Four rinsate blanks were collected in the field. These were collected do assess for potential cross-contamination between sampling locations and assess the performance of cleaning of sampling equipment. Results are provided in Appendix H.
Acceptable trip and rinsate blank results as well as trip spike results	Yes	There were no detections of volatile TRH or BTEX compounds above the laboratory LOR in the soil trip blanks. Trip spike results ranged from 74%-99% recovery, which is considered acceptable for the purpose of this validation report (±30%). Trip blank and trip spike results are presented in Appendix H. No detections of TRH or BTEXN were noted in the rinsate samples.
Samples delivered within sample holding time and with correct preservative(s)	Yes	Samples were delivered to the laboratories within the sample holding times and in laboratory-supplied containers prepared with the appropriate preservative (where required).

10.2.2 LABORATORY DATA QUALITY INDICATORS

The results of laboratory internal quality control procedures are provided within the laboratory analytical reports (Appendix I - I1.1). The acceptance criterion for internal laboratory replicates is generally set at an RPD of 30% to 50%. Laboratory recoveries should be in the range 75% to 125%. Table 10-3 summarises project conformance to laboratory QA/QC procedures.

Table 10-3 Laboratory data quality indicators

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Samples extracted and analysed within relevant holding times	Yes	Refer to Interpretive Quality Control reports (Appendix I).
All analyses are NATA accredited	Yes	SGS, WSP laboratory and Eurofins are NATA accredited for all the analyses performed.
Appropriate analytical methodologies used, in accordance with Schedule B(3) of the NEPM	Yes	Refer to the Interpretive Quality Control reports (Appendix I).

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Acceptable laboratory Limits of Reporting (LORs) adopted	Yes	The laboratory LORs adopted were appropriate for the adopted criteria. A summary of the limits of reporting adopted are provided in the laboratory analysis reports (Appendix G).
Acceptable laboratory QC results	Yes	Internal laboratory quality controls demonstrated acceptable recoveries and passes for method blanks, method spikes, control and duplicate samples. Where exceedances outside the laboratory recovery or RPD's were noted, acceptable justification was provided by the laboratory. Any laboratory quality non-conformance are not considered to compromise the validity of the analytical results obtained. The results of internal laboratory quality control procedures are provided within the laboratory analysis reports (Appendix I - I1.1).

10.3 FIELD QA/QC PROCEDURES

Table 10.4 indicates conformance to field QA/QC procedures.

Table 10-4 Field QA/QC procedures

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Appropriate sampling strategy used, and representative samples collected	Yes	Disposable nitrile gloves were used and were changed between locations during soil sampling. The sampling methodology was in accordance with WSPs Standard Operating Procedures (SOPs), which is in line with and based on the Australian Standards for the sapling of contaminated soils.
Appropriate and well documented sample collection, handling, logging, transportation and decontamination procedures	Yes	All sample collection and transportation were conducted in accordance with WSP standard operating procedure (SOP) which have been developed in accordance with published industry guidelines and standards and best practice.
Chain of custody documentation completed	Yes	All samples were transported under appropriately detailed chain of custody documentation.

10.4 LABORATORY QA/QC

Laboratory QA/QC procedures generally include the performance of several internal checks of data precision and accuracy that are aimed at assessing possible errors associated with sample preparation and analytical techniques.

The results of internal laboratory quality control procedures are provided within the laboratory analysis reports in Appendix I - I1.1. Table 10.5 and 10.6 provide a summary and discussion of project data quality performance for soil laboratory analyses.

Table 10-5 Laboratory QA/QC Procedures

QA/QC REQUIREMENT	COMPLETED	COMMENTS
Samples extracted and analysed within relevant holding times	Yes	Refer to primary and secondary lab Interpretive Quality Control reports.
All analyses NATA accredited	Yes	Laboratory is NATA-accredited for the analyses performed.
Appropriate analytical methodologies used, in accordance with Schedule B (3) of the NEPM	Yes	Analytical methodologies performed throughout the soil assessment have been in accordance with Schedule B (3) of the NEPM.
Acceptable LOR adopted	Yes	All LORs were below the adopted assessment criteria

10.5 QA/QC SUMMARY

The field sampling procedures conformed to WSP QA/QC protocols to prevent cross contamination, preserve sample integrity and allow for collection of a suitable data set from which to make technically sound and justifiable decisions with data of satisfactory useability.

The review of the laboratory QA/QC showed that contaminant concentrations in the blank analyses and spike recoveries were all within the acceptable range. Overall WSP considers that the analytical results provided by the laboratories are reliable and complete.

11 CONCLUSION & RECOMMENDATION

11.1 CONCLUSIONS

Grindley completed asbestos remediation works at the Wentworthville Public School between 29 March 2022 and 14 July 2022 under the guidance of WSP. All contaminated areas identified in the RAP and WSP 2022 Waste Classification / Material reuse suitability assessments were excavated to the extent of natural clay surface and validated, or capped with a concrete or asphalt capping layer. Validation of the cap and exposed surfaces has been confirmed via the following items set out in the RAP (WSP, 2020):

- Photographs have been taken of the geotextile fabric layer, exposed validated surfaces and existing concrete and asphalt hardstand layers; and
- Sufficient coverage of the remediation area, including sufficient overlap between layers of geotextile fabric and anchoring of the geotextile to the ground, has been captured in photographs.

Based on the implementation of the RAP, involving remedial works for the site between 29 March and 14 July 2022, WSP makes the following conclusions:

- No ACM was identified on the natural clay surfaces within areas subject to excavation of ACM impacted soils (refer to Appendix A Figure 3 for extent). As such all ACM % w/w concentrations were below adopted HSLs. As the validation works did not identify ACM above the adopted criteria, there is no evidence of an ongoing ACM risk to site users.
- All assessment/validation sampling locations selected for chemical analysis (TRH, BTEXN, PAH and eight heavy metals, with selected samples analysed for OCP, OPP and PCB) were below laboratory LORs and/or below adopted health and ecological criteria. As the assessment/validation works did not identify chemical concentrations above the adopted criteria, there is no evidence of an ongoing chemical risk to site users.
- With regards to the exposed boundary walls within contaminated fill, either soil validation samples have been collected, or a high visibility geofabric marker layer has been applied to excavation walls intersecting contaminated fill. Based on the clearance inspection and wall validation sample analytical results, WSP considers that exposed fill walls have been adequately validated (where required). Walls covered with geofabric are included in the sites LTEMP.
- With regards to cap and containment, the area encompassed by “kiss and drop in-situ services” Capping area is 54 m^2 (based on survey completed by WSP on 17 June 2022). The as-built survey of the “kiss and drop in-situ services” completed on 14 July 2022 by Grindley indicates that the minimum capping thickness for concrete has been achieved across the capping area. Therefore, WSP consider that the “kiss and drop in-situ services” capping works have been completed to meet the design concepts as set out in the RAP (WSP, 2020).
- With regards to waste disposal, the recorded disposal tonnes equate to approximately 219 tonnes (ex-situ volume). WSP consider the sampling and analytical results are representative of the disposed materials and have been disposed at a facility licenced to accept that material.
- With regards to imported material, WSP was present to inspect imported material upon arrival to the site and reconciled importation dockets with the source sites. Supporting documentation has been provided to WSP of the quarried material which in conjunction with WSP’s confirmatory sampling shows all imported material satisfies the requirements of the WSP, 2020 RAP. WSP considers imported material does not present a risk to site users.

In view of the above, it is considered that the site has been remediated and is suitable for continued use as a primary school, subject to the implementation of an LTEMP to ensure the ongoing integrity of the installed capping system.

11.2 SITE AUDIT EXTENT

The extent of this validation report and auditable area are provided in survey drawings included in Appendix J. WSP has not assessed asbestos impacts in areas adjacent to the site, which are excluded from this validation report and auditable area.

For areas adjacent to the site which have yet to be identified for suspected asbestos (or other contamination) should be managed by a long-term environmental management plan (LTEMP) during future development works.

The location excluded from this validation report is shown in Appendix A, Figure 2.

12 LIMITATIONS

This Report is provided by WSP Australia Pty Limited (WSP) for Grindley Constructions Pty Ltd (Client) in response to specific instructions from the Client.

12.1 PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose.

12.2 QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client. Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (Conclusions) are based in whole or in part on information provided by the Client and other parties identified in the report (Information), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

The Conclusions are reflective of the current Site conditions and cannot be regarded as absolute without further extensive intrusive investigations, outside the scope of the services set out in the Agreement and are indicative of the environmental condition of the Site at the time of preparing the Report. As a general principle, vertical and horizontal soil or groundwater conditions are not uniform. No monitoring, common or intrusive testing or sampling technique can eliminate the possibility that monitoring or testing results or samples taken, are not totally representative of soil and / or groundwater conditions encountered at the Site. It should also be recognised that Site conditions, including subsurface conditions can change with time due to the presence and concentration of contaminants, changing natural forces and man-made influences.

Within the limitations imposed by the scope of the services undertaken by WSP, the monitoring, testing (intrusive or otherwise), sampling for the preparation of this Report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

12.3 USE AND RELIANCE

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WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and conclusions drawn are based solely on the information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) the Conclusions and implement any recommendations in an appropriate, suitable and timely manner.

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12.4 DISCLAIMER

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies, corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to, any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered or incurred by a third party.

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APPENDIX A

FIGURES

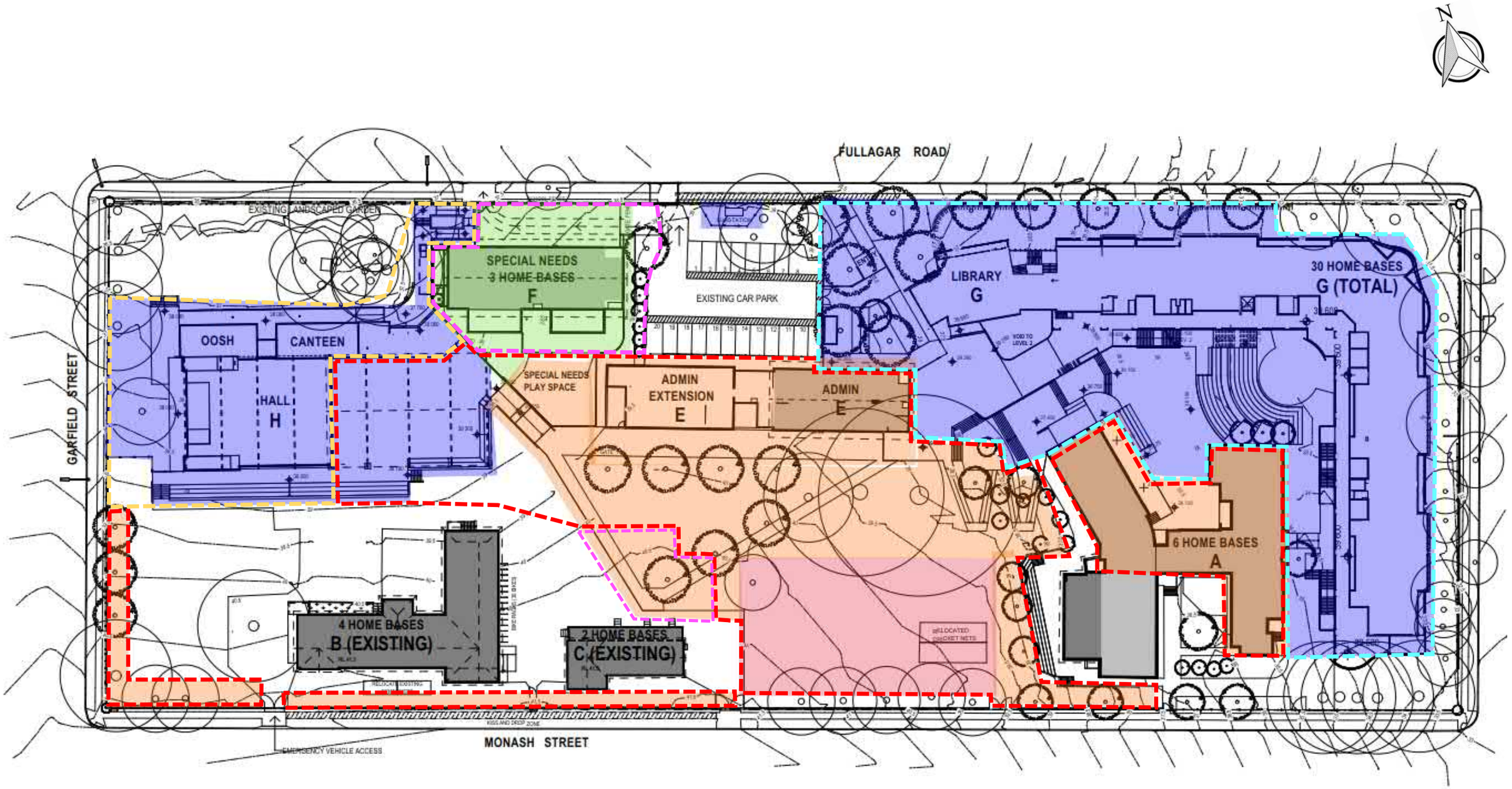


Legend

- School Location
- School Boundary

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Site Location Plan
Project no.: PS127030	**Figure 1**



Legend

- Stage 1 Remediation Extent "Western Validation Area" (January 2021)
- Stage 1 Remediation Extent "Eastern Validation Area" (July 2021)
- Stage 2 Remediation Extent (March 2022)
- Stage 3 Remediation Extent (July 2022)

- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 1
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 2
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 3

Source: Grindley Construction Pty Ltd (2020)

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Auditable Areas and Stages
Project no.: PS127030	**Figure 2**



Legend

- School Boundary
- Stage 3 Remediation Extent
- Cap & Contain – "Building F" Capping Area (Suspected to Contain ACM)
- Cap & Contain – "In-Situ Services" Capping Area (Suspected to Contain ACM)
- Cap & Contain – "Existing Asphalt" Capping Area (Suspected to Contain ACM)
- Excavation, Disposal & Exposed Base / Wall Validation
- Suitable to Remain In-Situ
- Existing On-site Stormwater Detention (OSD) System

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Stage 3 Remediation Boundary & Methodology
Project no.: PS127030	**Figure 3**

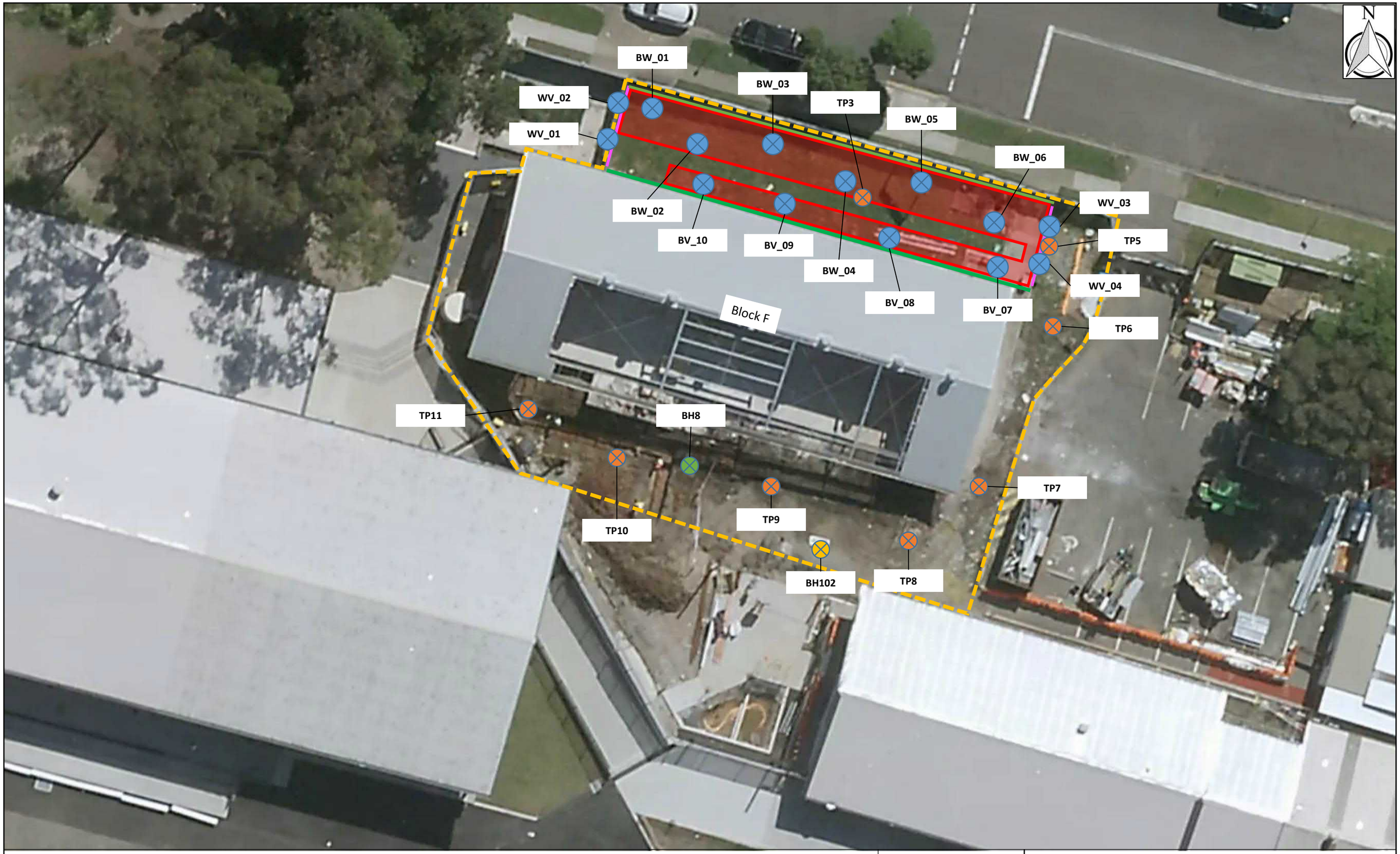


Legend

- School Boundary
- Stage 3 Remediation Extent
- Visual Clearance Inspection (11.05.2022)
- Final Visual Clearance Report (17.06.2022)

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Stage 3 Validation Areas and Historical Sample Locations
Project no.: PS127030	**Figure 4**

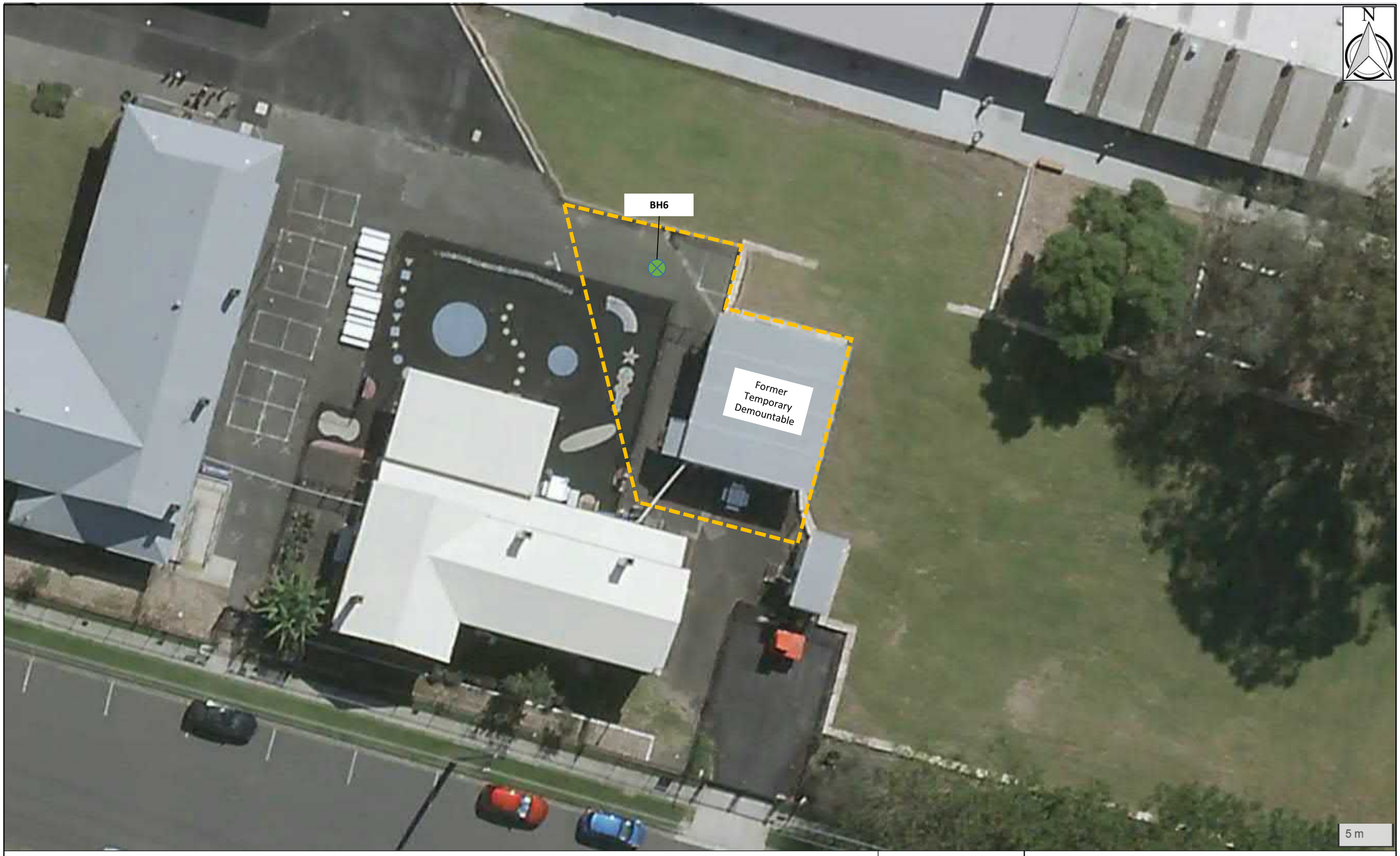


Legend

- Surface Validation Boundary
- Stage 3 Remediation Extent
- Validation Soil Sample Location (WSP, 2022)
- "Stage 3 Perimeter" Soil Investigation Location (WSP, 2022)
- Soil Salinity Investigation Location (JK, 2017)
- Preliminary Environmental Soil Investigation Location (EIS, 2017)
- Excavation Walls Covered With Geofabric – Validation Sampling Not Required
- Excavation Walls Not Covered With Geofabric – Validation Sampling Required

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Stage 3 – Historical & Validation Sample Locations (North)
Project no.: PS127030	**Figure 5**



Legend

- Stage 3 Remediation Extent
- Preliminary Environmental Soil Investigation Location (EIS, 2017)

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Wentworthville Public School – Validation Report
Title:	Stage 3 – Historical & Validation Sample Locations (South)
Project no.: PS127030	**Figure 6**

APPENDIX B

WSP, 2021 WASTE CLASSIFICATION REPORTS

Our ref: PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001

Your ref: PS127030_Waste Classification_Stage 3 Perimeter

21 January 2022

Confidential

Damian McGrath
Project Manager
Grindley Construction Pty Ltd
55 Grandview Street
Pymble NSW 2073

Dear Damian,

Re: In-situ waste classification – "Stage 3 Perimeter", 70-100 Fullagar Road, Wentworthville Public School, Wentworthville NSW 2145.

WASTE CLASSIFICATION REPORT	
Date sampled	17/01/2022 & 18/01/2022
Company	Grindley Construction Pty Ltd
Project name	Remediation Action Plan (Stage 3) - Wentworthville Public School
Site address	"Stage 3 Perimeter", Wentworthville Public School, 70-100 Fullagar Road, Wentworthville NSW 2145 (refer to Figure 1 of Attachment A for site locality)
Site history	The site has historically been used as a public school. The school underwent development between 1943 and 1961. It is understood that uncontrolled fill materials would have been imported to the site during construction works and ground levelling. Portions of Wentworthville Public School are currently undergoing refurbishment and redevelopment as part of a "3-stage" approach, with Stage 1 completed and Stage 2 nearing completion. As part of the current "Stage 3" works, an existing building (Block F) is to be retained / refurbished and a new building extension is to be constructed to the south of Block F. Remaining areas within Stage 3 surrounding Block F and the newly constructed Block F extension will then be landscaped. As a result of the above-mentioned redevelopment, excavation works to achieve desired levels and install building footings / services is required. The material assessed under this waste classification has been derived from these excavation works.

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WASTE CLASSIFICATION REPORT	
	Refer to Attachment A, Figure 2 for the site layout and waste classification boundary.
Material identification and source	The proposed excavation area encompasses the in-situ area of the Stage 3 redevelopment, outside of the existing Block F building footprint. Refer to Attachment A, Figure 2 for the classification boundary. Bitumen and road base gravels were present in the southern portion of the waste classification area. These were removed from the surface, prior to sampling. The remaining classification area consisted of mulched garden beds and a turfed playing area. The waste classification area is approximately 500m^2 and the maximum depth of soil classification is 0.5 metres below ground level (mBGL). It is noted that fill materials extend from 0.2 to 0.5 mBGL. An average fill depth of 0.4 mBGL has been used to estimate the approximate fill volume within the classification area. The fill materials covered in this waste classification have an estimated in-situ volume of 200m^3. The soil profiles within the classification area were separated into two separate areas. These are detailed below: <u>Northern Classification Area (TP1 – TP4)</u> Turf layer, followed by dark brown silty SAND topsoil fill material (approx. 0.0 – 0.2 mBGL), with rootlets and-sub angular rocks, underlain by natural orange to orange / grey CLAY, with minor red mottling. <u>Eastern and Southern Classification Area (TP5 – TP11)</u> Trace roadbase gravels, overlying grey-brown sandy GRAVEL fill material (approx. 0.0 – 0.5 mBGL), with inclusions of concrete aggregate and trace amounts of plastic, brick and ash, underlain by orange to orange / grey CLAY with minor red mottling. Each of the two above-mentioned locations are presented in Attachment A, Figure 2 and photos of the materials are referenced in Attachment B.
Samples collected	A total of 11 test pits were excavated within the investigation area. Test pit locations are provided in Attachment A, Figure 2. From the 11 test pits, 11 of the soil samples were collected from fill materials and the remining four samples (TP03_0.4, TP05_0.5, TP08_0.5 and TP10_0.4) targeted natural soils within the proposed excavation area and analysed at a NATA accredited laboratory. The total 15 samples collected provided the minimum sampling requirement for in-situ soil volumes less than 200m^3 as per the *Victorian EPA Industrial Waste Resource Guidelines* (2009). Given that the site has been used as a school for over 60 years, samples were analysed for a broad suite of analytes commonly associated with general urban land use.

WASTE CLASSIFICATION REPORT	
Sampling method	Soil sampling for asbestos was undertaken with reference to NEPM (2013) and SafeWork NSW guidelines. A total of 11 sampling locations were assessed using the following methodology. *Asbestos Field Screening:* — visual inspection was undertaken of fill material prior to sampling for the presence of any potential asbestos containing material (ACM). A 10-litre soil sample was then collected and sieved through a 7 mm sieve, inspecting for the presence of potential ACM. Any bonded visible fragments of potentially asbestos containing materials identified during the field screening were photographed and collected in zip-lock bags. — A 500 mL soil sample was also collected for submission to the laboratory for asbestos w/w% analysis. *Soil sampling:* — samples were collected using a shovel to a minimum maximum depth of 0.5 mBGL. — soil samples were collected directly from the shovel using disposable nitrile gloves. The shovel was decontaminated prior to undertaking sampling at each sample location. All samples collected were placed in dedicated laboratory supplied sample containers. — samples were stored in an insulated cooler box with ice bricks immediately after sampling. Samples were kept chilled prior to and during delivery to the selected National Association of Testing Authorities (NATA) accredited laboratory. — all samples collected were delivery to the selected NATA accredited laboratory with appropriate 'chain of custody' documentation.
Laboratory analytes	— eight heavy metals total recoverable hydrocarbons (TRH) — benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN) — asbestos (w/w % NEPM) — polycyclic aromatic hydrocarbons (PAHs) — organochlorine pesticides (OCPs) — organophosphorus pesticides (OPPs) — polychlorinated biphenyls (PCBs)
Assessment criteria	The field observations and analytical results are compared to the applicable criteria presented in the NSW Environment Protection Authority (2014) *Waste Classification Guidelines* as amended.
Visual/olfactory evidence of contamination	No suspected asbestos containing materials (ACM) fragments were observed within the waste classification area during the sampling event and 10 L field screening. No visual olfactory evidence of contamination was observed during the collection of samples from in-situ material.

<table>
<tr><th colspan="2">WASTE CLASSIFICATION REPORT</th></tr>
<tr><td>Analytical results and comparison</td><td>Of the 15 soil samples collected, all analytical results were below the CT1 criteria for general solid waste, with the exception of one detection of lead, exceeding the Contaminant Threshold (CT1) waste classification criteria of 100 mg/kg at 140 mg/kg in TP06_0.2. A 95% upper confidence limit (UCL) was completed for lead, refer to section below.

Asbestos was detected in two soil samples (TP3_0.2 and TP4_0.2) in the form of bonded fibre cement sheet fragments. Asbestos fines / fibrous asbestos (AF/FA) (<7 mm fraction) was also detected in both TP3_0.2 and TP4_0.2. As soil materials are homogenous in northern classification area (TP1 – TP4), the asbestos impacted area has been inferred to encompass the extent of this area (refer to Attachment A, Figure 2).

Analytical results summary table and laboratory certificates are presented in Attachment C and Attachment D respectively.</td></tr>
<tr><td>Statistical Assessment - 95% Upper Confidence Limit</td><td>Because an individual sample for lead may have exceeded the adopted CT1 Waste Classification Criteria, further statistical analysis is recommended in NSW EPA 2014. It is further recommended that the sample mean, the sample standard deviation and the 95% UCL of the mean concentration are calculated for each contaminant to ensure that the 95% UCL for the mean concentration is less than or equal to the limit value specified for that contaminant. Non-detect samples were included in calculations of 95% UCL. Historically, non-detect values have commonly been substituted with a value of half of the detection limit. However, this can negatively bias 95% UCLs through the biasing of a data set towards a lower median concentration (left centred datasets). A value equal to the detection limit has been substituted for non-detect values for this data set.

Calculations of the 95% UCL was only undertaken on contaminant that exceeded CT1 criteria, with the statistical analysis results presented for each area in the below tables.
<table>
<tr><td>ANALYYE</td><td>STANDARD DEVIATION</td><td>PROUCL SUGGESTED UCL</td><td>95% UCL</td><td>ACTION CRITERIA (CT1)</td></tr>
<tr><td>Lead</td><td>35.94 mg/kg</td><td>95% Adjusted Gamma UCL</td><td>66.74 mg/kg</td><td>100 mg/kg</td></tr>
</table>
Based on the above, all soil chemical analytical results fulfil the CT1 criteria for GSW. UCL calculation sheets are provided in Attachment C.</td></tr>
<tr><td>Waste classification</td><td>Based on the analytical results, the in-situ material comprises the following classifications:

— Eastern and Southern Classification Area: General solid waste (non-putrescible); and

— Northern Classification Area: Special waste (asbestos - friable), in a matrix consistent with general solid waste (non-putrescible).

The specific waste classification material boundaries are shown in Attachment A, Figure 2.</td></tr>
<tr><td colspan="2">Disposal Requirements: The material classified under this waste classification report is only suitable to be transferred to a facility appropriately licensed to accept the material described in the section above</td></tr>
</table>

Note that this waste classification is considered correct as at the date of sampling. WSP is not responsible for changes to material composition and classification due to activities occurring after this date. This waste classification certificate only relates to the materials described in the 'Material identification and source' section and as detailed on Figure 2, Attachment A. Any other materials disposed off-site should be accompanied by their own discrete waste classification report.

The findings of this waste classification are subject to the limitations attached.

Yours sincerely

James Green
Environmental Consultant

Jon Hilliard
Principal Environmental Engineer

LIMITATIONS

Scope of services

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

Reliance on data

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP

Environmental conclusions

In accordance with the scope of services, WSP has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

Report for benefit of client

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

Other limitations

WSP will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

ATTACHMENT A
FIGURES

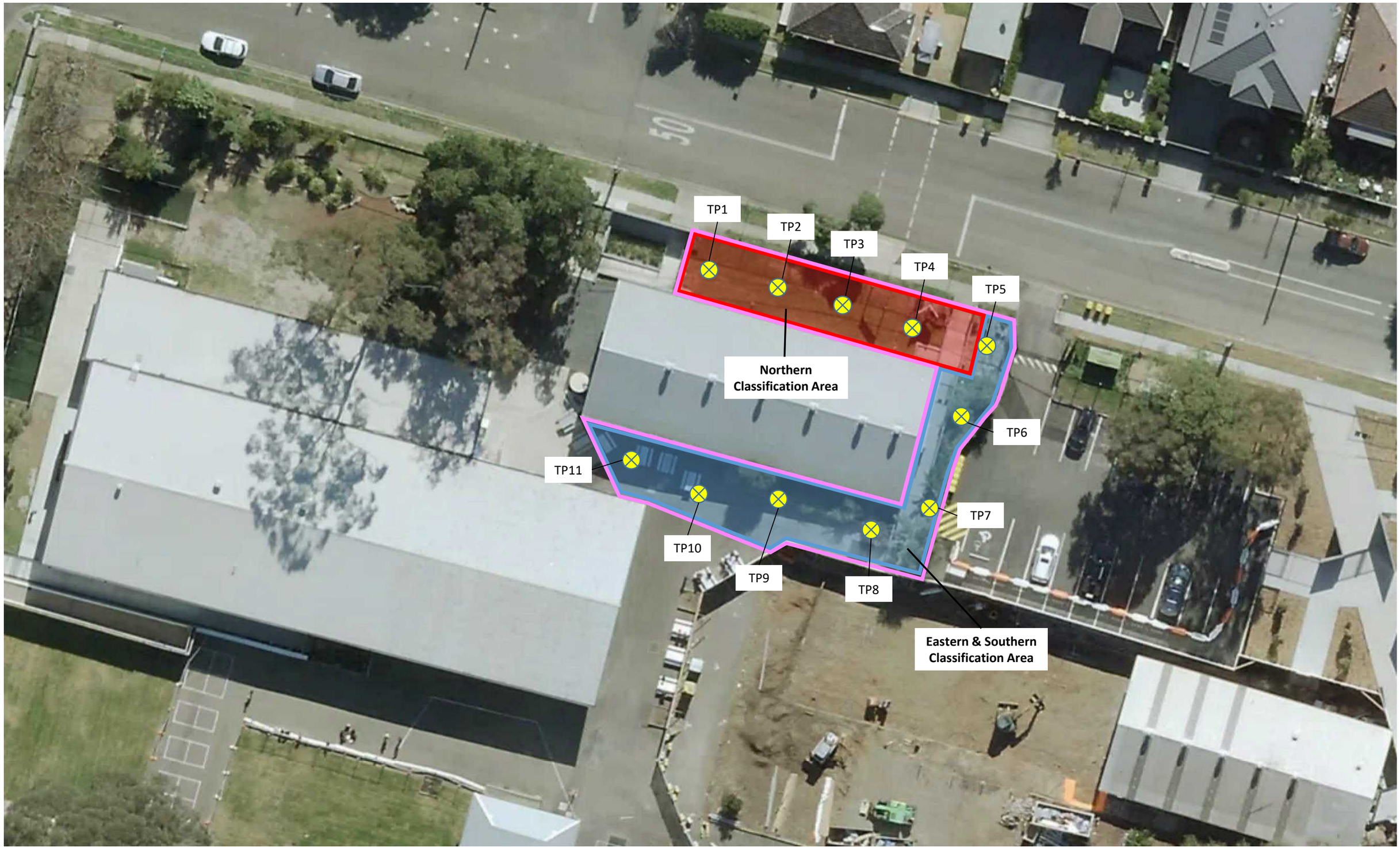


Legend

- School boundary
- In-situ Waste Classification Boundary

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	In-situ Waste Classification - “Stage 3 Perimeter”
Title:	Site Location Plan
Project no.: PS127030	**Figure 1**



Legend

- In-situ Waste Classification Boundary
- General Solid Waste (Non-Putrescible)
- Special Waste (Asbestos) - General Solid Waste (Non-Putrescible)

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	In-situ Waste Classification - “Stage 3 Perimeter”
Title:	In-situ Classification Area & Sample Locations
Project no.: PS127030	**Figure 2**

ATTACHMENT B
MATERIAL PHOTOGRAPHS



Photo 1. Northern portion of excavation area.

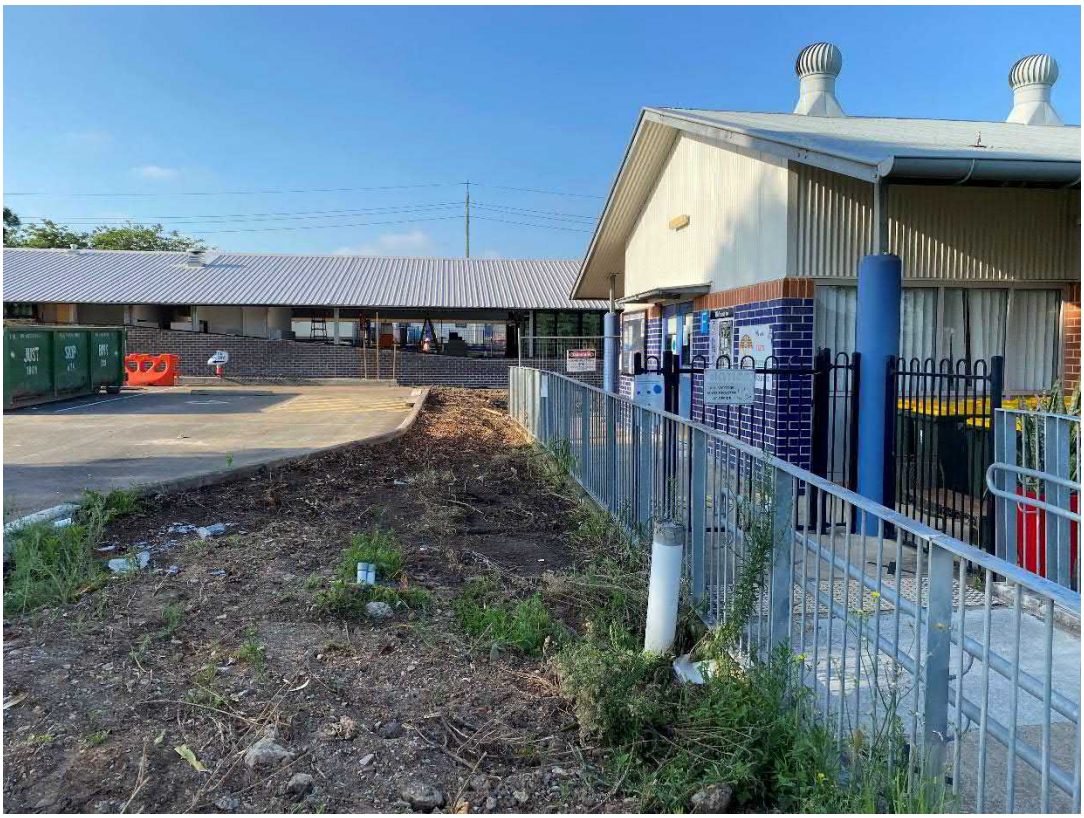


Photo 2. Eastern portion of excavation area.



Photo 3. Southern portion of excavation area.



Photo 4. Test pit TP02 fill material. 10 L field screening following sample collection.



Photo 5. Test pit TP06 brown/grey gravelly clay, underlain by Orange natural clay material.



Photo 6. Test pit TP09 brown/grey gravelly clay, underlain by Orange natural clay material.

ATTACHMENT C
SUMMARY RESULTS

	Asbestos	Metals								BTEX				TPH (NEPM 1999 Fraction)		PAH			OCP			OPP	PCBs		
	Asbestos Detected	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	Xylene (Sum)	C6 - C9	C10 - C36 (Sum)	Benzo(a) pyrene	PAHs (Sum)	Total Positive PAHs	a-Endosulfan	b-Endosulfan	Endosulfan sulphate	Chlorpyrifos	PCBs (Sum of total)	Sum +ve Scheduled Chemicals	Sum +ve Moderately Harmful Pesticides
	Y/N	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		1	0.3	0.5	0.5	1	0.05	0.5	2	0.1	0.1	0.1	0.3	20	110	0.1	0.8	0.8	0.2	0.2	0.1	0.2	1	1	1
NSW 2014 General Solid Waste CT1 (No Leaching)		100	20	100		100	4	40		10	288	600	1,000	650	10,000	0.8	200					4	< 50	<50	250
NSW 2014 General Solid Waste SCC1 (with leached)		500	100	1,900		1,500	50	1,050		18	518	1,080	1,800	650	10,000	10	200					7.5	< 50	<50	< 50
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)		400	80	400		400	16	160		40	1,152	2,400	4,000	2,600	40,000	3.2	800	800	240	240	240	16	50	<50	1000
NSW 2014 Restricted Solid Waste SCC2 (with leached)		2,000	400	7,600		6,000	200	4,200		72	2,073	4,320	7,200	2,600	40,000	23	800	800				30	<50	<50	
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
Field ID	**Date**	**Lab Report Number**																							
QA01	**18/01/2022**	**SE227955**	-	41	0.6	37	82	55	0.11	8.3	180	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
QA02	**18/01/2022**	**SE227955**	-	8	<0.3	9.8	7.0	12	<0.05	3.4	13	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP1_0.2	**17/01/2022**	**SE227955**	N	6	<0.3	10	14	28	<0.05	5.7	68	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP2_0.2	**17/01/2022**	**SE227955**	N	8	<0.3	11	31	60	0.06	6.3	120	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP3_0.2	**17/01/2022**	**SE227955**	Y	9	0.4	11	31	97	0.10	6.0	220	<0.1	<0.1	<0.1	<0.3	<20	<110	0.2	3.3	3.3	<0.2	<0.2	<0.1	<0.2	<1	ND	ND
TP3_0.4	**17/01/2022**	**SE227955**	-	10	<0.3	11	22	77	0.08	5.1	160	<0.1	<0.1	<0.1	<0.3	<20	<110	0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP4_0.2	**17/01/2022**	**SE227955**	Y	5	<0.3	7.8	20	32	<0.05	5.8	59	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP5_0.2	**17/01/2022**	**SE227955**	N	5	<0.3	7.7	23	35	<0.05	4.8	71	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP5_0.5	**18/01/2022**	**SE227955**	-	7	<0.3	13	15	19	<0.05	3.7	21	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP6_0.2	**17/01/2022**	**SE227955**	N	5	0.5	10	41	140	0.10	13	280	<0.1	<0.1	<0.1	<0.3	<20	200	0.1	1.0	1.0	<0.2	<0.2	<0.1	<0.2	<1	ND	ND
TP7_0.2	**17/01/2022**	**SE227955**	N	4	<0.3	11	18	24	<0.05	7.4	100	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP8_0.2	**17/01/2022**	**SE227955**	N	4	<0.3	6.0	25	33	0.06	8.6	120	<0.1	<0.1	<0.1	<0.3	<20	560	0.2	1.8	1.8	<0.2	<0.2	<0.1	<0.2	<1	ND	ND
TP8_0.5	**18/01/2022**	**SE227955**	-	7	<0.3	11	9.2	12	<0.05	2.7	12	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP9_0.2	**17/01/2022**	**SE227955**	N	16	0.4	18	66	57	0.13	7.7	150	<0.1	<0.1	<0.1	<0.3	<20	180	0.2	1.4	1.4	-	-	-	-	-	ND	-
TP10_0.2	**17/01/2022**	**SE227955**	N	4	<0.3	9.8	53	26	0.06	7.7	81	<0.1	<0.1	<0.1	<0.3	<20	280	0.1	1.2	1.2	<0.2	<0.2	<0.1	<0.2	<1	ND	ND
TP10_0.4	**17/01/2022**	**SE227955**	-	7	<0.3	11	11	14	<0.05	2.4	12	<0.1	<0.1	<0.1	<0.3	<20	<110	<0.1	<0.8	<0.8	-	-	-	-	-	ND	-
TP11_0.2	**18/01/2022**	**SE227955**	N	8	<0.3	11	12	18	<0.05	3.7	23	<0.1	<0.1	<0.1	<0.3	<20	350	0.3	3.0	3.0	-	-	-	-	-	ND	-

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.121/01/2022 12:41:09 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Lead UCL

General Statistics

Total Number of Observations	15	Number of Distinct Observations	15
		Number of Missing Observations	0
Minimum	12	Mean	44.8
Maximum	140	Median	32
SD	35.94	Std. Error of Mean	9.279
Coefficient of Variation	0.802	Skewness	1.63

Normal GOF Test

Shapiro Wilk Test Statistic	0.813	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.881	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.274	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.22	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	61.14	95% Adjusted-CLT UCL (Chen-1995)	64.23
		95% Modified-t UCL (Johnson-1978)	61.79

Gamma GOF Test

A-D Test Statistic	0.465	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.224	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.13	k star (bias corrected MLE)	1.749
Theta hat (MLE)	21.03	Theta star (bias corrected MLE)	25.62
nu hat (MLE)	63.9	nu star (bias corrected)	52.46
MLE Mean (bias corrected)	44.8	MLE Sd (bias corrected)	33.88
		Approximate Chi Square Value (0.05)	36.82
Adjusted Level of Significance	0.0324	Adjusted Chi Square Value	35.21

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	63.83	95% Adjusted Gamma UCL (use when n<50)	66.74

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.881	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.163	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.22	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.485	Mean of logged Data	3.549
Maximum of Logged Data	4.942	SD of logged Data	0.717

Assuming Lognormal Distribution

95% H-UCL	70.33	90% Chebyshev (MVUE) UCL	69.95
95% Chebyshev (MVUE) UCL	81.67	97.5% Chebyshev (MVUE) UCL	97.94
99% Chebyshev (MVUE) UCL	129.9		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	60.06	95% Jackknife UCL	61.14
95% Standard Bootstrap UCL	59.86	95% Bootstrap-t UCL	70.98
95% Hall's Bootstrap UCL	71.41	95% Percentile Bootstrap UCL	60.27
95% BCA Bootstrap UCL	63.73		
90% Chebyshev(Mean, Sd) UCL	72.64	95% Chebyshev(Mean, Sd) UCL	85.25
97.5% Chebyshev(Mean, Sd) UCL	102.7	99% Chebyshev(Mean, Sd) UCL	137.1

Suggested UCL to Use

95% Adjusted Gamma UCL	66.74

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ATTACHMENT D
LABORATORY CERTIFICATES

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18/1/2022
Date Reported	19/1/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 3 : Chrysotile,Amosite,Crocidolite asbestos found in approx 8x4x2mm cement sheet fragments x4.
Sample # 5 : Chrysotile,Amosite asbestos found in approx 30x10x5mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	**100**
TRH C15-C28	mg/kg	45	<45	<45	**92**	<45	**210**
TRH C29-C36	mg/kg	45	<45	<45	**110**	<45	**250**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	**110**
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	**110**
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	**160**	<90	**310**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	**200**
TRH C10-C36 Total	mg/kg	110	<110	<110	**200**	<110	**560**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	**630**

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
TRH C10-C14	mg/kg	20	<20	**23**	<20	<20	**39**
TRH C15-C28	mg/kg	45	<45	**65**	**60**	<45	**130**
TRH C29-C36	mg/kg	45	<45	**93**	**220**	<45	**170**
TRH C37-C40	mg/kg	100	<100	<100	**140**	<100	<100
TRH >C10-C16	mg/kg	25	<25	**25**	<25	<25	**47**
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	**25**	<25	<25	**47**
TRH >C16-C34 (F3)	mg/kg	90	<90	**120**	**170**	<90	**230**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	**240**	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**180**	**280**	<110	**350**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	**420**	<210	**280**

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	**0.6**	**0.1**	<0.1
Pyrene	mg/kg	0.1	**0.1**	<0.1	**0.5**	**0.1**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.3**	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.4**	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.1**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.4**	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.4**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**3.3**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**3.3**	<0.8	<0.8

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.2**	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.0**	<0.8	**1.8**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.0**	<0.8	**1.8**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.4**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.5**
Pyrene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.5**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.3**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1	**0.3**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.2**	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.3**	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.3**	**0.2**	<0.2	**0.4**
Total PAH (18)	mg/kg	0.8	<0.8	**1.4**	**1.2**	<0.8	**3.0**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**1.4**	**1.2**	<0.8	**3.0**

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	-
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	-
Lindane	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor	mg/kg	0.1	-	-	<0.1	-	-
Aldrin	mg/kg	0.1	-	-	<0.1	-	-
Beta BHC	mg/kg	0.1	-	-	<0.1	-	-
Delta BHC	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Dieldrin	mg/kg	0.2	-	-	<0.2	-	-
Endrin	mg/kg	0.2	-	-	<0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	-
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	-
Isodrin	mg/kg	0.1	-	-	<0.1	-	-
Mirex	mg/kg	0.1	-	-	<0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	-
Total OC VIC EPA	mg/kg	1	-	-	<1	-	-

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Lindane	mg/kg	0.1	-	-	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	-	-	<0.1	-	<0.1
Aldrin	mg/kg	0.1	-	-	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	-	-	<0.2	-	<0.2
Endrin	mg/kg	0.2	-	-	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	<0.1
Isodrin	mg/kg	0.1	-	-	<0.1	-	<0.1
Mirex	mg/kg	0.1	-	-	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	<1
Total OC VIC EPA	mg/kg	1	-	-	<1	-	<1

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	-
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	-
Lindane	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor	mg/kg	0.1	-	-	<0.1	-	-
Aldrin	mg/kg	0.1	-	-	<0.1	-	-
Beta BHC	mg/kg	0.1	-	-	<0.1	-	-
Delta BHC	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Dieldrin	mg/kg	0.2	-	-	<0.2	-	-
Endrin	mg/kg	0.2	-	-	<0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	-
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	-
Isodrin	mg/kg	0.1	-	-	<0.1	-	-
Mirex	mg/kg	0.1	-	-	<0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	-
Total OC VIC EPA	mg/kg	1	-	-	<1	-	-

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-
Alpha BHC	mg/kg	0.1	-	-
Lindane	mg/kg	0.1	-	-
Heptachlor	mg/kg	0.1	-	-
Aldrin	mg/kg	0.1	-	-
Beta BHC	mg/kg	0.1	-	-
Delta BHC	mg/kg	0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-
Dieldrin	mg/kg	0.2	-	-
Endrin	mg/kg	0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-
Methoxychlor	mg/kg	0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-
Isodrin	mg/kg	0.1	-	-
Mirex	mg/kg	0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-
Total OC VIC EPA	mg/kg	1	-	-

OP Pesticides in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Arochlor 1016	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1221	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1232	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1242	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1248	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1254	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1260	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1262	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1268	mg/kg	0.2	-	-	<0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-	<1	-	-

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Arochlor 1016	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	-	-	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	-	-	<1	-	<1

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Arochlor 1016	mg/kg	0.2	-	-	<0.2
Arochlor 1221	mg/kg	0.2	-	-	<0.2
Arochlor 1232	mg/kg	0.2	-	-	<0.2
Arochlor 1242	mg/kg	0.2	-	-	<0.2
Arochlor 1248	mg/kg	0.2	-	-	<0.2
Arochlor 1254	mg/kg	0.2	-	-	<0.2
Arochlor 1260	mg/kg	0.2	-	-	<0.2
Arochlor 1262	mg/kg	0.2	-	-	<0.2
Arochlor 1268	mg/kg	0.2	-	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	-	-	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Arsenic, As	mg/kg	1	6	8	9	10	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.4	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	10	11	11	11	7.8
Copper, Cu	mg/kg	0.5	14	31	31	22	20
Lead, Pb	mg/kg	1	28	60	97	77	32
Nickel, Ni	mg/kg	0.5	5.7	6.3	6.0	5.1	5.8
Zinc, Zn	mg/kg	2	68	120	220	160	59

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Arsenic, As	mg/kg	1	5	7	5	4	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	7.7	13	10	11	6.0
Copper, Cu	mg/kg	0.5	23	15	41	18	25
Lead, Pb	mg/kg	1	35	19	140	24	33
Nickel, Ni	mg/kg	0.5	4.8	3.7	13	7.4	8.6
Zinc, Zn	mg/kg	2	71	21	280	100	120

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Arsenic, As	mg/kg	1	7	16	4	7	8
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	18	9.8	11	11
Copper, Cu	mg/kg	0.5	9.2	66	53	11	12
Lead, Pb	mg/kg	1	12	57	26	14	18
Nickel, Ni	mg/kg	0.5	2.7	7.7	7.7	2.4	3.7
Zinc, Zn	mg/kg	2	12	150	81	12	23

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Arsenic, As	mg/kg	1	41	8
Cadmium, Cd	mg/kg	0.3	0.6	<0.3
Chromium, Cr	mg/kg	0.5	37	9.8
Copper, Cu	mg/kg	0.5	82	7.0
Lead, Pb	mg/kg	1	55	12
Nickel, Ni	mg/kg	0.5	8.3	3.4
Zinc, Zn	mg/kg	2	180	13

Mercury in Soil [AN312] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Mercury	mg/kg	0.05	<0.05	0.06	0.10	0.08	<0.05

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Mercury	mg/kg	0.05	<0.05	<0.05	0.10	<0.05	0.06

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Mercury	mg/kg	0.05	<0.05	0.13	0.06	<0.05	<0.05

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Mercury	mg/kg	0.05	0.11	<0.05

Moisture Content [AN002] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
% Moisture	%w/w	1	14.6	20.6	19.1	23.3	13.2

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
% Moisture	%w/w	1	6.5	22.0	28.1	22.6	20.4

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
% Moisture	%w/w	1	22.7	22.2	20.4	24.6	16.7

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
% Moisture	%w/w	1	25.1	13.2

Fibre Identification in soil [AN602] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Asbestos Detected	No unit	-	No	No	Yes	Yes	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	**>0.01**	**>0.01**	<0.01

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Total Sample Weight*	g	1	**489**	**367**	**409**	**483**	**534**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	**0.777**	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	**0.0574**	**0.0530**	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	**0.02**	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Fibre Type*	No unit	-	NAD	NAD	AMO,CRY<CRO	AMO,CRY	NAD

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Total Sample Weight*	g	1	**451**	**342**	**421**	**451**	**208**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Total Sample Weight*	g	1	**590**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.

AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

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STATEMENT OF QA/QC PERFORMANCE

SE227955 R0

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

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Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18 Jan 2022
Date Reported	19 Jan 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	17 Soil
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP2_0.2	SE227955.002	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP3_0.2	SE227955.003	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP4_0.2	SE227955.005	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP5_0.2	SE227955.006	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP6_0.2	SE227955.008	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP7_0.2	SE227955.009	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP8_0.2	SE227955.010	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP9_0.2	SE227955.012	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP10_0.2	SE227955.013	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP11_0.2	SE227955.015	LB240763	18 Jan 2022	18 Jan 2022	18 Jan 2023	18 Jan 2022	18 Jan 2023	19 Jan 2022

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240762	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP10_0.4	SE227955.014	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
QA01	SE227955.016	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
QA02	SE227955.017	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
QA01	SE227955.016	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
QA02	SE227955.017	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	105
	TP6_0.2	SE227955.008	%	60 - 130%	113
	TP8_0.2	SE227955.010	%	60 - 130%	119
	TP10_0.2	SE227955.013	%	60 - 130%	119

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	84
	TP6_0.2	SE227955.008	%	60 - 130%	91
	TP8_0.2	SE227955.010	%	60 - 130%	92
	TP10_0.2	SE227955.013	%	60 - 130%	87
d14-p-terphenyl (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	86
	TP6_0.2	SE227955.008	%	60 - 130%	90
	TP8_0.2	SE227955.010	%	60 - 130%	95
	TP10_0.2	SE227955.013	%	60 - 130%	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	84
	TP2_0.2	SE227955.002	%	70 - 130%	87
	TP3_0.2	SE227955.003	%	70 - 130%	84
	TP3_0.4	SE227955.004	%	70 - 130%	84
	TP4_0.2	SE227955.005	%	70 - 130%	87
	TP5_0.2	SE227955.006	%	70 - 130%	85
	TP5_0.5	SE227955.007	%	70 - 130%	86
	TP6_0.2	SE227955.008	%	70 - 130%	91
	TP7_0.2	SE227955.009	%	70 - 130%	86
	TP8_0.2	SE227955.010	%	70 - 130%	92
	TP8_0.5	SE227955.011	%	70 - 130%	83
	TP9_0.2	SE227955.012	%	70 - 130%	90
	TP10_0.2	SE227955.013	%	70 - 130%	87
	TP10_0.4	SE227955.014	%	70 - 130%	82
	TP11_0.2	SE227955.015	%	70 - 130%	91
	QA01	SE227955.016	%	70 - 130%	85
	QA02	SE227955.017	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	84
	TP2_0.2	SE227955.002	%	70 - 130%	85
	TP3_0.2	SE227955.003	%	70 - 130%	86
	TP3_0.4	SE227955.004	%	70 - 130%	85
	TP4_0.2	SE227955.005	%	70 - 130%	84
	TP5_0.2	SE227955.006	%	70 - 130%	86
	TP5_0.5	SE227955.007	%	70 - 130%	84
	TP6_0.2	SE227955.008	%	70 - 130%	90
	TP7_0.2	SE227955.009	%	70 - 130%	90
	TP8_0.2	SE227955.010	%	70 - 130%	95
	TP8_0.5	SE227955.011	%	70 - 130%	90
	TP9_0.2	SE227955.012	%	70 - 130%	95
	TP10_0.2	SE227955.013	%	70 - 130%	93
	TP10_0.4	SE227955.014	%	70 - 130%	89
	TP11_0.2	SE227955.015	%	70 - 130%	92
	QA01	SE227955.016	%	70 - 130%	91
	QA02	SE227955.017	%	70 - 130%	82
d5-nitrobenzene (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	79
	TP2_0.2	SE227955.002	%	70 - 130%	79
	TP3_0.2	SE227955.003	%	70 - 130%	75
	TP3_0.4	SE227955.004	%	70 - 130%	78
	TP4_0.2	SE227955.005	%	70 - 130%	80
	TP5_0.2	SE227955.006	%	70 - 130%	84
	TP5_0.5	SE227955.007	%	70 - 130%	74
	TP6_0.2	SE227955.008	%	70 - 130%	74
	TP7_0.2	SE227955.009	%	70 - 130%	82
	TP8_0.2	SE227955.010	%	70 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	TP8_0.5	SE227955.011	%	70 - 130%	76
	TP9_0.2	SE227955.012	%	70 - 130%	81
	TP10_0.2	SE227955.013	%	70 - 130%	82
	TP10_0.4	SE227955.014	%	70 - 130%	75
	TP11_0.2	SE227955.015	%	70 - 130%	80
	QA01	SE227955.016	%	70 - 130%	76
	QA02	SE227955.017	%	70 - 130%	79

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	105
	TP6_0.2	SE227955.008	%	60 - 130%	113
	TP8_0.2	SE227955.010	%	60 - 130%	119
	TP10_0.2	SE227955.013	%	60 - 130%	119

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	78
	TP2_0.2	SE227955.002	%	60 - 130%	78
	TP3_0.2	SE227955.003	%	60 - 130%	82
	TP3_0.4	SE227955.004	%	60 - 130%	84
	TP4_0.2	SE227955.005	%	60 - 130%	88
	TP5_0.2	SE227955.006	%	60 - 130%	80
	TP5_0.5	SE227955.007	%	60 - 130%	79
	TP6_0.2	SE227955.008	%	60 - 130%	74
	TP7_0.2	SE227955.009	%	60 - 130%	78
	TP8_0.2	SE227955.010	%	60 - 130%	76
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	73
	TP10_0.2	SE227955.013	%	60 - 130%	79
	TP10_0.4	SE227955.014	%	60 - 130%	75
	TP11_0.2	SE227955.015	%	60 - 130%	79
	QA01	SE227955.016	%	60 - 130%	74
	QA02	SE227955.017	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	75
	TP2_0.2	SE227955.002	%	60 - 130%	75
	TP3_0.2	SE227955.003	%	60 - 130%	78
	TP3_0.4	SE227955.004	%	60 - 130%	82
	TP4_0.2	SE227955.005	%	60 - 130%	85
	TP5_0.2	SE227955.006	%	60 - 130%	76
	TP5_0.5	SE227955.007	%	60 - 130%	76
	TP6_0.2	SE227955.008	%	60 - 130%	70
	TP7_0.2	SE227955.009	%	60 - 130%	76
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	71
	TP10_0.2	SE227955.013	%	60 - 130%	74
	TP10_0.4	SE227955.014	%	60 - 130%	76
	TP11_0.2	SE227955.015	%	60 - 130%	74
	QA01	SE227955.016	%	60 - 130%	71
	QA02	SE227955.017	%	60 - 130%	70
d8-toluene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	72
	TP2_0.2	SE227955.002	%	60 - 130%	71
	TP3_0.2	SE227955.003	%	60 - 130%	74
	TP3_0.4	SE227955.004	%	60 - 130%	77
	TP4_0.2	SE227955.005	%	60 - 130%	81
	TP5_0.2	SE227955.006	%	60 - 130%	73
	TP5_0.5	SE227955.007	%	60 - 130%	70
	TP6_0.2	SE227955.008	%	60 - 130%	68
	TP7_0.2	SE227955.009	%	60 - 130%	71
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	76

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TP9_0.2	SE227955.012	%	60 - 130%	72
	TP10_0.2	SE227955.013	%	60 - 130%	71
	TP10_0.4	SE227955.014	%	60 - 130%	73
	TP11_0.2	SE227955.015	%	60 - 130%	75
	QA01	SE227955.016	%	60 - 130%	76
	QA02	SE227955.017	%	60 - 130%	65

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	78
	TP2_0.2	SE227955.002	%	60 - 130%	78
	TP3_0.2	SE227955.003	%	60 - 130%	82
	TP3_0.4	SE227955.004	%	60 - 130%	84
	TP4_0.2	SE227955.005	%	60 - 130%	88
	TP5_0.2	SE227955.006	%	60 - 130%	80
	TP5_0.5	SE227955.007	%	60 - 130%	79
	TP6_0.2	SE227955.008	%	60 - 130%	74
	TP7_0.2	SE227955.009	%	60 - 130%	78
	TP8_0.2	SE227955.010	%	60 - 130%	76
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	73
	TP10_0.2	SE227955.013	%	60 - 130%	79
	TP10_0.4	SE227955.014	%	60 - 130%	75
	TP11_0.2	SE227955.015	%	60 - 130%	79
	QA01	SE227955.016	%	60 - 130%	74
	QA02	SE227955.017	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	75
	TP2_0.2	SE227955.002	%	60 - 130%	75
	TP3_0.2	SE227955.003	%	60 - 130%	78
	TP3_0.4	SE227955.004	%	60 - 130%	82
	TP4_0.2	SE227955.005	%	60 - 130%	85
	TP5_0.2	SE227955.006	%	60 - 130%	76
	TP5_0.5	SE227955.007	%	60 - 130%	76
	TP6_0.2	SE227955.008	%	60 - 130%	70
	TP7_0.2	SE227955.009	%	60 - 130%	76
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	71
	TP10_0.2	SE227955.013	%	60 - 130%	74
	TP10_0.4	SE227955.014	%	60 - 130%	76
	TP11_0.2	SE227955.015	%	60 - 130%	74
	QA01	SE227955.016	%	60 - 130%	71
	QA02	SE227955.017	%	60 - 130%	70
d8-toluene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	72
	TP2_0.2	SE227955.002	%	60 - 130%	71
	TP3_0.2	SE227955.003	%	60 - 130%	74
	TP3_0.4	SE227955.004	%	60 - 130%	77
	TP4_0.2	SE227955.005	%	60 - 130%	81
	TP5_0.2	SE227955.006	%	60 - 130%	73
	TP5_0.5	SE227955.007	%	60 - 130%	70
	TP6_0.2	SE227955.008	%	60 - 130%	68
	TP7_0.2	SE227955.009	%	60 - 130%	71
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	76
	TP9_0.2	SE227955.012	%	60 - 130%	72
	TP10_0.2	SE227955.013	%	60 - 130%	71
	TP10_0.4	SE227955.014	%	60 - 130%	73
	TP11_0.2	SE227955.015	%	60 - 130%	75
	QA01	SE227955.016	%	60 - 130%	76
	QA02	SE227955.017	%	60 - 130%	65

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB240782.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB240757.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	76
		2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	84

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB240775.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB240757.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240758.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	75
		Bromofluorobenzene (Surrogate)	%	-	81
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240758.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.008	LB240782.014	Mercury	mg/kg	0.05	0.10	0.10	80	5
SE227955.017	LB240782.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240759.011	% Moisture	%w/w	1	20.4	20.5	35	1
SE227955.017	LB240759.019	% Moisture	%w/w	1	13.2	13.3	38	1

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.18	30	1

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.1	0.1	108	14
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.3	0.3	64	8
			Pyrene	mg/kg	0.1	0.3	0.3	65	5
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.2	91	3
			Chrysene	mg/kg	0.1	0.2	0.2	80	5
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.3	68	7
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	<0.1	132	3
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.2	90	6
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.1	120	14
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.2	104	25
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0.2	0.2	96	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.3	0.3	100	3
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.3	0.3	81	4
			Total PAH (18)	mg/kg	0.8	1.8	1.9	74	3
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
SE227955.017	LB240757.022		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	9
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.008	LB240775.014		Arsenic, As	mg/kg	1	5	4	52	13
			Cadmium, Cd	mg/kg	0.3	0.5	0.5	87	9
			Chromium, Cr	mg/kg	0.5	10	9.5	35	6
			Copper, Cu	mg/kg	0.5	41	42	31	4
			Nickel, Ni	mg/kg	0.5	13	14	34	3
			Lead, Pb	mg/kg	1	140	170	31	16
			Zinc, Zn	mg/kg	2	280	320	31	13
SE227955.017	LB240775.024		Arsenic, As	mg/kg	1	8	8	43	2
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	9.8	9.5	35	3
			Copper, Cu	mg/kg	0.5	7.0	8.4	37	19
			Nickel, Ni	mg/kg	0.5	3.4	2.4	47	33
			Lead, Pb	mg/kg	1	12	14	38	15
			Zinc, Zn	mg/kg	2	13	12	46	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		TRH C10-C14	mg/kg	20	100	71	53	34
			TRH C15-C28	mg/kg	45	210	180	53	12
			TRH C29-C36	mg/kg	45	250	260	48	6
			TRH C37-C40	mg/kg	100	<100	110	126	10
			TRH C10-C36 Total	mg/kg	110	560	520	51	7
			TRH >C10-C40 Total (F bands)	mg/kg	210	630	610	64	3
		TRH F Bands	TRH >C10-C16	mg/kg	25	110	79	56	34
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	110	79	56	34
			TRH >C16-C34 (F3)	mg/kg	90	310	310	59	1
			TRH >C34-C40 (F4)	mg/kg	120	200	220	87	8
SE227955.017	LB240757.022		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240758.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.3	50	2
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.2	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.6	50	1
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE227955.017	LB240758.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.017	LB240758.022	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.0	7.3	50	4
			d8-toluene (Surrogate)	mg/kg	-	6.5	7.1	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	7.4	50	0
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240758.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.3	30	2
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.2	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.6	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE227955.017	LB240758.022		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.0	7.3	30	4
			d8-toluene (Surrogate)	mg/kg	-	6.5	7.1	30	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	7.4	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240782.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	105

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	109
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	101
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	106
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	100
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	108
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	112
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	105

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Dichlorvos	mg/kg	0.5	1.3	2	60 - 140	66
		Diazinon (Dimpylate)	mg/kg	0.5	1.4	2	60 - 140	68
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.5	2	60 - 140	76
		Ethion	mg/kg	0.2	1.2	2	60 - 140	62
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	85
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	104
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	94
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	92
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	98
		Benzo(a)pyrene	mg/kg	0.1	3.3	4	60 - 140	83
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	85
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	90

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240775.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	110
	Cadmium, Cd	mg/kg	0.3	4.9	4.81	70 - 130	101
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	108
	Copper, Cu	mg/kg	0.5	320	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	106
	Lead, Pb	mg/kg	1	96	89.9	80 - 120	106
	Zinc, Zn	mg/kg	2	280	273	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		TRH C10-C14	mg/kg	20	49	40	60 - 140	123
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	108
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16	mg/kg	25	45	40	60 - 140	113
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240758.002	Monocyclic	Benzene	mg/kg	0.1	4.2	5	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	4.1	5	60 - 140	83
		Ethylbenzene	mg/kg	0.1	4.0	5	60 - 140	79
		m/p-xylene	mg/kg	0.2	7.7	10	60 - 140	77
		o-xylene	mg/kg	0.1	3.8	5	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		d8-toluene (Surrogate)	mg/kg	-	9.3	10	70 - 130	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240758.002		TRH C6-C10	mg/kg	25	74	92.5	60 - 140	80
		TRH C6-C9	mg/kg	20	67	80	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	50	62.5	60 - 140	80

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227933.001	LB240782.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240757.004		Naphthalene	mg/kg	0.1	4.1	<0.1	4	101
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.7	<0.1	4	93
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.1	<0.1	4	101
			Anthracene	mg/kg	0.1	3.7	<0.1	4	92
			Fluoranthene	mg/kg	0.1	4.0	0.1	4	97
			Pyrene	mg/kg	0.1	4.2	0.1	4	103
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	<0.1	4	95
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.0	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	31	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	83
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	86
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	84

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227933.001	LB240775.004	Arsenic, As	mg/kg	1	49	2	50	94
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	93
		Chromium, Cr	mg/kg	0.5	51	1.9	50	97
		Copper, Cu	mg/kg	0.5	50	<0.5	50	99
		Nickel, Ni	mg/kg	0.5	49	<0.5	50	98
		Lead, Pb	mg/kg	1	51	1	50	99
		Zinc, Zn	mg/kg	2	83	17	50	132 ④

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240757.004		TRH C10-C14	mg/kg	20	49	<20	40	123
			TRH C15-C28	mg/kg	45	45	<45	40	113
			TRH C29-C36	mg/kg	45	67	<45	40	110
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	160	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	44	<25	40	110
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	113
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.0	<0.1	5	81
			Toluene	mg/kg	0.1	4.0	<0.1	5	80
			Ethylbenzene	mg/kg	0.1	3.8	<0.1	5	76
			m/p-xylene	mg/kg	0.2	7.3	<0.2	10	73
			o-xylene	mg/kg	0.1	3.7	<0.1	5	73

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	7.5	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.0	7.2	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	7.8	10	81
		Totals	Total Xylenes	mg/kg	0.3	11	<0.3	-	-
			Total BTEX	mg/kg	0.6	23	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004		TRH C6-C10	mg/kg	25	67	<25	92.5	71
			TRH C6-C9	mg/kg	20	60	<20	80	74
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	7.5	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.0	7.2	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	7.8	-	81
		VPH F	Benzene (F0)	mg/kg	0.1	4.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	<25	62.5	69

MATRIX SPIKE DUPLICATES

SE227955 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	11

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18 Jan 2022
Date Reported	19 Jan 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 3 : Chrysotile,Amosite,Crocidolite asbestos found in approx 8x4x2mm cement sheet fragments x4.
Sample # 5 : Chrysotile,Amosite asbestos found in approx 30x10x5mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE227955.001	TP1_0.2	Soil	489g Clay,Sand,Soil, Rocks,Plant Matter	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.002	TP2_0.2	Soil	367g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.003	TP3_0.2	Soil	409g Clay,Sand,Soil, Rocks	17 Jan 2022	Amosite, Chrysotile & Crocidolite Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	>0.01
SE227955.005	TP4_0.2	Soil	483g Clay,Sand,Soil, Rocks	17 Jan 2022	Amosite & Chrysotile Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	>0.01
SE227955.006	TP5_0.2	Soil	534g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.008	TP6_0.2	Soil	451g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.009	TP7_0.2	Soil	342g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.010	TP8_0.2	Soil	421g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.012	TP9_0.2	Soil	451g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.013	TP10_0.2	Soil	208g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.015	TP11_0.2	Soil	590g Sand,Soil,Rocks	18 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Total Sample Weight*	g	1	**489**	**367**	**409**	**483**	**534**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	**0.777**	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	**0.0574**	**0.0530**	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	**0.02**	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Fibre Type*	No unit	-	NAD	NAD	AMO,CRY<CRO	AMO,CRY	NAD

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Total Sample Weight*	g	1	**451**	**342**	**421**	**451**	**208**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Total Sample Weight*	g	1	**590**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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E-MAILED 18/1 @ 4.55

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:	WSP	Project Name/No:	PS127030 – Stage 3 Investigation	
Address:	Level 27, Ernst & Young Centre 680 George Street Sydney NSW 2000	Purchase Order No:	30073144	
		Results Required Date:	24 Hrs TAT	
		Telephone:	D: 0404 786 197	478 051 688
Contact Name:	Cleo Wu; James Green	Email Results to:	Cleo.wu@wsp.com; James.Green@wsp.com	
Quotation No:	SY141023-1-IS			

SGS ID	Client Sample ID	Sampling Date	Matrix (Tick as appropriate)			NO. OF CONTAINERS	ANALYSIS REQUESTED											Additional Report Formats / Notes/Guidelines/LOR/ Special instructions
			Soil Sample	Water Sample	FRAGMENT__								Hold					
							TRH, BTEXN, PAH, 8 METALS, ASBESTOS WW% (NEPM)	OCP/OPP, PCB	TRH, BTEXN, PAH, 8 METALS,	TRH, BTEXN	500ML WW% ASBESTOS (NEPM)							
1	TP1_0.2	17.01.2022	X				X											
	TP1_0.4	17.01.2022	X										X					
2	TP2_0.2	17.01.2022	X				X											
	TP2_0.4	17.01.2022	X										X					
3	TP3_0.2	17.01.2022	X				X	X										
4	TP3_0.4	17.01.2022	X						X									
5	TP4_0.2	17.01.2022	X				X											
	TP4_0.4	17.01.2022	X										X					
6	TP5_0.2	17.01.2022	X				X											
	TP5_0.4	17.01.2022	X										X					
7	TP05_0.5	18.01.2022							X									
8	TP6_0.2	17.01.2022	X				X	X										
	TP06_0.5	18.01.2022											x					
9	TP7_0.2	17.01.2022	X				X											
	TP07_0.5	18.01.2022											x					
10	TP8_0.2	17.01.2022	X				X	X										
11	TP08_0.5	18.01.2022							X									
12	TP9_0.2	17.01.2022	X				X											

SGS EHS Sydney COC
SE227955

	TP09_0.5	18.01.2022												x					
13	TP10_0.2	17.01.2022	X					X	X										
14	TP10_0.4	17.01.2022	X							X									
15	TP11_0.2	18.01.2022						x											
	TP11_0.5	18.01.2022												x					
16	QA01	18.01.2022	X							X									
	QA01A	18.01.2022	X							X									Eurofins Please PO# 30073145
17	QA02	18.01.2022	X							X									
	QA02A	18.01.2022	X							X									Eurofins Please PO# 30073145
	RB170122	18.01.2022		X							X								
	TS170122	18.01.2022	X								X								
	TB170122	18.01.2022	X								X								

Relinquished By: / WSP: Cleo Wu	Date/Time 18/01/2022 15:00	Received By: George Zhi	Date/Time: 18/1/22 @ 4:30 pm
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: Yes / No	Temperature: 23 °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*
Comments / Subcontracting details:			

Yin, Emily (Sydney)

From: AU.Environmental.Sydney (Sydney)
Sent: Tuesday, 18 January 2022 5:22 PM
To: Wu, Cleo
Cc: Green, James; AU.SampleReceipt.Sydney (Sydney)
Subject: RE: [EXTERNAL] Carrierbooking

Hi Cleo,

As discussed with James, will leave the rinsate/TB/TS to another job- additional due 20/01- so we can start on this main urgent job due tomorrow. Thanks.

Kind Regards,

Huong Crawford
Industries & Environment
Production Manager

SGS Australia Pty Ltd
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Phone: +61 (0)2 8594 0403
Fax: + 61 (0)2 8594 0499
E-mail: Huong.Crawford@sgs.com
Web: www.au.sgs.com

View Your Results Online: engage.sgs.com

From: Wu, Cleo <Cleo.Wu@wsp.com>
Sent: Tuesday, 18 January 2022 4:42 PM
To: AU.Environmental.Sydney (Sydney) <AU.Environmental.Sydney@sgs.com>
Cc: Green, James <James.Green@wsp.com>; AU.SampleReceipt.Sydney (Sydney) <AU.SampleReceipt.Sydney@sgs.com>
Subject: RE: [EXTERNAL] Carrierbooking

*** WARNING: this message is from an EXTERNAL SENDER. Please be cautious, particularly with links and attachments. ***

Thank you Kuong appreciated.

The coc is ready soon.

Note the quality samples (rinsate/trip blank/spikes) were not in the eskies my bad forgot to leave them in the eskie. I will drop them off tomorrow.

Regards

Cleo Wu
Environmental Engineer, Contaminated Land Management

T: +61 2 9272 1462
M: +61 404 786 197
Cleo.Wu@wsp.com

SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 18/1/2022
Report Due	Wed 19/1/2022
SGS Reference	**SE227955**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Tuesday 18/1/2022. Results are expected to be ready by COB Wednesday 19/1/2022.
Please quote SGS reference SE227955 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	17 Soil
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

8 samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

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SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP1_0.2	-	-	26	-	7	10	11	7
002	TP2_0.2	-	-	26	-	7	10	11	7
003	TP3_0.2	30	14	26	11	7	10	11	7
004	TP3_0.4	-	-	26	-	7	10	11	7
005	TP4_0.2	-	-	26	-	7	10	11	7
006	TP5_0.2	-	-	26	-	7	10	11	7
007	TP5_0.5	-	-	26	-	7	10	11	7
008	TP6_0.2	30	14	26	11	7	10	11	7
009	TP7_0.2	-	-	26	-	7	10	11	7
010	TP8_0.2	30	14	26	11	7	10	11	7
011	TP8_0.5	-	-	26	-	7	10	11	7
012	TP9_0.2	-	-	26	-	7	10	11	7
013	TP10_0.2	30	14	26	11	7	10	11	7
014	TP10_0.4	-	-	26	-	7	10	11	7
015	TP11_0.2	-	-	26	-	7	10	11	7
016	QA01	-	-	26	-	7	10	11	7
017	QA02	-	-	26	-	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
001	TP1_0.2	2	9	1	1
002	TP2_0.2	2	9	1	1
003	TP3_0.2	2	9	1	1
004	TP3_0.4	-	-	1	1
005	TP4_0.2	2	9	1	1
006	TP5_0.2	2	9	1	1
007	TP5_0.5	-	-	1	1
008	TP6_0.2	2	9	1	1
009	TP7_0.2	2	9	1	1
010	TP8_0.2	2	9	1	1
011	TP8_0.5	-	-	1	1
012	TP9_0.2	2	9	1	1
013	TP10_0.2	2	9	1	1
014	TP10_0.4	-	-	1	1
015	TP11_0.2	2	9	1	1
016	QA01	-	-	1	1
017	QA02	-	-	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

Our ref: PS127030-Wentworthville Public School_Stage 3 SP A_CLM-LTR-001

Your ref: PS127030_Waste Classification_Stage 3 SP "A"

26 April 2022

Confidential

Damian McGrath
Project Manager
Grindley Construction Pty Ltd
55 Grandview Street
Pymble NSW 2073

Dear Damian,

Re: Ex-situ waste classification – "Stage 3, Stockpile A", 70-100 Fullagar Road, Wentworthville Public School, Wentworthville NSW 2145.

WASTE CLASSIFICATION REPORT	
Date sampled	20/04/2022
Company	Grindley Construction Pty Ltd
Project name	Remediation Action Plan (Stage 3) - Wentworthville Public School
Site address	Stage 3, Stockpile A, Wentworthville Public School, 70-100 Fullagar Road, Wentworthville NSW 2145 (refer to Figure 1 of Attachment A for site locality).
Site history	The site has historically been used as a public school. The school underwent development between 1943 and 1961. It is understood that uncontrolled fill materials would have been imported to the site during construction works and ground levelling. Portions of Wentworthville Public School are currently undergoing refurbishment and redevelopment as part of a "3-stage" approach, with Stage 1 completed and Stage 2 nearing completion. As part of the current "Stage 3" works, an existing building (Block F) is to be retained / refurbished and a new building extension is to be constructed to the south of Block F. Remaining areas within Stage 3 surrounding Block F and the newly constructed Block F extension will then be landscaped. As a result of the above-mentioned redevelopment, excavation works to achieve desired levels and install building footings / services had been undertaken. WSP previously completed a waste classification for the Stage

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WASTE CLASSIFICATION REPORT	
	3 area in January 2022 (report reference: *PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001*). Subsequent works were then undertaken to prepare the southern portion of the stage 3 area for the Block F extension. This involved the importation of roadbase gravels to achieve desired levels prior to pouring the concrete slab. Following geotechnical testing of the compacted area it was determined that the underlying soil and roadbase gravel material was unsuitable for the proposed development and required excavation/off-site disposal and replacement with suitable material. This waste classification report encompasses stockpiled soil material and roadbase gravels which were excavated from the proposed Block F extension area in order to make way for a suitable building surface. This stockpile is referred to as "Stockpile A". Refer to Attachment A, Figure 2 for the site layout and waste classification boundary.
Material identification and source	Stockpile A is currently located in the eastern portion of the site and is covered with black builders' plastic. The material was excavated from directly to the south of Block F (refer to Attachment A, Figure 2 for source and stockpile locations). The stockpiled material is estimated to have a volume of approximately 60 m^3. The material consisted of fill and reworked natural material, primarily orange/grey to red and brown to dark brown silty CLAY, with minor amounts of SAND and moderate amounts of roadbase gravels. Inclusions included anthropogenic materials such as brick, tile, plastic conduit and concrete fragments were also noted. Photographs of the stockpiled material are referenced in Attachment B.
Samples collected	A total of three soil samples were collected from the stockpiled material. Sample locations are shown in Attachment A, Figure 2. The total three samples collected provided the minimum sampling requirement for stockpiles less than 75m^3 presented in the National Environment Protection (Assessment of Site Contamination) Measure 1999 amended 2013 (NEPM 2013). Given that the site has been used as a school for over 60 years, samples were analysed for a broad suite of analytes commonly associated with general urban land use.

WASTE CLASSIFICATION REPORT	
Sampling method	Soil sampling for asbestos was undertaken in accordance with NSW NEPM (2013) and SafeWork NSW guidelines. The sampling methodology used during the works is as follows: *Asbestos presence/absence:* — visual inspection was undertaken of fill material prior to sampling for the presence of any potential asbestos containing material. Any bonded visible fragments of potentially asbestos containing materials identified during the field screening were photographed and collected in zip-lock bags. — a 10L soil sample was collected and passed through a 7mm sieve for asbestos containing material field screening at each sampling location. *Soil sampling:* — samples were collected directly from the stockpile using disposable nitrile gloves to a minimum depth of 0.1m into the stockpile. — the nitrile gloves were changed between each sample location. — all samples collected were placed in dedicated laboratory supplied sample containers. — samples were stored in an insulated cooler box with ice bricks immediately after sampling. Samples were kept chilled prior to and during delivery to the selected National Association of Testing Authorities (NATA) accredited laboratory. — all samples collected were delivery to the selected NATA accredited laboratory with appropriate 'chain of custody' documentation.
Laboratory analytes	— eight heavy metals total recoverable hydrocarbons (TRH) — benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN) — asbestos (w/w % NEPM) — polycyclic aromatic hydrocarbons (PAHs) — organochlorine pesticides (OCPs) — organophosphorus pesticides (OPPs) — polychlorinated biphenyls (PCBs)
Assessment criteria	The field observations and analytical results are compared to the applicable criteria presented in the NSW Environment Protection Authority (2014) *Waste Classification Guidelines* as amended.
Visual/olfactory evidence of contamination	No suspected asbestos containing materials (ACM) fragments were observed within the waste classification area during the sampling event and 10 L field screening. No staining or visual olfactory evidence of contamination was observed during the collection of samples.

WASTE CLASSIFICATION REPORT	
Analytical results and comparison	All soil analytical results were below contaminant threshold (CT1) for general solid waste. No asbestos was detected in any of the soil samples. Analytical results summary table and laboratory certificates are presented in Attachment C and Attachment D respectively.
Waste classification	Based on the analytical results for stockpile "A", the material is classified as **"GENERAL SOLID WASTE – NON-PUTRESCIBLE".**
Disposal Requirements: The material classified under this waste classification report is only suitable to be transferred to a facility appropriately licensed to accept the material described in the section above	

Note that this waste classification is considered correct as at the date of sampling. WSP is not responsible for changes to material composition and classification due to activities occurring after this date. This waste classification certificate only relates to the materials described in the 'Material identification and source' section and as detailed on Figure 2, Attachment A. Any other materials disposed off-site should be accompanied by their own discrete waste classification report.

The findings of this waste classification are subject to the limitations attached.

Yours sincerely

James Green
Environmental Consultant

Julie Porter
Principal Environmental Engineer

LIMITATIONS

Scope of services

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

Reliance on data

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP

Environmental conclusions

In accordance with the scope of services, WSP has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

Report for benefit of client

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

Other limitations

WSP will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

ATTACHMENT A
FIGURES



Legend

- School boundary
- Stockpile Location

Source: MetroMap

Client:	Grindley Constructions Pty Ltd	
Project:	Ex-Situ Waste Classification - “Stockpile A”	
Title:	Site Location Plan	
Project no.:	PS127030	**Figure 1**



Legend

- Stockpile Boundary
- Material Source Location

Source: MetroMap

Client:	Grindley Constructions Pty Ltd	
Project:	Ex-Situ Waste Classification - “Stockpile A”	
Title:	Source, Stockpile & Sample Locations	
Project no.:	PS127030	**Figure 2**

ATTACHMENT B
MATERIAL PHOTOGRAPHS



Photo 1. Material source location, following excavation and backfilling with roadbase gravel – South of Building F.



Photo 2. Stockpiled material “Stockpile A”, covered by this waste classification report.



Photo 3. Stockpiled material “Stockpile A”, covered by this waste classification report.



Photo 4. Stockpiled material “Stockpile A”, covered by this waste classification report.

ATTACHMENT C
SUMMARY RESULTS

Wentworthville Public School, Stage 3
Ex-Situ Waste Classification - Stockpile "A"

	TPH		BTEX				PAH			Metals								OCP			OPP	PCB	Asbestos		
	C6 - C9 Fraction	+C10 - C36 (Sum of total)	Benzene	Toluene	Ethylbenzene	Xylene Total	Benzo(a) pyrene	PAHs (Sum of total)	PAHs (Sum of positives)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Endosulfan I	Endosulfan II	Endosulfan sulphate	Chlorpyrifos	PCBs (Sum of total)	Asbestos fibres	Sum +ve Scheduled Chemicals	Sum +ve Moderately Harmful Pesticides
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	Y/N	mg/kg	mg/kg
EQL	20	110	0.1	0.1	0.1	0.3	0.1	0.8	0.8	1	0.3	0.5	0.5	1	0.05	0.5	2	0.2	0.2	0.1	0.2	1		1	1
NSW 2014 General Solid Waste CT1 (No Leaching)	650	10,000	10	288	600	1,000	0.8	200		100	20	100		100	4	40					4	50		<50	250
NSW 2014 General Solid Waste SCC1 (with leached)	650	10,000	18	518	1,080	1,800	10	200		500	100	1,900		1,500	50	1,050					7.5	50		<50	<50
NSW 2014 General Solid Waste TCLP1 (leached)																									
NSW 2014 Restricted Solid Waste CT2 (No Leaching)	2,600	40,000	40	1,152	2,400	4,000	3.2	800	800	400	80	400		400	16	160		240	240	240	16	50		<50	1000
NSW 2014 Restricted Solid Waste SCC2 (with leached)	2,600	40,000	72	2,073	4,320	7,200	23	800		2,000	400	7,600		6,000	200	4,200					30	50		<50	
NSW 2014 Restricted Solid Waste TCLP2 (leached)																									
Field ID	**Date**																								
SPA-1	**20/04/2022**	<20	<110	<0.1	<0.1	<0.1	<0.3	0.1	<0.8	<0.8	9	<0.3	14	26	48	0.06	8.5	120	<0.2	<0.2	<0.1	<0.2	<1	N	ND	ND
SPA-2	**20/04/2022**	<20	<110	<0.1	<0.1	<0.1	<0.3	0.1	<0.8	<0.8	7	<0.3	13	22	60	0.08	8.0	120	<0.2	<0.2	<0.1	<0.2	<1	N	ND	ND
SPA-3	**20/04/2022**	<20	<110	<0.1	<0.1	<0.1	<0.3	0.2	1.9	1.9	7	<0.3	12	9.6	36	<0.05	4.7	73	<0.2	<0.2	<0.1	<0.2	<1	N	ND	ND

ATTACHMENT D
LABORATORY CERTIFICATES

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030 Stockpile Waste Classification**
Order Number	**PS127030**
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE231170 R0**
Date Received	20/4/2022
Date Reported	22/4/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	**0.1**	**0.2**
Pyrene	mg/kg	0.1	**0.2**	**0.1**	**0.3**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.1**	**0.1**	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.1**	**0.1**	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.2**	**0.2**	**0.4**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.9**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.9**

OC Pesticides in Soil [AN420] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Arsenic, As	mg/kg	1	**9**	**7**	**7**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**14**	**13**	**12**
Copper, Cu	mg/kg	0.5	**26**	**22**	**9.6**
Lead, Pb	mg/kg	1	**48**	**60**	**36**
Nickel, Ni	mg/kg	0.5	**8.5**	**8.0**	**4.7**
Zinc, Zn	mg/kg	2	**120**	**120**	**73**

Mercury in Soil [AN312] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Mercury	mg/kg	0.05	**0.06**	**0.08**	<0.05

Moisture Content [AN002] Tested: 20/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
% Moisture	%w/w	1	**20.6**	**18.2**	**12.4**

Fibre Identification in soil [AN602] Tested: 21/4/2022

PARAMETER	UOM	LOR	SPA-1 SOIL - 20/4/2022 SE231170.001	SPA-2 SOIL - 20/4/2022 SE231170.002	SPA-3 SOIL - 20/4/2022 SE231170.003
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection /reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Email	James.Green@wsp.com
Project	**PS127030 Stockpile Waste Classification**
Order Number	**PS127030**
Samples	3

LABORATORY DETAILS

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SGS Reference	**SE231170 R0**
Date Received	20 Apr 2022
Date Reported	22 Apr 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

ANALYTICAL REPORT

SE231170 R0

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE231170.001	SPA-1	Soil	539g Clay,Sand,Soil, Rocks	20 Apr 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE231170.002	SPA-2	Soil	579g Clay,Sand,Soil, Rocks	20 Apr 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE231170.003	SPA-3	Soil	546g Clay,Sand,Rock s	20 Apr 2022	No Asbestos Found at RL of 0.1g/kg	<0.01

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy , including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety .

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STATEMENT OF QA/QC PERFORMANCE

SE231170 R0

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Project	**PS127030 Stockpile Waste Classification**
Order Number	**PS127030**
Samples	3

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE231170 R0**
Date Received	20 Apr 2022
Date Reported	22 Apr 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	20/4/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

HOLDING TIME SUMMARY

SE231170 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246925	20 Apr 2022	20 Apr 2022	20 Apr 2023	21 Apr 2022	20 Apr 2023	22 Apr 2022
SPA-2	SE231170.002	LB246925	20 Apr 2022	20 Apr 2022	20 Apr 2023	21 Apr 2022	20 Apr 2023	22 Apr 2022
SPA-3	SE231170.003	LB246925	20 Apr 2022	20 Apr 2022	20 Apr 2023	21 Apr 2022	20 Apr 2023	22 Apr 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246874	20 Apr 2022	20 Apr 2022	18 May 2022	20 Apr 2022	18 May 2022	21 Apr 2022
SPA-2	SE231170.002	LB246874	20 Apr 2022	20 Apr 2022	18 May 2022	20 Apr 2022	18 May 2022	21 Apr 2022
SPA-3	SE231170.003	LB246874	20 Apr 2022	20 Apr 2022	18 May 2022	20 Apr 2022	18 May 2022	21 Apr 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246867	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	25 Apr 2022	22 Apr 2022
SPA-2	SE231170.002	LB246867	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	25 Apr 2022	22 Apr 2022
SPA-3	SE231170.003	LB246867	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	25 Apr 2022	22 Apr 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246873	20 Apr 2022	20 Apr 2022	17 Oct 2022	20 Apr 2022	17 Oct 2022	22 Apr 2022
SPA-2	SE231170.002	LB246873	20 Apr 2022	20 Apr 2022	17 Oct 2022	20 Apr 2022	17 Oct 2022	22 Apr 2022
SPA-3	SE231170.003	LB246873	20 Apr 2022	20 Apr 2022	17 Oct 2022	20 Apr 2022	17 Oct 2022	22 Apr 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246869	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	30 May 2022	22 Apr 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SPA-1	SE231170.001	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022
SPA-2	SE231170.002	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022
SPA-3	SE231170.003	LB246866	20 Apr 2022	20 Apr 2022	04 May 2022	20 Apr 2022	04 May 2022	22 Apr 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	94
	SPA-2	SE231170.002	%	60 - 130%	99
	SPA-3	SE231170.003	%	60 - 130%	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	87
	SPA-2	SE231170.002	%	60 - 130%	89
	SPA-3	SE231170.003	%	60 - 130%	78
d14-p-terphenyl (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	92
	SPA-2	SE231170.002	%	60 - 130%	95
	SPA-3	SE231170.003	%	60 - 130%	83

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SPA-1	SE231170.001	%	70 - 130%	87
	SPA-2	SE231170.002	%	70 - 130%	89
	SPA-3	SE231170.003	%	70 - 130%	78
d14-p-terphenyl (Surrogate)	SPA-1	SE231170.001	%	70 - 130%	92
	SPA-2	SE231170.002	%	70 - 130%	95
	SPA-3	SE231170.003	%	70 - 130%	83
d5-nitrobenzene (Surrogate)	SPA-1	SE231170.001	%	70 - 130%	94
	SPA-2	SE231170.002	%	70 - 130%	96
	SPA-3	SE231170.003	%	70 - 130%	85

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	94
	SPA-2	SE231170.002	%	60 - 130%	99
	SPA-3	SE231170.003	%	60 - 130%	100

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	99
	SPA-2	SE231170.002	%	60 - 130%	93
	SPA-3	SE231170.003	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	106
	SPA-2	SE231170.002	%	60 - 130%	101
	SPA-3	SE231170.003	%	60 - 130%	106
d8-toluene (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	99
	SPA-2	SE231170.002	%	60 - 130%	95
	SPA-3	SE231170.003	%	60 - 130%	101

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	99
	SPA-2	SE231170.002	%	60 - 130%	93
	SPA-3	SE231170.003	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	106
	SPA-2	SE231170.002	%	60 - 130%	101
	SPA-3	SE231170.003	%	60 - 130%	106
d8-toluene (Surrogate)	SPA-1	SE231170.001	%	60 - 130%	99
	SPA-2	SE231170.002	%	60 - 130%	95
	SPA-3	SE231170.003	%	60 - 130%	101

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB246874.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246869.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246869.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB246869.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246869.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	102
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB246869.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	87

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB246873.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB246869.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB246866.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	113
		d8-toluene (Surrogate)	%	-	109
		Bromofluorobenzene (Surrogate)	%	-	104
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB246866.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	113

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231050.003	LB246874.024	Mercury	mg/kg	0.05	0.08	0.08	93	10
SE231068.007	LB246874.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231176.004	LB246867.011	% Moisture	%w/w	1	15.8	15.6	36	1
SE231179.009	LB246867.022	% Moisture	%w/w	1	14.4	12.4	37	15
SE231179.014	LB246867.026	% Moisture	%w/w	1	<1	<1	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231170.003	LB246869.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.14	30	8

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231179.001	LB246869.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231179.001	LB246869.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	6
SE231179.010	LB246869.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	12

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231170.003	LB246869.027	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231170.003	LB246869.027		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231050.003	LB246873.024		Arsenic, As	mg/kg	1	6	6	46	11
			Cadmium, Cd	mg/kg	0.3	1.9	1.5	47	24
			Chromium, Cr	mg/kg	0.5	23	25	32	6
			Copper, Cu	mg/kg	0.5	150	110	30	37 ②
			Nickel, Ni	mg/kg	0.5	12	12	34	3
			Lead, Pb	mg/kg	1	150	150	31	0
			Zinc, Zn	mg/kg	2	420	410	30	2
SE231068.007	LB246873.014		Arsenic, As	mg/kg	1	2	2	76	13
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	3.4	2.2	48	41
			Copper, Cu	mg/kg	0.5	15	20	33	29
			Nickel, Ni	mg/kg	0.5	8.9	12	35	32
			Lead, Pb	mg/kg	1	10	10	40	6
			Zinc, Zn	mg/kg	2	48	70	33	39 ②

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231179.001	LB246869.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE231179.011	LB246869.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231176.003	LB246866.036	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	8.6	50	17
			d8-toluene (Surrogate)	mg/kg	-	9.4	7.9	50	17
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	7.8	50	17
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE231179.011	LB246866.037	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231179.011	LB246866.037	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.6	9.9	50	7
			d8-toluene (Surrogate)	mg/kg	-	10.1	9.4	50	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	8.8	50	6
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE231176.003	LB246866.036		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	8.6	30	17
			d8-toluene (Surrogate)	mg/kg	-	9.4	7.9	30	17
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	7.8	30	17
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE231179.011	LB246866.037		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.6	9.9	30	7
			d8-toluene (Surrogate)	mg/kg	-	10.1	9.4	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	8.8	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246874.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	103

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246869.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	85
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	81
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	79
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	84
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	89
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	83
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	79

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246869.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	77
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	93
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	89
		Ethion	mg/kg	0.2	2.0	2	60 - 140	98
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246869.002		Naphthalene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.5	4	60 - 140	88
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	94
		Anthracene	mg/kg	0.1	3.4	4	60 - 140	86
		Fluoranthene	mg/kg	0.1	3.6	4	60 - 140	91
		Pyrene	mg/kg	0.1	3.5	4	60 - 140	88
		Benzo(a)pyrene	mg/kg	0.1	3.6	4	60 - 140	90
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	93

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246869.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	92

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246873.002	Arsenic, As	mg/kg	1	320	318.22	80 - 120	102
	Cadmium, Cd	mg/kg	0.3	4.6	4.81	70 - 130	96
	Chromium, Cr	mg/kg	0.5	36	38.31	80 - 120	93
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	106
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	98
	Lead, Pb	mg/kg	1	89	89.9	80 - 120	99
	Zinc, Zn	mg/kg	2	270	273	80 - 120	101

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246869.002		TRH C10-C14	mg/kg	20	38	40	60 - 140	95
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	78
	TRH F Bands	TRH >C10-C16	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246866.002	Monocyclic	Benzene	mg/kg	0.1	4.2	5	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	4.1	5	60 - 140	82
		Ethylbenzene	mg/kg	0.1	4.2	5	60 - 140	84
		m/p-xylene	mg/kg	0.2	8.2	10	60 - 140	82
		o-xylene	mg/kg	0.1	4.4	5	60 - 140	88
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.6	10	70 - 130	116
		d8-toluene (Surrogate)	mg/kg	-	10.9	10	70 - 130	109
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	10	70 - 130	101

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB246866.002		TRH C6-C10	mg/kg	25	64	92.5	60 - 140	69
		TRH C6-C9	mg/kg	20	59	80	60 - 140	73
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.6	10	70 - 130	116
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	10	70 - 130	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	62.5	60 - 140	62

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246874.004	Mercury	mg/kg	0.05	0.21	0.06	0.2	75

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246869.004		Naphthalene	mg/kg	0.1	3.8	<0.1	4	92
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.6	<0.1	4	88
			Acenaphthene	mg/kg	0.1	3.5	<0.1	4	86
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.7	<0.1	4	90
			Anthracene	mg/kg	0.1	3.4	<0.1	4	83
			Fluoranthene	mg/kg	0.1	3.7	0.2	4	88
			Pyrene	mg/kg	0.1	3.6	0.2	4	86
			Benzo(a)anthracene	mg/kg	0.1	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.7	0.1	4	88
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.7	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.8	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.7	0.2	-	-
			Total PAH (18)	mg/kg	0.8	29	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	-	90
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	85
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	89

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246873.004	Arsenic, As	mg/kg	1	53	9	50	88
		Cadmium, Cd	mg/kg	0.3	44	<0.3	50	87
		Chromium, Cr	mg/kg	0.5	57	14	50	87
		Copper, Cu	mg/kg	0.5	67	26	50	82
		Nickel, Ni	mg/kg	0.5	51	8.5	50	84
		Lead, Pb	mg/kg	1	82	48	50	67 ⑨
		Zinc, Zn	mg/kg	2	130	120	50	31 ⑨

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246869.004		TRH C10-C14	mg/kg	20	35	<20	40	88
			TRH C15-C28	mg/kg	45	<45	<45	40	98
			TRH C29-C36	mg/kg	45	<45	<45	40	78
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	36	<25	40	90
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	36	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	93
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246866.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	3.9	<0.1	5	78
			Toluene	mg/kg	0.1	3.8	<0.1	5	76
			Ethylbenzene	mg/kg	0.1	4.0	<0.1	5	80
			m/p-xylene	mg/kg	0.2	7.8	<0.2	10	78
			o-xylene	mg/kg	0.1	4.2	<0.1	5	83

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246866.004	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.0	10.6	10	110
			d8-toluene (Surrogate)	mg/kg	-	10.5	9.9	10	105
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	9.9	10	98
		Totals	Total Xylenes	mg/kg	0.3	12	<0.3	-	-
			Total BTEX	mg/kg	0.6	24	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE231170.001	LB246866.005		TRH C6-C10	mg/kg	25	64	<25	92.5	69
			TRH C6-C9	mg/kg	20	58	<20	80	73
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.0	10.6	10	110
			d8-toluene (Surrogate)	mg/kg	-	10.5	9.9	10	105
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.8	9.9	-	98
		VPH F	Benzene (F0)	mg/kg	0.1	3.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	41	<25	62.5	64

MATRIX SPIKE DUPLICATES

SE231170 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

QC Sample	Sample Number	Parameter	Units	LOR

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This test report shall not be reproduced, except in full.

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:	WSP	Project Name/No:	**PS127030 – Stockpile Waste Classification (20/04/22)**
Address:	Level 27, Ernst & Young Centre	Purchase Order No:	-
	680 George Street	Results Required Date:	**2 day TAT**
	Sydney NSW 2000	Telephone:	0409 161 315 (JP) 0401 457 535 (MV)
Contact Name:	Julie Porter, Matt Vanderheyden	Email Results to:	**James.Green@wsp.com** **Julie.Porter@wsp.com**
Quotation No:	SY141023-1-IS		

SGS ID	Client Sample ID	Sampling Date	Matrix (Tick as appropriate): Soil Sample	Water Sample	FRAGMENT	NO. OF CONTAINERS	ANALYSIS REQUESTED: ASBESTOS (absence/presence)	TRH, BTEXN, PAH, 8 METALS	OCP/OPP, PCB
1	SPA-1	**20/04/2022**	X			2	X	X	X
2	SPA-2	**20/04/2022**	X			2	X	X	X
3	SPA-3	**20/04/2022**	X			2	X	X	X

Additional Report Formats

Notes/Guidelines/LOR/ Special instructions

SGS EHS Sydney COC
SE231170

Relinquished By: WSP, Matt Vanderheyden	Date/Time 20/04/22 15:00	Received By: George Zhi	Date/Time: 20/4/22@ 2:40 pm
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 3 °C	Sample Security Sealed: *Yes / No*	Hazards: *e.g. may contain Asbestos*

Comments / Subcontracting details:

SAMPLE RECEIPT ADVICE

SE231170

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030 Stockpile Waste Classification**
Order Number	**PS127030**
Samples	3

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 20/4/2022
Report Due	Fri 22/4/2022
SGS Reference	**SE231170**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Wednesday 20/4/2022. Results are expected to be ready by COB Friday 22/4/2022. Please quote SGS reference SE231170 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	3 Soil
Date documentation received	20/4/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE231170

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030 Stockpile Waste Classification

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	SPA-1	30	14	26	11	7	10	11	7
002	SPA-2	30	14	26	11	7	10	11	7
003	SPA-3	30	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE231170

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030 Stockpile Waste Classification

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	SPA-1	2	1	1
002	SPA-2	2	1	1
003	SPA-3	2	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

APPENDIX C

PHOTOLOG

	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
1	29 March 2022

Description

In-situ fill material north of Block F, identified to contain asbestos. Prior to fill removal works.



Photo No.	**Date**
2	29 March 2022

Description

In-situ fill material north of Block F, identified to contain asbestos. During initial fill removal works.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
3	29 March 2022

Description

In-situ fill material north of Block F, identified to contain asbestos. During fill removal works.



Photo No.	**Date**
4	30 March 2022

Description

In-situ fill material north of Block F, identified to contain asbestos. During fill removal works.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
5	30 March 2022

Description

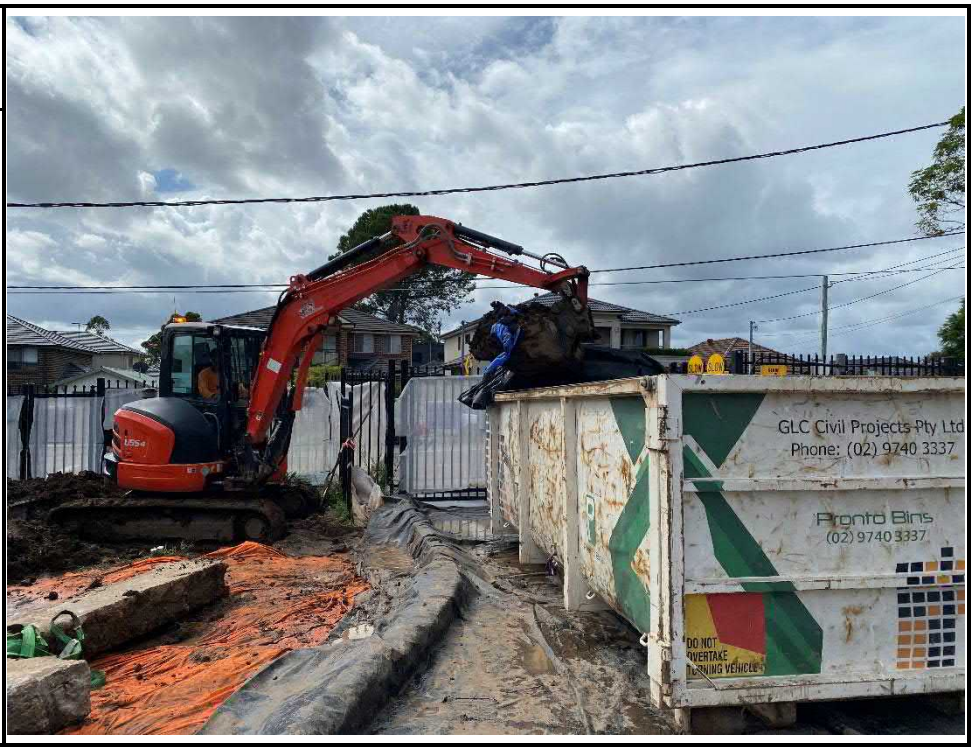
Exposure of natural soil surface, during excavation of asbestos containing fill material north of Block F.



Photo No.	**Date**
6	30 March 2022

Description

Load-out of asbestos containing fill material.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
7	31 March 2022

Description

Exposed natural soil surface (right) and remaining in-situ fill, overlying services covered with geofabric (left). Excavation walls adjacent Block F (left) and along the northern site boundary (right) covered with geofabric.



Photo No.	**Date**
8	31 March 2022

Description

Typical decontamination procedure for excavator used in asbestos exclusion zone.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
9	31 March 2022

Description

Typical soil profile, showing exposed natural soil surface with underlying natural clays within surface validation area. Following asbestos fill removal works.



Photo No.	**Date**
10	3 May 2022

Description

Additional excavation works to remove remaining ACM fill from north of Block F. Note exposed clay (right) and remaining in-situ fill/services (left). Natural surface validated on 31.03.22 remains beneath roadbase gravels (far left).



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
11	3 May 2022

Description

Remaining in-situ fill and excavation wall adjacent Block F covered with geofabric, following additional works to remove asbestos containing fill material.



Photo No.	**Date**
12	3 May 2022

Description

Example of roadbase gravel material imported from Lynwood Hardrock Quarry, following inspection by WSP.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
13	3 May 2022

Description

Foundation preparation works for areas suitable to remain in-situ, to the south of Block F and Stockpiled material suitable to remain on-site, inspected by WSP LAA.



Photo No.	**Date**
14	11 May 2022

Description

Additional excavation works of in-situ asbestos containing fill above services to lower level and allow installation of roadway.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
15	11 May 2022

Description

Remaining fill/in-situ services covered with geofabric marker layer (left), surrounding exposed validated surfaces and excavation wall adjacent Block F



Photo No.	**Date**
16	27 May 2022

Description

Construction of kiss and drop roadway, above in-situ fill/services covered with geofabric marker layer.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
17	27 May 2022

Description

Installation of concrete hardstand/building extension for areas suitable to remain in-situ, to the south of Block F.



Photo No.	**Date**
18	27 May 2022

Description

Three bulka-bags of topsoil material imported from Hi-Quality, prior to assessment by WSP.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
19	27 May 2022

Description

Hi-Quality topsoil material in bulka bags, assessed by WSP.



Photo No.	**Date**
20	27 May 2022

Description

ANL sand material in bulka bags, assessed by WSP.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
21	11 May 2022

Description

Stockpiled material excavated from south of Block F, suitable to remain on-site, inspected by WSP LAA.



Photo No.	**Date**
22	17 June 2022

Description

Block F extension and soils suitable to remain on site in southern portion of Stage 3.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
23	17 June 2022

Description

Concrete footpath in the southern portion of Stage 3, above soils suitable to remain on site.

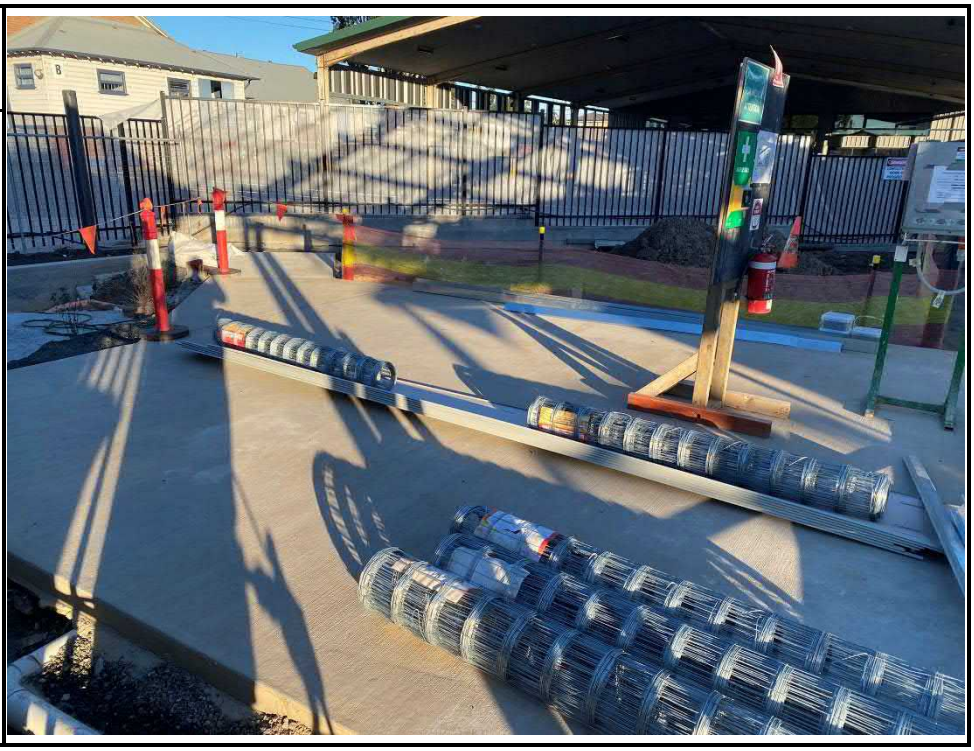


Photo No.	**Date**
24	17 June 2022

Description

Northern remediation area. High-visibility geofabric marker layer covered with roadbase gravels, prior to application of asphalt for kiss and drop roadway.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
25	17 June 2022

Description

Western portion of Stage 3. Location of concrete hardstand and OSD tank.

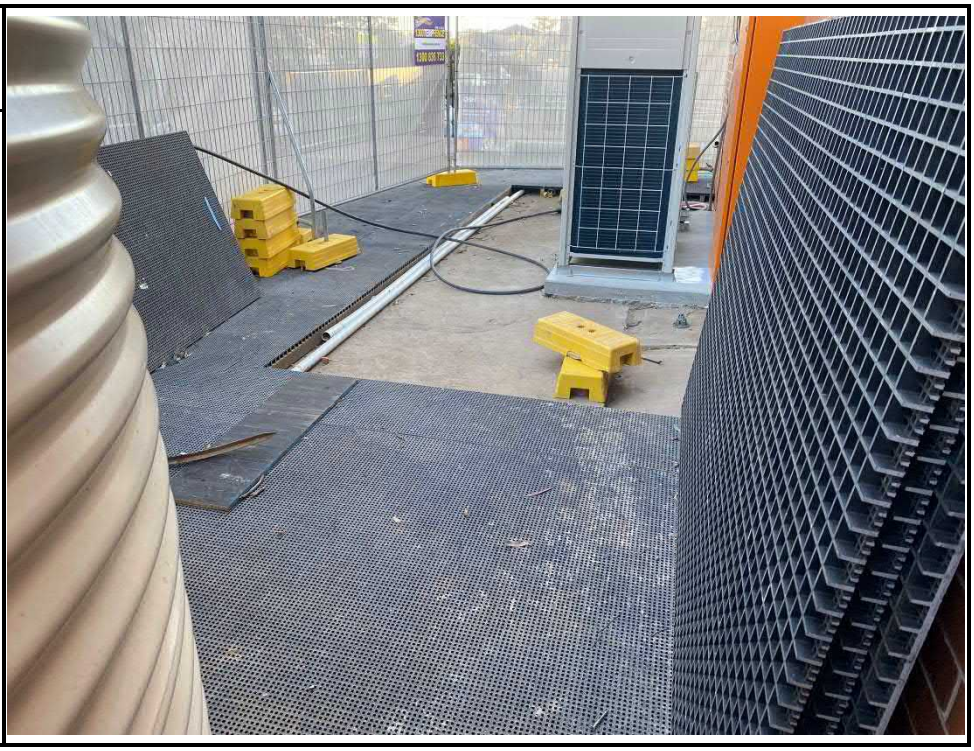


Photo No.	**Date**
26	17 June 2022

Description

Eastern portion of Stage 3, showing soils suitable to remain on site.



	PHOTOGRAPHIC LOG	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
27	17 June 2022

Description

Location of demountable building in the southern portion of the site, referred to as the "asphalt area" – subject to this validation assessment.



Photo No.	**Date**
28	17 June 2022

Description

Demountable footings in the "asphalt area". Footings sit on asphalt surface. Asphalt appears to be in good condition, with no underlying soils exposed.



wsp	**PHOTOGRAPHIC LOG**	
Client Name Grindley Construction Pty Ltd	**Site Location** Stage 3 - Wentworthville Public School	**Project No.** PS127030

Photo No.	**Date**
29	11 July 2022

Description

Asphalt area, following removal of demountable buildings. Asphalt appears to be in good condition.



Photo No.	**Date**
30	11 July 2022

Description

Asphalt area, following removal of demountable buildings. Asphalt appears to be in good condition.



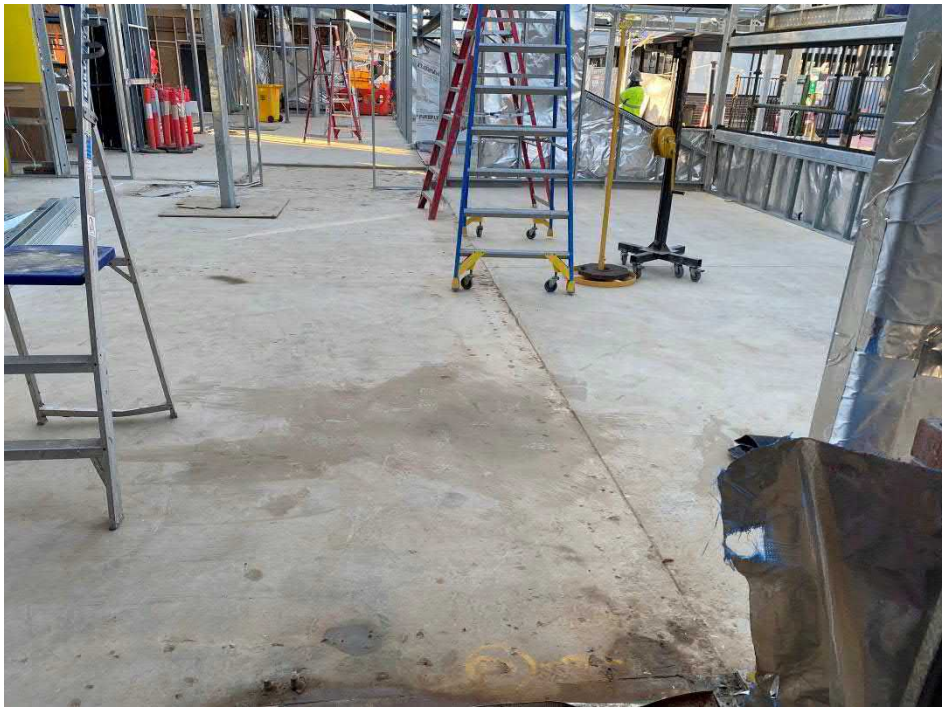
wsp	**PHOTOGRAPHIC LOG**

Client Name	**Site Location**	**Project No.**
Grindley Construction Pty Ltd	Stage 3 - Wentworthville Public School	PS127030

Photo No.	**Date**
31	17 June 2022

Description

Block F existing building footprint (left), noted to be in good condition and recently constructed Block F building extension (right).



APPENDIX D

DISPOSAL DOCUMENTATION

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1408591-1

Date: 29/03/22

Time In: 12:53:06 PM | Time Out: 1:33:49 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	29.44
Tare:	Tonne	15.48
Net: Incoming: Asbestos Soils	Tonne	13.96

Driver Name: Ash

Printed: 29/03/2022 1:33:51 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1408673-1

Date: 29/03/22

Time In: 3:00:49 PM | Time Out: 3:28:43 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	29.94
Tare:	Tonne	15.38
Net: Incoming: Asbestos Soils	Tonne	14.56

Driver Name: Ash

Printed: 29/03/2022 3:28:44 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1408922-1

Date: 30/03/22

Time In: 9:45:12 AM | Time Out: 11:13:35 AM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	29.06
Tare:	Tonne	15.36
Net: Incoming: Asbestos Soils	Tonne	13.70

Driver Name: Ash

Printed: 30/03/2022 11:13:37 AM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1409061-1

Date: 30/03/22

Time In: 12:56:29 PM | Time Out: 1:22:23 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	30.12
Tare:	Tonne	15.62
Net: Incoming: Asbestos Soils	Tonne	14.50

Driver Name: Ash

Printed: 30/03/2022 1:22:24 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches
of heavy vehicle national laws
[illegible] of the above may be subject to extra charges

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1409322-1

Date: 31/03/22

Time In: 6:40:23 AM | Time Out: 7:04:28 AM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	29.26
Tare:	Tonne	15.50
Net: Incoming: Asbestos Soils	Tonne	13.76

Driver Name: Ash

Printed: 31/03/2022 7:04:30 AM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1409583-1

Date: 31/03/22

Time In: 12:34:12 PM | Time Out: 1:43:00 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: WENTWORTHVILLE

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	27.98
Tare:	Tonne	15.40
Net: Incoming: Asbestos Soils	Tonne	12.58

Driver Name: Ash

Printed: 31/03/2022 1:43:03 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

Quote Contract Reference No. 67409 for faster service.

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1422313-1

Date: 03/05/22

Time In: 1:21:11 PM | Time Out: 2:13:55 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: PT1022 - WENTWORTHV

Vehicle: AZIZ01

GREENSTAR

Type	UOM	Qty.
Gross:	Tonne	28.90
Tare:	Tonne	16.32
Net: Incoming: Asbestos Soils	Tonne	12.58

Driver Name: Ali

Printed: 3/05/2022 2:13:56 PM

Statement of Compliance

You are under the instruction of site personnel
machinery has right of way at all times
Hazardous materials are accepted
Drivers must check axle weights and GVM
Loads must be adequately restrained
Agree to take all reasonable steps to
vehicle national laws
Failures of the above

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1422344-1

Date: 03/05/22

Time In: 1:50:01 PM | Time Out: 2:25:58 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: PT1022 - WENTWORTHV

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	28.94
Tare:	Tonne	14.46
Net: Incoming: Asbestos Soils	Tonne	14.48

Driver Name: Ash

Printed: 3/05/2022 2:26:00 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1422463-1

Date: 03/05/22

Time In: 4:21:26 PM | Time Out: 4:50:34 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: PT1022 - WENTWORTHV

Vehicle: AZIZ13

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	29.14
Tare:	Tonne	15.24
Net: Incoming: Asbestos Soils	Tonne	13.90

Driver Name: Ash

Printed: 3/05/2022 4:50:36 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
Hazardous materials are accepted

MET SYDNEY

ABN: 55 618 935 247

134 Carnarvon St Silverwater 2128

EPL No. 20948

Date	4-May-22	
Time In	01:44 PM	
Time Out	02:08 PM	
Rego No	AZIZ12	
Company	Pronto Bins Pty Ltd	
Product	GSW Recyclable - Tip Ra	
Gross	27.16	t
Tare	16.18	t
Net	10.98	t
Docket No	S 160206	
Site	Wentworthville - 70-100 F	
Job	J6272	

I certify that the docket details are correct, and my gross vehicle weight is correct.

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or www.metrecycling.com.au for advice on appropriate use of recycled materials

Thank you for your custom

MET SYDNEY

ABN: 55 618 935 247

134 Carnarvon St Silverwater 2128

EPL No. 20948

Date	4-May-22	
Time In	03:13 PM	
Time Out	03:21 PM	
Rego No	AZIZ12	
Company	Pronto Bins Pty Ltd	
Product	GSW Recyclable - Tip Ra	
Gross	29.84	t
Tare	16.18	t
Net	13.66	t
Docket No	S 160219	
Site	Wentworthville - 70-100 F	
Job	J6272	

I certify that the docket details are correct, and my gross vehicle weight is correct.

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or www.metrecycling.com.au for advice on appropriate use of recycled materials

Thank you for your custom

MET SYDNEY

ABN: 55 618 935 247

134 Carnarvon St Silverwater 2128

EPL No. 20948

Date	6-May-22	
Time In	06:25 AM	
Time Out	06:49 AM	
Rego No	AZIZ13	
Company	Pronto Bins Pty Ltd	
Product	Mixed Heavies with Fines	
Gross	29.30	t
Tare	15.16	t
Net	14.14	t

Docket No S 160272
Site Tipping & Ex Bin rates
Job J6219

wentworthville

I certify that the docket details are correct, and my gross vehicle weight is correct.

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or www.metrecycling.com.au for advice on appropriate use of recycled materials

Thank you for your custom

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1426434-1

Date: 11/05/22

Time In: 12:23:09 PM | Time Out: 2:08:35 PM

Customer

Glc Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: PT1022 - WENTWORTHV

Vehicle: AZIZ12

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	25.88
Tare:	Tonne	16.44
Net: Incoming: Asbestos Soils	Tonne	9.44

Driver Name: Louis

Printed: 11/05/2022 2:08:39 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject
Quote Contract

Eastern Creek Ecology Park

Bingo Waste Services Pty Ltd

A.B.N 43162988623

1 Kangaroo Avenue

EASTERN CREEK NSW 2766

Phone: 1300 424 646

Docket GEN1426643-1

Date: 11/05/22

Time In: 4:15:33 PM | Time Out: 8:13:54 PM

Customer

Gic Civil Projects Pty Ltd

70-100 Fullagar Rd

WENTWORTHVILLE

PO: PT1022 - WENTWORTHV

Vehicle: AZIZ12

******GREENSTAR******

Type	UOM	Qty.
Gross:	Tonne	23.30
Tare:	Tonne	16.42
Net: Incoming: Asbestos Soils	Tonne	6.88

Driver Name: Louis

Printed: 11/05/2022 8:13:55 PM

Statement of Compliance

You are under the instruction of site personnel
All machinery has right of way at all times
No hazardous materials are accepted
All Drivers must check axle weights and GVM
All loads must be adequately restrained
You agree to take all reasonable steps to prevent breaches of heavy vehicle national laws
Any breaches of the above may be subject to extra charges

MET SYDNEY
ABN: 55 618 935 247
134 Carnarvon St Silverwater 2128
EPL No. 20948

Date	16-May-22	
Time In	02:56 PM	
Time Out	03:10 PM	
Rego No	AZIZ13	
Company	Pronto Bins Pty Ltd	
Product	GSW Recyclable - Tip Ra	
Gross	29.44	t
Tare	15.26	t
Net	14.18	t
Docket No	S 160893	
Site	Wentworthville - 70-100 F	
Job	J6272	

I certify that the docket details are correct, and my gross vehicle weight is correct

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or www.metrecycling.com.au for advice on appropriate use of recycled materials

MET SYDNEY

MET SYDNEY

ABN: 55 618 935 247

134 Carnarvon St Silverwater 2128

EPL No. 20948

Date	17-May-22	
Time In	12:43 PM	
Time Out	01:24 PM	
Rego No	AZIZ13	
Company	Pronto Bins Pty Ltd	
Product	GSW Recyclable - Tip Ra	
Gross	32.70	t
Tare	15.14	t
Net	17.56	t
Docket No	S 160961	
Site	Wentworthville - 70-100 F	
Job	J6272	

I certify that the docket details are correct, and my gross vehicle weight is correct

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or



MET SYDNEY

ABN: 55 618 935 247

134 Carnarvon St Silverwater 2128

EPL No. 20948

Date	17-May-22	
Time In	01:24 PM	
Time Out	02:18 PM	
Rego No	AZIZ02	
Company	Pronto Bins Pty Ltd	
Product	GSW Recyclable - Tip Ra	
Gross	19.62	t
Tare	11.62	t
Net	8.00	t
Docket No	S 160968	
Site	Wentworthville - 70-100 F	
Job	J6272	

I certify that the docket details are correct, and my gross vehicle weight is correct

MET recycled materials meet appropriate and relevant resource recovery orders under the POEO (Waste) Regulation 2014

Copies of relevant resource recovery orders and exemptions can be obtained from www.epa.nsw.gov.au or www.metrecycling.com.au for advice on appropriate use of recycled materials

Thank you for your custom

GLC Civil Projects Pty Limited

ACM - 29-03-22 - Building F

Vehicle Register – Log In and Out Records

Register Plate	Time In	Time Out
AZIZ 13	8:30 AM	9:15 AM
AZIZ 13	1:30PM	1:55PM

GLC Civil Representative

SAJOH - [signature]

Name – Print Please

Client Representative

Paul Consalo

Name – Print Please

GLC Civil Projects Pty Ltd
ABN: 15 628 842 188
115-119 Cowpasture Road, Wetherill Park, NSW 2164
P: (02) 9740 3337 W: www.glccivil.com.au

GLC Civil Projects Pty Limited

ACM - 30-03-22 - Building F

Vehicle Register – Log In and Out Records

Register Plate	Time In	Time Out
AZIZ13	7:30AM	9:00AM
AZIZ13	11:35AM	12:10PM
AZIZ13	4:00PM	4:47PM

* Tipped on the 31-03-22

GLC Civil Representative

SAJOH - SRad

Name – Print Please

Client Representative

Paul Carisio

Name – Print Please

GLC Civil Projects Pty Ltd
ABN: 15 628 842 188
115-119 Cowpasture Road, Wetherill Park, NSW 2164
P: (02) 9740 3337 W: www.glccivil.com.au

GLC Civil Projects Pty Limited

ACM - 31-03-22 - Building F

Vehicle Register – Log In and Out Records

Register Plate	Time In	Time Out
AZIZ13	11:00 AM	12:00 PM

GLC Civil Representative

SAJOH - Sajoh

Name – Print Please

Client Representative

Paul Canisio

Name – Print Please

GLC Civil Projects Pty Ltd
ABN: 15 628 842 188
115-119 Cowpasture Road, Wetherill Park, NSW 2164
P: (02) 9740 3337 W: www.glccivil.com.au

GLC Civil Projects Pty Limited

03/05/2022 - ACM - Building F

Vehicle Register – Log In and Out Records

Register Plate	Time In	Time Out
AZIZ01	12:35PM	12:52 PM
AZIZ13	13:02 PM	13:24PM
AZIZ 13	15:13PM	15:48PM

GLC Civil Representative

Client Representative

Name – Print Please

Name – Print Please

GLC Civil Projects Pty Ltd
ABN: 15 628 842 188
115-119 Cowpasture Road, Wetherill Park, NSW 2164
P: (02) 9740 3337 W: www.glccivil.com.au

GLC Civil Projects Pty Limited

ACM - 11/05/2022

Vehicle Register – Log In and Out Records

	Register Plate	Time In	Time Out
1)	AZIZ12	11:23AM	11:34AM
2)	AZIZ12	3:17PM	3:28PM

GLC Civil Representative

Jesus Saenz

Name – Print Please

Client Representative

Paul Cassato

Name – Print Please

GLC Civil Projects Pty Ltd
ABN: 15 628 842 188
115-119 Cowpasture Road, Wetherill Park, NSW 2164
P: (02) 9740 3337 W: www.glccivil.com.au

APPENDIX E

MATERIAL IMPORTATION

E1.1 IMPORTED MATERIAL REGISTER

Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
25/05/2022	Whole Landscapes	ANL	Terrey Hills	CD-74-LL	Sydney Sand	37442	1 Tonne	Block F		
23/05/2022	Whole Landscapes	Hi-Quality	Eastern Creek	BZ33DN	Garden Mix	40471 (combined load)	1 m3	Block F		
23/05/2022	Whole Landscapes	Hi-Quality	Eastern Creek	BZ33DN	Garden Mix		1 m3	Block F		
27/05/2022	Whole Landscapes	Hi-Quality	Eastern Creek	BZ32DN	Garden Mix	40496	1 m3	Block F		
1/07/2022	Whole Landscapes	Hi-Quality	Eastern Creek	HQG-169	Garden Mix	775048 (combined load)	17m3	Block F		
1/07/2022	Whole Landscapes	Hi-Quality	Eastern Creek	HQG-169	Garden Mix		17m3	Block F		
20/07/2022	Whole Landscapes	ANL	Terrey Hills	CD-74-LL	Sydney Sand	39019	4 Tonne	Block F		

E1.2 LYNWOOD ROCK QUARRY ROADBASE GRAVEL

Environment Protection Licence

Licence - 12939

Licence Details	
Number:	12939
Anniversary Date:	15-December

Licensee

HOLCIM (AUSTRALIA) PTY LTD

LOCKED BAG 5007

BAULKHAM HILLS NSW 1755

Premises

LYNWOOD QUARRY

278 STONEY CREEK ROAD

MARULAN NSW 2579

Scheduled Activity

Crushing, grinding or separating

Extractive activities

Fee Based Activity	Scale
Crushing, grinding or separating	> 2000000 T annual processing capacity
Extractive activities	> 2000000 T annually extracted or processed

Region

Regional South - Queanbeyan

11 Farrer Place
QUEANBEYAN NSW 2620

Phone: (02) 6229 7002

Fax: (02) 6229 7006

PO Box 622

QUEANBEYAN NSW 2620

Environment Protection Licence

Licence - 12939

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Environment Protection Licence

Licence - 12939

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Environment Protection Licence

Licence - 12939

Information about this licence

Dictionary

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

Responsibilities of licensee

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

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

Variation of licence conditions

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

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

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

Duration of licence

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

Licence review

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

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

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

Environment Protection Licence

Licence - 12939

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

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

Transfer of licence

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

Public register and access to monitoring data

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

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

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

This licence is issued to:

HOLCIM (AUSTRALIA) PTY LTD
LOCKED BAG 5007
BAULKHAM HILLS NSW 1755

subject to the conditions which follow.

Environment Protection Licence

Licence - 12939

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

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

Scheduled Activity	Fee Based Activity	Scale
Crushing, grinding or separating	Crushing, grinding or separating	> 2000000 T annual processing capacity
Extractive activities	Extractive activities	> 2000000 T annually extracted or processed

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
LYNWOOD QUARRY
278 STONEY CREEK ROAD
MARULAN
NSW 2579
LOT 10 DP 700579, LOT 112 DP 750029, LOT 230 DP 750029, LOT 294 DP 750029, LOT 7001 DP 1025603, LOT 3 DP 1036993, LOT 4 DP 1036993, LOT 1 DP 1074107, LOT 3 DP 1074107, LOT 1 DP 1074819, LOT 2 DP 1107232, LOT 1 DP 1116876, LOT 2 DP 1116876, LOT 1 DP 1117910, LOT 1 DP 1140546
ALSO AS SHOWN IN THE DOCUMENT TITLED "FIGURE 1, REVISED MONITORING LOCATIONS", RECEIVED BY EPA 8 NOVEMBER 2016 AND HELD AS DOC16/565661.

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

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

the issuing of this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
11	Dust Monitoring		Dust deposition gauge identified as DD5 in the map attached to the document titled "EPA Monitor Relocation Letter February 2020", received by EPA from the licensee on 6 February 2020 (DOC20/98576-1).
14	PM10 Dust Monitoring		Dust deposition gauge labelled as HVAS1 in Figure 1 Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
15	PM10 Dust Monitoring		Dust deposition gauge labelled as HVAS2 in Figure 1 Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
16	Dust Monitoring		Dust deposition gauge labelled as DD8 in Figure 1 Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
17	Dust monitoring		Dust deposition gauge labelled as DD11 in Figure 1 Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
18	Dust monitoring		Dust deposition gauge DD12, as identified in map supplied by Holcim to the EPA on 28 August 2019 (DOC19/370662-10).
19	Dust monitoring		Dust deposition gauge labelled as DD13 in Figure 1 Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).

3 Limit Conditions

Environment Protection Licence

Licence - 12939

L1 Pollution of waters

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

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L2.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if it requires an environment protection licence.

L3 Noise limits

L3.1 Noise generated at the premises must not exceed the noise limits presented in the table below:

Noise Assessment Location	Day	Evening	Night	Night
	LAeq (15 minute)	LAeq (15 minute)	LAeq (15 minute)	LA1 (1 minute)
Location 1	35	35	35	45
Location 2	35	35	35	45
Location 3	35	35	35	45
Location 4	35	37	35	46
Location 5	35	35	35	46
Location 6	35	37	36	46
Location 7	38	38	35	55
Location 8	39	38	36	55
Location 9	39	39	37	56
Location 10	42	42	40	53
Location 11	35	35	36	47
Location 12	37	37	36	47
Location 13	40	38	37	47
Location 14	35	35	35	47
Location 15	35	35	35	47
Location 16	35	35	35	45

Note: The above locations refer to the respective noise assessment locations as depicted in Appendix 3 "Noise Receiver Locations" to the consolidated consent for Lynwood Quarry, as modified by the Department of Planning and Environment in May 2017.

L3.2 Noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 meters of a dwelling where the dwelling is more than 30 metres from the boundary, to determine compliance with the $L_{Aeq\ (15\ minute)}$ noise limits in condition L3.1.

Noise from the development is to be measured at 1m from the dwelling façade to determine compliance with the $L_{A1\ (1\ minute)}$ in the above table.

The noise emission limits identified in condition L3.1 apply under meteorological conditions of:

- Wind speed up to 3m/s at 10m above ground level; or
- Temperature inversion conditions of up to 3^{0} C/100m and wind speed up to 2 m/s at 10m above ground level.

L4 Blasting

L4.1 The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L4.2 The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L4.3 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L4.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L4.5 To determine compliance with condition(s) L4.1 and L4.2:

a) When blasting is undertaken outside of the Granite Pit, airblast overpressure and ground vibration levels must be measured and electronically recorded at blast monitoring locations marked B1, B2 and B3 in Figure 1, Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
b) When blasting is undertaken within the Granite Pit, airblast overpressure and ground vibration levels must be measured and electronically recorded at blast monitoring locations marked B4, B5 and B6 in Figure 1, Revised Monitoring Locations, received by EPA 8 November 2016 (DOC16/565661).
c) Instrumentation used to measure the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.

Note: A breach of the licence will still occur where airblast overpressure or ground vibration levels from the blasting operations at the premises exceeds the limit specified in conditions L4.1 to L4.4 at any "noise sensitive locations" other than the locations identified in the above condition.

L5 Hours of operation

L5.1 The Applicant shall comply with the operating hours in the below table.

Activity	Day	Time
Construction Works	Monday - Friday	7am to 6pm
	Saturday	8am to 1pm
	Sunday	None
Topsoil/ overburden removal/ emplacement	Any day	7am to 6pm
Blasting	Monday - Saturday	9am to 5pm
	Sunday and Public Holidays	None
Extraction	Any day	7am to 10pm
Processing, (crushing, screening, stockpiling); loading, delivery, and distribution; maintenance	Any day	Anytime

Note: The above table only relates to construction works that are audible at any residential receivers on privately owned land. Construction works that are inaudible at any residential receiver may be carried out at any time.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

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

b) must be operated in a proper and efficient manner.

5 Monitoring and Recording Conditions

M1 Monitoring records

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

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

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

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 11,16,17,18,19

Pollutant	Units of measure	Frequency	Sampling Method
Particulates - Deposited Matter	grams per square metre per month	Monthly	AM-19

POINT 14,15

Pollutant	Units of measure	Frequency	Sampling Method
PM10	micrograms per cubic metre	Special Frequency 1	AM-22

Note: For the purposes of the table(s) above Special Frequency 1 means the collection of samples over a 24

hour period, every 6 days.

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Recording of pollution complaints

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

M4.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

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

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

M5 Telephone complaints line

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

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a

complaints line so that the impacted community knows how to make a complaint.

M5.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

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

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

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

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

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or

b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

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

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

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

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

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

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

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

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

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

EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

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

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

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

Environment Protection Licence

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr David Winfield

Environment Protection Authority

(By Delegation)

Date of this edition: 12-December-2008

Environment Protection Licence

Licence - 12939

End Notes

1	Licence varied by notice 1126971, issued on 11-Apr-2011, which came into effect on 11-Apr-2011.
2	Licence varied by notice 1516663 issued on 23-Sep-2013
3	Licence varied by notice 1546136 issued on 21-Dec-2016
4	Licence varied by notice 1582898 issued on 27-Sep-2019
5	Licence varied by notice 1587552 issued on 30-Oct-2019
6	Licence varied by notice 1588473 issued on 20-Nov-2019
7	Licence varied by notice 1588899 issued on 02-Dec-2019
8	Licence varied by notice 1589467 issued on 12-Dec-2019
9	Licence varied by notice 1590431 issued on 09-Jan-2020
10	Licence varied by notice 1590941 issued on 29-Jan-2020
11	Licence varied by notice 1591391 issued on 10-Feb-2020
12	Licence varied by notice 1592523 issued on 05-Mar-2020
13	Licence varied by notice 1593427 issued on 20-Apr-2020
14	Licence varied by notice 1595328 issued on 11-Jun-2020
15	Licence varied by notice 1598295 issued on 28-Aug-2020

Lynwood Quarry Preliminary Site Investigation

2020 Extraction Zone VENM Assessment



Prepared for

Holcim

25th November 2019

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Construction Sciences is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

Executive Summary

In preparation for expanding quarry operations at the Holcim Lynwood Quarry, Construction Sciences were engaged to perform a Preliminary Site Investigation (PSI) to evaluate the Virgin Excavated Natural Material (VENM) status of material marked for excavation as part of the 2020 Extraction Zone project area. Five (5) samples were selected at locations specified by the client on Lot 2 on DP1107232 to identify and characterise the potential contamination in the area and the applicable VENM status.

The scope of this assessment included a review of the site history, potential sources of contamination, collection of soil samples and subsequent laboratory analysis and reporting of the findings as compared to the applicable land use criteria. No exceedances of this criteria were noted as part of this assessment.

The results of the desktop assessment, site investigation and laboratory analysis conclude that the material examined within the project area does not contain any contaminants of concern above the relevant ASC NEPM guideline limits or general solid waste criteria (NSW EPA, Waste Classification Guidelines) and meets the NSW EPA definition of VENM. Therefore this material is classified as VENM and may be exported offsite as VENM.

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1 Introduction

Construction Sciences has prepared the following Preliminary Site Investigation (PSI) report for Holcim to evaluate the Virgin Excavated Natural Material (VENM) status of material marked for excavation as part of the Lynwood Quarry 2020 Extraction Zone (termed “the project area’).

The New South Wales Environment Protection Authority (NSW EPA) denotes VENM to be a natural material (such as clay, gravel, sand, soil or rock fines) that:

> *Has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities; and*

> *Does not contain sulfidic ores or soils or any other waste.*

This report examines the aforementioned material against this criteria. The tender (Reference: 2624EV/Q/84Rev2; dated 1st November 2019) details the proposed scope which includes undertaking a detailed desktop analysis and field sampling for potential contaminants of concern.

1.1 Project Scope

This PSI is limited to an assessment of a portion of the 2020 Extraction Zone at the request of the client. The area is approximately 4.7 ha in size.

The allowed scope of works includes the following components:

> Preliminary Site Investigation, equivalent to the *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (ASC NEPM) (including 2013 amendment) Stage 1 Preliminary Site Investigation (PSI), inclusive of:
  - Desktop review encompassing:
    - Review of available current and historical aerial photographs of the site and surrounds held by Google Earth and Nearmap;
    - Search of NSW contaminated land record to confirm the current status of the site and surrounds;
    - Review of any other relevant information available from the source site, including previous geotechnical or environmental reports, historical site plans, Dial Before You Dig (DBYD) plans, etc.
    - Site Inspection to identify existing land uses;
    - Interviews with site occupants to obtain anecdotal information (where available);
  - Provision of sampling and laboratory analysis; and
  - Provision of a PSI report outlining findings and recommendations. Note: the PSI report will follow the standard framework of an ASC NEPM PSI.

2 Site Description

The project area is located within Lynwood Quarry, approximately 5.5km north-west of Marulan in the Southern Tablelands region of NSW (Refer Figure 2-1). Holcim Australia was granted development consent under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in December 2005 by the NSW Minister for Planning to construct and operate the quarry. In May 2016, Lynwood Quarry was granted a modification to start mining an alternative aggregate resource by constructing a haul road and developing a granite pit to the west of the general quarry site. The material in question is located within this area and is the subject of this investigation. Table 2-1 and Table 2-2 summarises the project area details.

Figure 2-1 Lynwood Quarry. 2020 Extraction Zone sampling locations detailed in yellow.



Table 2-1 Sampling Location Details

Sample ID	Easting	Northing	AHD
1	770 695.736	6 157 799.076	650.330m
2	770 690.267	6 157 731.039	650.975m
3	770 621.433	6 157 694.467	655.491m
4	770 620.831	6 157 614.535	641.444m
5	770 615.197	6 157 540.145	639.884m

Table 2-2 Site Details

Street Address	Unnamed Road, Marulan NSW 2579
Project Area (approx. ha)	4.7 ha
Surrounding Land Use	Grazing/agricultural land
Allotment(s)	Lot 2 on DP1107232
NSW EPA Contaminated Land Record Status	No current or former notices exist for the project area
Land Form	Undulating rises and rolling low to steep hills.
Nearest Water Course (Minor)	Tributary of Lockyersleigh Creek (immediately adjacent north and south)
Nearest Water Course (Major)	Joarimin Creek (approximately 2.25km south-east)
Nearest Standing Water	Lynwood Quarry detention basin (onsite)
Local Government	Goulburn Mulwaree Council

2.2 Topography and Surface Drainage

A desktop assessment reveals that the project area is primarily located in the Lockyersleigh Creek Catchment, with natural topography consisting of gently undulating plains, undulating rises and rolling low hills to steep hills. The topography of the greater quarry site has undergone significant modification through excavation of quarry pits and established out-of-pit emplacement areas for overburden and excess product.

The greater quarry site is characterised by a ridge located generally along the north-eastern boundary of the project area, which separates it from residences to the east and defines the boundary of the sub-catchments of Lockyersleigh and Joarimin Creeks. To the west, the land slopes gently towards the main channel of Lockyersleigh Creek. To the south, a ridge again separates the greater quarry site from surrounding land uses, except for one residence to the south that is located on the northern side of the ridge. The Hume Highway also forms part of the southern boundary of the greater quarry site with land to the south of the highway comprised of more elevated areas.

To the east, a ridge leading to the north of the Main Southern Railway separates the greater quarry site from rural residential areas and the township of Marulan. To the south of the Main Southern Railway there is another minor ridge providing some separation from the township and the quarry however, this ridge is less prominent compared to the surrounding topography.

Regional vegetation includes open forest and woodland that has been cleared over much of the lower surrounding areas for grazing.

2.3 Regional Soils and Geology

Soil landscapes are defined as “areas of land that have recognisable and specifiable topographies and soils, that are capable of presentation on maps, and can be described by concise statements”. The NSW Department of Planning, Industry and Environment soil landscape mapping identifies the following regional soil landscapes within the project area:

- Bindook Road - undulating low hills of Devonian Bindook Porphyry. This unit is identified by the sub-angular porphyry rock outcrop on upper slopes and crests.
- Garland – Undulating rises and valleys form from granitic parent material.

Figure 2-2 outlines the project area in relation to the distribution of these soil landscapes.

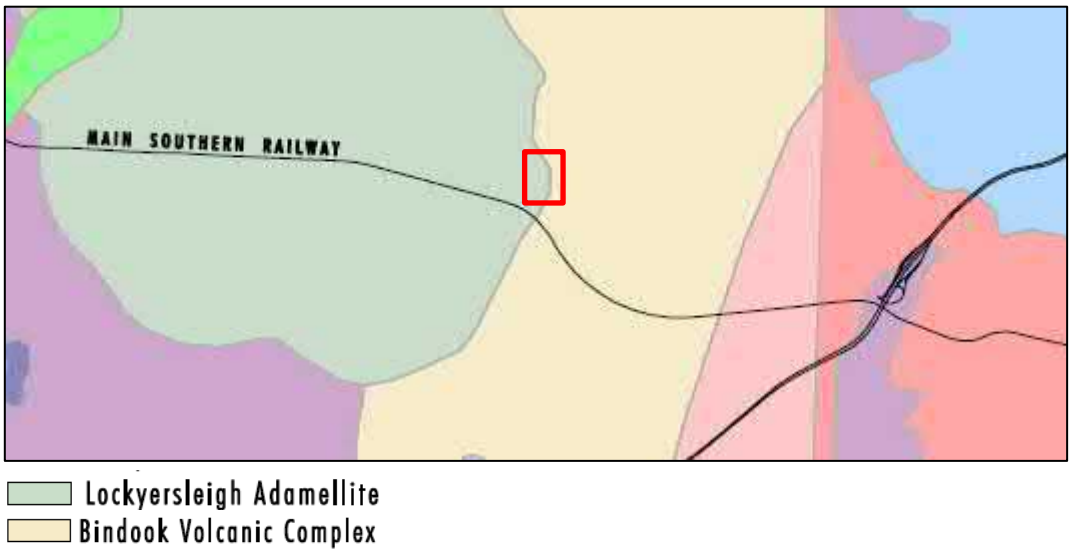
Figure 2-2 Soil Landscape Mapping. Project Area identified in red.



The project area lies near the divide of the volcanics that underlie the majority of the Southern Tablelands and the sedimentary formations to the east of this region in the upper reaches of both the Sydney basin and the Shoalhaven catchment. To the northeast of the project area the geology is comprised primarily of Triassic and Permian sedimentary formations, with these extending north throughout the Sydney basin. To the east lie Permian and Devonian sedimentary formations, including the extensive gorges and drainage valleys found within the Bungonia State Conservation Area. The project area and land to the north, south and west, are dominated by Ordovician, Silurian and Tertiary volcanics. In the Marulan area, there is a broad north-south trending band of Devonian age (approximately 360 – 415 million years) acid volcanic ignimbritic tuffs/lavas (referred to as Bindook Porphyry) bounded and partially intruded by granites. This band of Bindook Porphyry adjoins the early Devonian Marulan Granites to the east and the Carboniferous Lockyersleigh Adamellite to the west.

The Geological Survey of NSW, Goulburn 1:250000 identifies Bindook Porphyry within the project area which has been classified as being part of the Joarimin Ignimbrite, a sub-group of the Bindook Volcanics (refer Figure 2-3). Lockyersleigh Adamellite is the primarily geology form identified within the project area, comprising bands of rock that are typically deeply weathered with little or no outcrop except along ridge crests. The large tors (large rounded boulders) so common in granitic country are absent from the project area.

Figure 2-3 Geological Survey of NSW, Goulburn 1:250000 Geological Sheet 2004. Project Area identified in red.



2.4 Groundwater

A desktop assessment of the Lynwood Quarry site revealed that eleven (11) piezometers were installed onsite in July 2004 for ongoing management and sampling purposes. Data obtained from these piezometers identified that groundwater elevations typically range from 630m AHD to 675m AHD. The water table is generally well below the ground surface, even in the vicinity of Joarimin Creek (e.g near Joarimin Creek the water table was measured at approximately 6.0m below the surface). Groundwater quality was identified as being variable across the site, with waters ranging from neutral to alkaline with varying levels of salinity. However it is important to note these levels were recorded prior to the operation of the Lynwood Quarry and activities onsite may have impacted the water table.

2.5 Acid Sulfate Soils

The Acid Sulphate Soils Management Advisory Committee's Acid Sulfate Soils Manual notes excavations which disturb natural material below 5.0m AHD require assessment for the presence of Acid Sulfate Soils. The site is located above 5.0m AHD with the project alignment located between ~650m AHD. Scheduled excavations will not exceed 5.0m AHD. Acid Sulfate Soils are not considered a risk for the project area.

2.6 Naturally Occurring Asbestos

The NSW government's Heads of Asbestos Coordination Authorities (HACA) has published information on naturally occurring asbestos (NOA) including mapping and geospatial datasets. Analysis of naturally occurring asbestos mapping reveals that the project area is not in close proximity to any identified risk areas and therefore is significantly unlikely to contain naturally occurring asbestos.

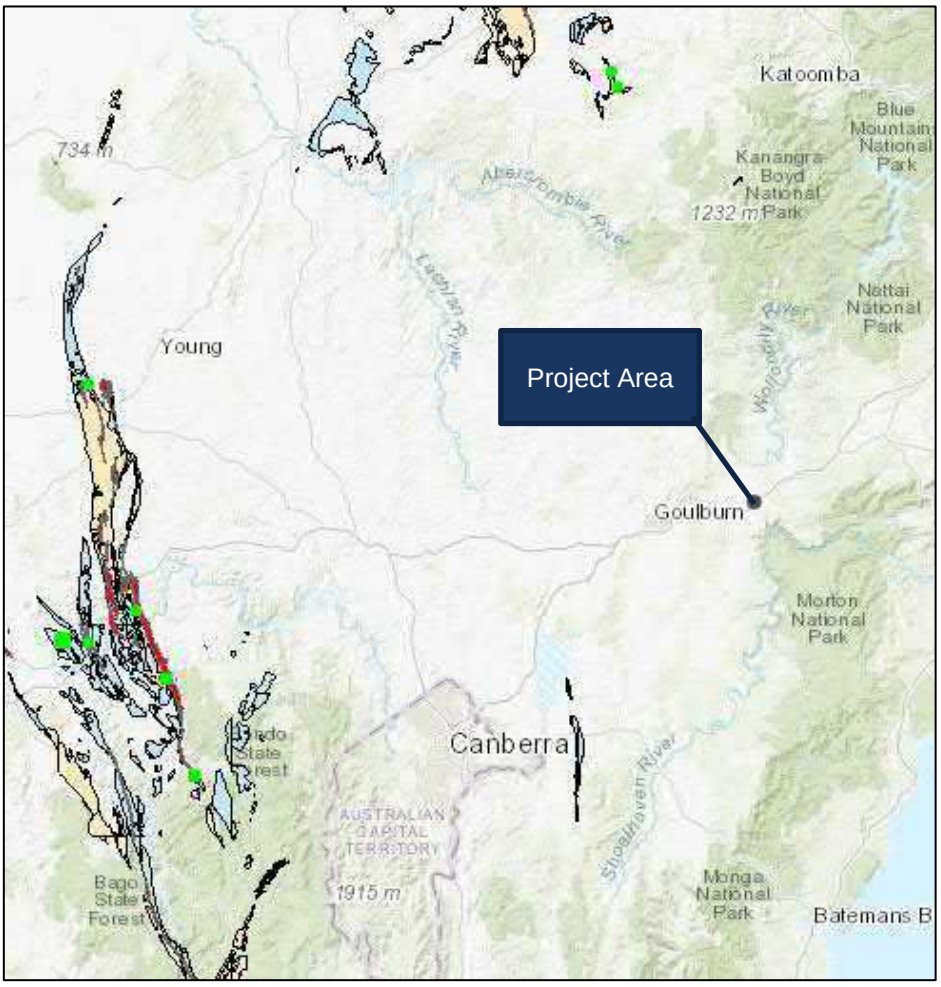


Figure 2-4 Naturally occurring Asbestos NSW. Low risk identified in blue, Medium risk identified in yellow, High risk identified in red.

2.7 Land Use and Tenure

2.7.1 Regional Land Use Patterns

The dominant land use within the Goulburn Mulwaree Local Government Area (LGA) is agriculture, predominantly grazing, with some large expanses of remnant native vegetation remaining in the north-eastern portion of the LGA. The major residential area for the LGA is Goulburn, however, smaller towns are present throughout the LGA including Marulan which is the second largest residential centre.

The former Mulwaree Shire (now Goulburn Mulwaree LGA) is known as a sheep grazing area that produces high quality Merino wool, with large areas also used for cattle grazing. Other regional land uses include plantation forestry, intensive agriculture (vineyards, olive groves, poultry farming, etc.), small areas of industrial land uses and extractive industries, with growing numbers of small rural holdings and rural residential developments.

The township of Marulan is a service centre for not only the surrounding rural areas, but also for traffic on the Hume Highway. The town has a long history of servicing transport routes, initially the Main Southern Railway with the original township relocated to be closer to the railway station, and more recently the Hume Highway with the truck weigh station and service centres on both the north and south bound sides of the highway. Marulan also has an association with extractive industries, through South Marulan Quarry and Readymix's Johniefelds Quarry.

2.7.2 Surrounding Land Use

The predominant land uses within the vicinity of the project area are agricultural land uses, the residential area of Marulan, rural residential areas, small areas of industrial land, the existing Lynwood Quarry, transport corridors and associated services. Of these land uses, the dominant uses are agriculture which surrounds the project area to the north, west and south, and residential / rural residential areas which occur to the east. Further details of the surrounding land uses are included below.

2.7.2.1 Residential

The township of Marulan is located approximately 5.25km to the east of the project area. Based on the most recent census data available (ABS, 2016), Marulan had a population of 1,178, with 582 occupied dwellings within the township. The township has continued to grow over time, particularly due to the subdivision of surrounding land for rural residential development as discussed below.

Marulan has a number of businesses centred on the Hume Highway in the form of highway service centres. The town's main street, George Street, contains the majority of remaining businesses and community centres including the public primary school, town hall, post office, the Terminus Hotel, cafés and the general store.

2.7.2.2 Rural Residential

Rural residential developments (1 (c) Rural Small Holding under the Mulwaree LEP, 1995) have been developed in areas surrounding the township of Marulan. A rural residential subdivision adjoins the north-eastern boundary of the project area.

2.7.2.3 Surrounding Residences

Surrounding residences include residences within the Marulan Township (approximately 1 kilometre from the Eastern Overburden Emplacement Area of the Lynwood Quarry at its closest point), residences that are part of the rural residential area to the northeast, and other surrounding rural residences. The nearest house in the rural residential area is approximately 500m to the east of the Eastern Overburden Emplacement Area.

Rural residences are primarily located to the north (along Brayton Road) and south (South Marulan Road and Jerrara Road) of the project area. Multiple rural lots in these areas do not have residences. To the west of the project area, there are larger rural holdings with the only residence on the adjacent western landholding being located approximately 3.0km from the greater quarry boundary.

2.7.2.4 Agriculture

Agricultural land use surrounding the project area is primarily cattle and sheep grazing land. The rural zoned land adjoining the project area to the north and south is largely vegetated and subject to only low intensity grazing pressure, or is not grazed at all. The land to the west of the project area is held in a few larger holdings, has been largely cleared and is subject to higher intensity grazing pressure. Multiple wind break tree lines are positioned in these larger grazing holdings.

In addition to grazing, more intensive agricultural activities occur in the local area including poultry farming to the east of the Hume Highway (approximately 4.0km from the project area) and agricultural uses such as olive groves.

2.7.2.5 Industrial

A number of small industrial developments are located within and adjacent to Marulan, these areas include:

- the Marulan light industrial area which is located in the southern portion of the township;
- a lime crushing / loading plant located to the south Marulan
- the Marulan Waste Management Facility which is adjacent to the Lynwood Quarry boundary;
- the Marulan Water Treatment Plant and Wastewater Treatment Plant; and

2.7.2.6 Extractive Industries

Aside from the Holcim Lynwood Quarry, Boral's South Marulan Quarry is located approximately 6.5 kilometres southeast of Marulan and Ardmore Park sand and gravel quarry is located near Bungonia approximately 18 kilometres south of the project area.

2.7.2.7 Transport Corridors

Two major transport corridors occur within the vicinity of the project area, the Main Southern Railway which bisects the Lynwood Quarry and the Hume Highway which forms part of the Quarry's southern boundary. Associated with these major transport corridors are the Marulan train station and rail siding / ballast loading area, the heavy vehicle checking station and various highway service centres, including centres on both the north and south bound lanes of the highway.

2.8 Site History and Historical Aerial Photographs

Historical Aerial Photographs indicate that the site and surrounds have been associated primarily with rural agricultural and grazing activities prior to January 2002. Between 2010 and 2012 works began developing the Lynwood Quarry, which has steadily expanded until present time. This expansion includes topsoil stripping and overburden material removal in the project area (Image 6). Historical aerial photographs are shown below in Table 2-3.

Table 2-3 Historical Aerial Photographs

	
Image 1: January 2002. Dominant land use of project area is agriculture/grazing.	Image 2: September 2010. Dominant land use of project area is agriculture/grazing. Partial Clearing is evident.
	
Image 3: October 2012. Lynwood Quarry is operational.	Image 4: April 2014. Lynwood Quarry has expanded to the north-west, however the project area's dominant land use remains as grazing lands.

	
Image 5: April 2016. Lynwood Quarry is operational however the project area's dominant land use remains as grazing land.	Image 6: September 2019. Quarry operations have expanded into the project area. A haul route has been established between the project area and the main Quarry area.

3 Contamination Potential

3.1 Previous Assessments / Investigations

No previous contamination assessments or investigations have been conducted to identify areas of soil contamination in the specified project area. However, given the past agricultural/grazing use of the property, soil contamination is considered unlikely.

A preliminary soil contamination assessment was undertaken for the greater Lynwood Quarry site adjacent to the project area that identified some small areas that may be subject to minor, localised soil contamination. These areas are associated with former sheep dips, a sheep foot bath (a shallow dip) and farmhouse fuel and oil storage areas. There is no evidence of significant contamination at these sites (e.g. no significant staining of the ground, lack of grass cover, etc.) and these areas are not considered to present a significant health or environmental risk. These historical sites have since been disturbed/demolished for quarry infrastructure and are unable to be examined. However migration of any potential contaminants from these areas to the project area is considered highly unlikely.

3.2 Areas of Potential Environmental Concern

A review of current site conditions and available historical information, the potential Areas of Environmental Concern (AECs) and their associated potential contaminants of concern are identified and shown in Table 3-1.

Table 3-1 Potential Contamination Source Summary

Potential Contaminants of Concern	Potential Areas of Concern	Potentially Contaminating Activities
On-site		
Organochlorides (OC's) from pesticide preparations containing Dieldrin and/or Aldrin	Project area	> Application of pesticides across the site
Hydrocarbon, metals and other contaminants of concern	Project area	> Leaks from vehicles/machinery
Off-site		
Organochlorides (OC's) from pesticide preparations containing Dieldrin and/or Aldrin	Soils underlying structures, quarry infrastructure	> Quarry/machinery operations
Hydrocarbon, metals and other contaminants of concern	Soils underlying structures, quarry infrastructure	> Application of pesticides around the base of buildings and structures
Naturally occurring Asbestos	Soils on surrounding lots	> Excavation of soils

3.3 Preliminary Conceptual Site Model

A preliminary Conceptual Site Model (CSM) is a useful tool in the determination of VENM status that identifies the potential contamination risk as a result of soil and/or groundwater conditions. An assessment is undertaken to identify the likely presence or absence of the following elements:

> Source - a substance that is capable of causing an unacceptable risk to environmental health;

> Pathway - a mode or route by which the substance/source can migrate to a receptor; and

> Receptor – an environmental value that could be adversely affected by the substance/source.

For instances where one or more of these elements are absent, there cannot be an unacceptable risk to environmental health. Where all of these elements are present, a complete or potentially complete pathway for contamination exists and there is a potential risk to environmental health that may negate VEMN status and require further investigation and possible remediation and/or management. The magnitude of the risk is

primarily a function of the concentration, mobility and physico-chemical properties of the source, the sensitivity of the receptor and the nature of the migration pathway.

Table 3-2 Preliminary Conceptual Site Model

Potential Contamination Sources	Potential Pathways	Potential Receptors at Receiving Location
Agricultural pesticides - Organophosphorus (OP); Organochlorides (OC's)	Leaching of pesticides through soils, underlying geology Groundwater flows	Adjacent creeks / surface water bodies Flora and fauna dependent on potentially affected surface water Flora and fauna on site or an fauna in transit through the site Unexcavated soils
Fuel storage and distribution points, USTs, ASTs, fuel storage on site	Leaching of hydrocarbons through soils, underlying geology Groundwater flows	Adjacent creeks / surface water bodies Flora and fauna dependent on potentially affected surface water Flora and fauna on site or an fauna in transit through the site Unexcavated soils

3.4 Contaminated Land Record

Lot 2 on DP1107232 is not listed on the NSW EPA Contaminated Land Record, nor are any current or former notices issued against any of the lots within the Lynwood Quarry footprint.

4 Site Investigation

4.1 Field Sampling, Handling and Analysis

Under the NSW EPA, a contamination assessment performed in accordance with AS 4822.1-2005 is not necessarily required to award VENM status unless site history or site activities suggest contamination may be present. Following the site history review, the risk of contamination was considered low however a small scale contamination assessment was performed for best practise. At the client's request five (5) samples were selected from the shared boundary of the 2019/2020 Excavation Zones as detailed in Figure 4-1. The client specified these sampling locations in order to allow sample material to be sourced at depth without the need for an intrusive drilling investigation. The 2020 Excavation Zone Investigation Area to which the findings of this report are applicable is 4.7ha in size and is outlined below in red.

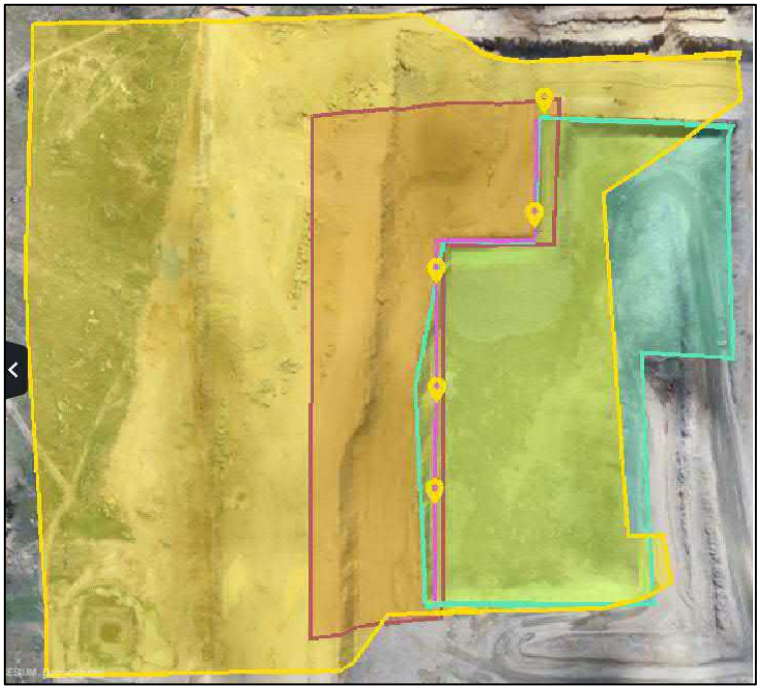


Figure 4-1 2020 Excavation Zone is outlined in yellow. The 2019 Excavation Zone is outlined in blue. The Project Area is outlined in red. (issued by client).

Samples collected were handled and stored as per Construction Sciences' handling and laboratory procedure requirements prior to and during transport to a NATA accredited analytical laboratory with Chain of Custody documentation.

The soil samples underwent analysis for the following broad suite of contaminants:

- Total Recoverable Hydrocarbons (C6 – C40);
- Benzene, Toluene, Ethylbenzene and Xylene (BTEXN);
- Polycyclic Aromatic Hydrocarbons (PAH); and
- 15 Metals NEPM Suite (As, B, Ba, Be, Cd, Cr, Co, Cu, Mn, Ni, Pb, Se, V, Zn and Hg).
- Asbestos in soils (presence/absence)

4.2 Site Observations

A site visit and subsequent sampling was conducted at Lynwood Quarry within the project area on the 28th of October 2019. The site observations at the time of the site inspection are summarised in Table 4-1.

Table 4-1 Site Observations

Item	Observations and Descriptions
Surface Coverings	Surfaces had been stripped of topsoil and overburden removed. All vegetation had been removed. Coarse to fine gravels covered the surface of the project area.
Site slope & drainage features	Due to the nature of the quarry the investigation area had undergone significant modification. Levelled areas, gradual rises and minor changes in slope were observed in various north-south cross sections spread across the Extraction Zone. Slight depressions were observed to facilitate drainage and reduce water ponding.
Nearby water bodies	Onsite drainage and/or retention basins were observed in multiple locations across Lynwood Quarry.
Condition of buildings and roads	Roads consisted of gravel/roadbase material and were in suitable condition. Building facilities surrounding the project area were noted to be in suitable condition.
Manufacturing or chemicals processes & infrastructure	None observed within project area, however screening and crushing equipment noted in the adjacent quarry
Surface soil	Surface soils were noted to be grey-brown clay with gravels.
Surface soil stability	All surfaces are not considered stable, lacking sufficient asphalt or vegetation coverage, however as is the nature of quarry pits.
Site cut and filling	Clear cut of the 2019 Excavation Zone as well as stripped topsoil/overburden of the project area and greater 2020 Excavation Zone.
Fuel storage tanks	None observed.
Dangerous goods	None observed.
Solid waste deposition	None observed
Liquid waste disposal features	None observed
Evidence of previous site contamination investigations	None observed
Evidence of land contamination (staining or odours)	No visual or olfactory indicators of land contamination were observed.
Visible signs of plant stress	No vegetation present
Evidence of suspected asbestos or Asbestos Containing Materials (ACM)	None observed
Potentially contaminating sites (<500m from the site)	None noted.

4.3 Soil Assessment Criteria

The primary assessment criteria adopted for the VENM investigation of the project area included those outlined in the ASC NEPM. The relevant screening assessment criteria values are shown in Table 4-2.

It is understood by Construction Sciences that the end land use(s) associated with the material in question is unknown. As such, the strictest criteria (urban residential and public open spaces) assessment criteria have been selected which are noted as:

- ASC NEPM Ecological Screening Levels (ESL) for residential: to assess the potential risk to the natural ecosystems by hydrocarbons present in the soil strata.
- ASC NEPM Health Investigation Levels (HIL A): for urban / residential land uses. This criteria includes residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.
- ASC NEPM Health Screening Levels (HSL) for high density residential (clay): to assess the potential risk of human contact to hydrocarbons present in the soil strata.

Additionally, the criteria outlined in Table 4 - Chemical and other material requirements of the NSW EPA Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 was utilised in this investigation for best practise.

Table 4-2 Soil Assessment Criteria

Chemical Group	Chemical Name	Units	ESL	HIL A	HIL D	HSL	NSW EPA*
TRH	C_6-C_{10}	mg/kg	180				
	>C_{10}-C_{16}	mg/kg	120				
	>C_{16}-C_{34}	mg/kg	300				
	>C_{34}-C_{40}	mg/kg	1300				
	F1 C6 – C10 minus BTEX	mg/kg				50	
	F2 >C10 – C16 minus Naphthalene	mg/kg					
BTEX	Benzene	mg/kg	50			0.7	0.5
	Toluene	mg/kg	85				65
	Ethylbenzene	mg/kg	70				25
	Xylenes	mg/kg	105			110	15
	Benzo(a)pyrene	mg/kg	0.7				1
PAH	Carcinogenic PAHs (as BaP TEQ)	mg/kg		3	40		
	Naphthalene	mg/kg					
	Total PAHs	mg/kg		300	4000		40
PCB	PCBs	mg/kg		1	7		
Metals	Arsenic	mg/kg		100	3000		40
	Barium						
	Beryllium			20	100		
	Cadmium	mg/kg		20	900		1
	Chromium III	mg/kg					
	Chromium VI	mg/kg		100	3600		150
	Cobalt						
	Copper	mg/kg		6000	240000		200
	Nickel	mg/kg		400	6000		60
	Lead	mg/kg		300	1500		100
	Manganese			1500	7500		
	Selenium						
	Vanadium						
	Zinc	mg/kg		7400	400000		300
	Mercury (inorganic)	mg/kg		40	180		1
OCP	DD +DDE+DDD	mg/kg		240	3600		
	Aldrin and dieldrin	mg/kg		6	45		
	Chlordane	mg/kg		50	530		
	Endosulfan	mg/kg		270	2000		
	Endrin	mg/kg		10	100		
	Heptachlor	mg/kg		6	50		

Chemical Group	Chemical Name	Units	ESL	HIL A	HIL D	HSL	NSW EPA*
	HCB	mg/kg		10	80		
	Methoxyclor	mg/kg		300	2500		
	Mirex	mg/kg		10	100		
	Toxaphene	mg/kg		20	160		
ACM	Bonded ACM	w/w		0.01%	0.05%		

**The NSW EPA Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 absolute maximum concentration (Table 4)*

The ecological and human health investigation levels nominated are not intended to be interpreted as maximum permissible levels, clean up levels or safe levels, rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the investigation levels are generally set at conservatively low levels, they are often taken to be the acceptable levels.

Contaminants of concern identified enabled the selection of the laboratory analysis parameters.

NATA-accredited analytical laboratories used by Construction Sciences for this investigation included:

> ALS – Primary Laboratory – Wollongong.

5 Investigation Findings

5.1 Laboratory Results

A summary of results has been included below. All analytes return levels within the nominated criteria.

Laboratory Results and Documentation are included in Appendix A.

5.1.1 Hydrocarbons

All results for hydrocarbons including TRH, BTEXN and PAH were below the laboratory limit of reporting and therefore the relevant ESL and HIL criteria.

5.1.2 Metals

All results for metalloids were below relevant HIL criteria. Table 5-1 details a summary of metal results.

Table 5-1 Metal Result Summary

Analyte	Unit	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Arsenic	mg/kg	<5	<5	<5	<5	<5
Barium	mg/kg	230	300	160	240	220
Beryllium	mg/kg	<1	<1	<1	<1	<1
Boron	mg/kg	<50	<50	<50	<50	<50
Cadmium	mg/kg	<1	<1	<1	<1	<1
Chromium	mg/kg	9	12	10	14	9
Cobalt	mg/kg	5	6	6	10	6
Copper	mg/kg	<5	6	6	<5	<5
Lead	mg/kg	<5	7	<5	<5	6
Manganese	mg/kg	366	555	351	390	467
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	7	7	9	6
Selenium	mg/kg	<5	<5	<5	<5	<5
Vanadium	mg/kg	35	47	33	41	33
Zinc	mg/kg	40	52	35	42	36

5.1.3 Polychlorinated Biphenyls and Organochlorine Pesticides

All results returned for PCB's, OC's and OP's were below the limit of reporting and therefore below the nominated criteria.

5.1.4 Asbestos

Five (5) samples were collected for asbestos analysis, field sieving over a 7mm sieve (6.7mm sieve used) to assess for potential asbestos solids, prior to subsampling and laboratory analysis for absence/presence analysis of Asbestos. Testing was conducted in accordance with analysis of soils for the presence of asbestos in accordance with AS4964. Laboratory results indicate no Asbestos was identified within the soils strata in any test location at the time of sampling. No visual indicators of Asbestos were noted during the site inspection.

6 Discussion

Construction Sciences have completed a PSI at the Lynwood Quarry, concerning a portion of the proposed 2020 Excavation Zone on Lot 2 on DP1107232 (refer Figure 4-1). Five (5) samples were selected to identify and characterise the potential contamination in the area and the VENM status of the material scheduled for excavation in 2020.

A summary of the investigation is provided in Table 6-1.

Table 6-1 Soil Investigation Summary

Number of samples collected/analysed	5
Approximate Depth	639m AHD – 655m AHD
# Samples Exceeding Human Health Criteria	0
# Samples Exceeding Ecological Criteria	0
Material Status	VENM

The results of the desktop assessment, site investigation and laboratory analysis conclude that the material examined within the project area does not contain any contaminants of concern above the relevant guideline limits or criteria.

The New South Wales Environment Protection Authority (NSW EPA) denotes VENM to be a natural material (such as clay, gravel, sand, soil or rock fines) that:

- *Has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities; and*
- *Does not contain sulfidic ores or soils or any other waste.*

As such, the material examined in this investigation meets the NSW EPA definition of VENM and therefore is classified and may be exported offsite as VENM.

7 Conclusion

In preparation for ongoing quarry activities at the Holcim Lynwood Quarry, Construction Sciences were engaged to perform a PSI to evaluate the VENM status of material marked for excavation as part of the 2020 Extraction Zone project area.

The scope of this assessment included a review of the site history, potential sources of contamination, collection of soil samples and subsequent laboratory analysis and reporting of the findings as compared to the applicable land use criteria. No exceedances of this criteria were noted as part of this assessment.

The results of the desktop assessment, site investigation and laboratory analysis conclude that the material examined within the project area does not contain any contaminants of concern above the relevant guideline limits and meets the NSW EPA definition of VENM. No manufactured chemicals or process residues, sulfidic ores or soils, naturally occurring asbestos or any other waste was noted as present during this investigation.

This material is classified as VENM and may be exported offsite as VENM.

APPENDIX

A

LABORATORY DOCUMENTATION

Construction Sciences

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EW1904999**	Page	: 1 of 6
Client	: **CONSTRUCTION SCIENCES PTY LTD**	Laboratory	: Environmental Division NSW South Coast
Contact	: MR DAVID DETHLEFS	Contact	: Glenn Davies
Address	:	Address	: 1/19 Ralph Black Dr, North Wollongong 2500 4/13 Geary Pl, North Nowra 2541 Australia NSW Australia
Telephone	: +61 07 3865 3212	Telephone	: 02 42253125
Project	: Lynwood Quarry VENM Holcim	Date Samples Received	: 15-Nov-2019 11:57
Order number	: EN-024-18	Date Analysis Commenced	: 16-Nov-2019
C-O-C number	: ----	Issue Date	: 19-Nov-2019 16:42
Sampler	: ----		
Site	: ----		
Quote number	: EN/024/18		
No. of samples received	: 5		
No. of samples analysed	: 5		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Evie Sidarta	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
			Client sampling date / time	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00
Compound	CAS Number	LOR	Unit	EW1904999-001	EW1904999-002	EW1904999-003	EW1904999-004	EW1904999-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.7	<1.0	<1.0	<1.0	<1.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	No	No	No	No
Asbestos (Trace)	1332-21-4	5	Fibres	No	No	No	No	No
Asbestos Type	1332-21-4	-	--	-	-	-	-	-
Sample weight (dry)	----	0.01	g	911	766	759	685	809
APPROVED IDENTIFIER:	----	-	--	C.OWLER	C.OWLER	C.OWLER	C.OWLER	C.OWLER
Synthetic Mineral Fibre	----	0.1	g/kg	No	No	No	No	No
Organic Fibre	----	0.1	g/kg	No	No	No	No	No
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Barium	7440-39-3	10	mg/kg	230	300	160	240	220
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	<1	<1
Boron	7440-42-8	50	mg/kg	<50	<50	<50	<50	<50
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	12	10	14	9
Cobalt	7440-48-4	2	mg/kg	5	6	6	10	6
Copper	7440-50-8	5	mg/kg	<5	6	6	<5	<5
Lead	7439-92-1	5	mg/kg	<5	7	<5	<5	6
Manganese	7439-96-5	5	mg/kg	366	555	351	390	467
Nickel	7440-02-0	2	mg/kg	6	7	7	9	6
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	<5	<5
Vanadium	7440-62-2	5	mg/kg	35	47	33	41	33
Zinc	7440-66-6	5	mg/kg	40	52	35	42	36
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
				Client sampling date / time	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EW1904999-001	EW1904999-002	EW1904999-003	EW1904999-004	EW1904999-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
				Client sampling date / time	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00	07-Nov-2019 00:00
Compound	CAS Number	LOR	Unit		EW1904999-001	EW1904999-002	EW1904999-003	EW1904999-004	EW1904999-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		87.4	83.2	90.1	81.6	85.0
2-Chlorophenol-D4	93951-73-6	0.5	%		81.4	86.0	94.3	86.6	83.3
2.4.6-Tribromophenol	118-79-6	0.5	%		65.3	56.2	60.6	55.3	55.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		93.6	97.0	95.2	95.7	95.2
Anthracene-d10	1719-06-8	0.5	%		94.2	91.6	99.8	93.1	91.8
4-Terphenyl-d14	1718-51-0	0.5	%		97.4	92.8	99.2	93.2	92.1
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		94.4	93.1	86.3	108	101
Toluene-D8	2037-26-5	0.2	%		88.9	93.8	99.3	113	103
4-Bromofluorobenzene	460-00-4	0.2	%		77.8	96.8	95.6	110	101

Analytical Results

Descriptive Results

Sub-Matrix: SOIL

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	Sample 1 - 07-Nov-2019 00:00	Mid grey rocky soil.
EA200: Description	Sample 2 - 07-Nov-2019 00:00	Mid grey rocky soil.
EA200: Description	Sample 3 - 07-Nov-2019 00:00	Mid grey rocky soil.
EA200: Description	Sample 4 - 07-Nov-2019 00:00	Mid grey rocky soil.
EA200: Description	Sample 5 - 07-Nov-2019 00:00	Mid grey rocky soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

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ATTERBERG LIMITS REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14311-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 1 of 5

Test Procedures:	T108, T109, T102 (CA3), T105, T120		
Sample Number	22659/S/36903	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	18/02/2020		
Att. Drying Method	Air Dried	Material Source	Holcim Lynwood Quarry
Atterberg Preparation	Dry Sieved	Material Type	DGB 20 (NLYNDGB20)
Material Description	-		

Atterberg Limits Results

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**21**	23
Plastic Limit (%)		**18**	20
Plasticity Index (%)	2	**3**	6
Linear Shrinkage (%)			
Linear Shrinkage Defects:			

Remarks	Supplement to Simplified Report Number 200305RC1154

NATA

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Form ID: W11bRep Rev 1

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ATTERBERG LIMITS REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14311-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 2 of 5

Test Procedures:	T108, T109, T105, T120		
Sample Number	22659/S/36905	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	18/02/2020		
Att. Drying Method	Air Dried	Material Source	Holcim Lynwood Quarry
Atterberg Preparation	Dry Sieved	Material Type	DGB 20 (NLYNDGB20)
Material Description	-		

Atterberg Limits Results

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**22**	23
Plastic Limit (%)		**17**	20
Plasticity Index (%)	2	**5**	6
Linear Shrinkage (%)			
Linear Shrinkage Defects:			

Remarks	Supplement to Simplified Report Number 200305RC1154

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ATTERBERG LIMITS REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14311-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 3 of 5

Test Procedures:	T108, T109, T105, T120		
Sample Number	22659/S/36906	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	18/02/2020		
Att. Drying Method	Air Dried	Material Source	Holcim Lynwood Quarry
Atterberg Preparation	Dry Sieved	Material Type	DGB 20 (NLYNDGB20)
Material Description	-		

Atterberg Limits Results

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**22**	23
Plastic Limit (%)		**17**	20
Plasticity Index (%)	2	**5**	6
Linear Shrinkage (%)			
Linear Shrinkage Defects:			

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ATTERBERG LIMITS REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14311-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 4 of 5

Test Procedures:	T108, T109, AS1289.3.4.1, T102 (CA3), T105, T120		
Sample Number	22659/S/37271	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@10:20
Date Sampled	21/02/2020		
Sampled By	Jack O'Dowd		
Date Tested	26/02/2020		
Att. Drying Method	Air Dried	Material Source	Holcim Lynwood Quarry
Atterberg Preparation	Dry Sieved	Material Type	DGB 20 (NLYNDGB20)
Material Description	-		

Atterberg Limits Results

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**22**	23
Plastic Limit (%)		**18**	20
Plasticity Index (%)	2	**4**	6
Linear Shrinkage (%)		**1.5**	
Linear Shrinkage Defects:	N/A		

Remarks	Supplement to Simplified Report Number 200305RC1154

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ATTERBERG LIMITS REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14311-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 5 of 5

Test Procedures:	T108, T109, AS1289.3.4.1, T102 (CA3), T105, T120		
Sample Number	22659/S/37272	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@10:20
Date Sampled	21/02/2020		
Sampled By	Jack O'Dowd		
Date Tested	26/02/2020		
Att. Drying Method	Air Dried	Material Source	Holcim Lynwood Quarry
Atterberg Preparation	Dry Sieved	Material Type	DGB 20 (NLYNDGB20)
Material Description	-		

Atterberg Limits Results

Atterberg Limit	Specification Minimum	Test Result	Specification Maximum
Liquid Limit (%)		**22**	23
Plastic Limit (%)		**18**	20
Plasticity Index (%)	2	**4**	6
Linear Shrinkage (%)		**1.0**	
Linear Shrinkage Defects:	N/A		

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PARTICLE SIZE DISTRIBUTION REPORT

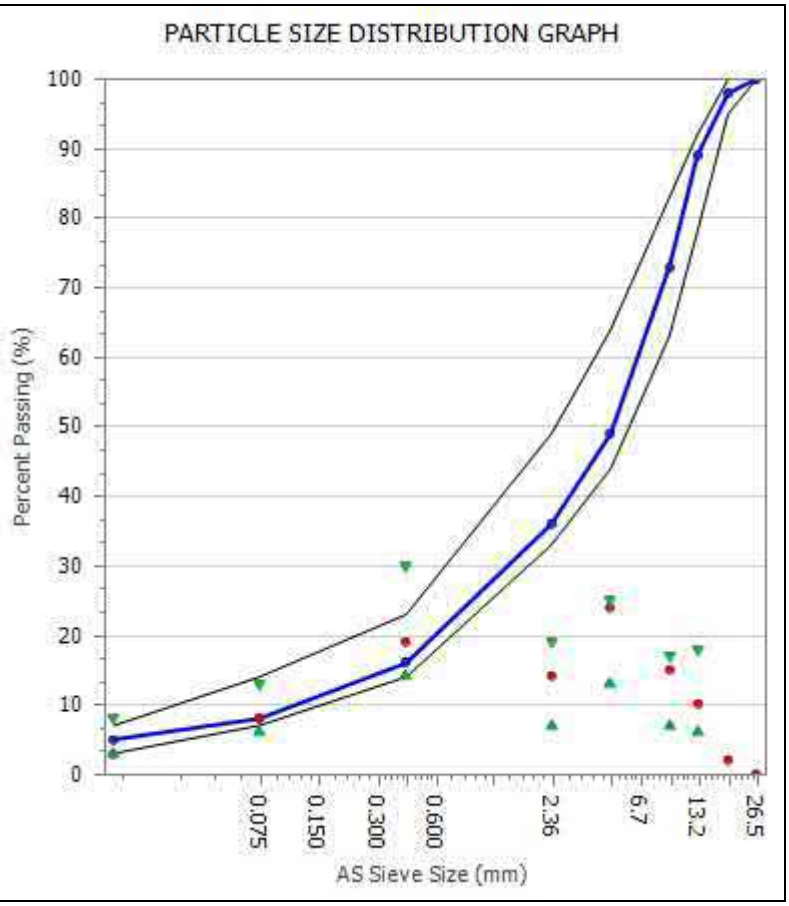
Client:	HOLCIM PTY LTD	Report Number:	22659/R/14310-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 1 of 5

Test Procedures:	T106 + T107, T102 (CA3), T105
Sample Number	22659/S/36903
Sampling Method	AS1141.3.1 Cl 9.4
Date Sampled	11/02/2020 07:15
Sampled By	Rebecca Collier
Date Tested	13/02/2020
Material Source	Holcim Lynwood Quarry

Sample Location
Stockpile Sampled@07:15

Material Type DGB 20 (NLYNDGB20)

AS Sieve (mm)	Percent Passing			Percent Retained		
	Spec Min (%)	**Result (%)**	Spec Max (%)	Spec Min (%)	**Result (%)**	Spec Max (%)
26.5	100	**100**	100		**0**	
19.0	95	**98**	100		**2**	
13.2	78	**89**	92	6	**10**	18
9.5	63	**73**	83	7	**15**	17
4.75	44	**49**	64	13	**24**	25
2.36	33	**36**	49	7	**14**	19
0.425	14	**16**	23	14	**19**	30
0.075	7	**8**	14	6	**8**	13
0.0135	3	**5**	7	3	**3**	8



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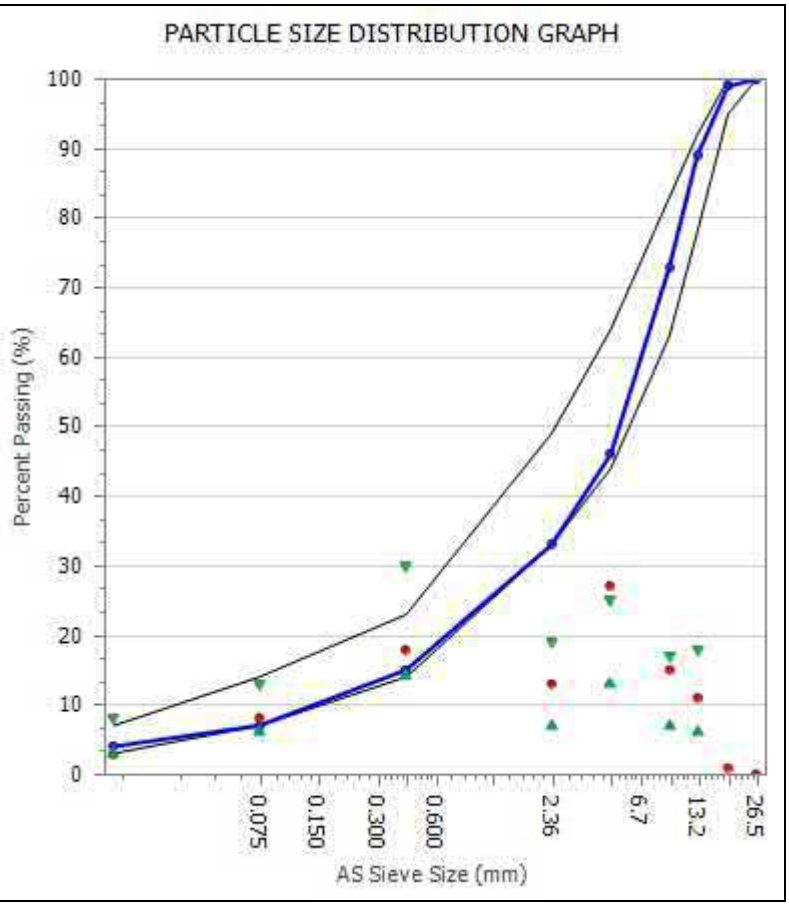
Client:	HOLCIM PTY LTD	Report Number:	22659/R/14310-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 2 of 5

Test Procedures:	T106 + T107, T102, T105
Sample Number	22659/S/36905
Sampling Method	AS1141.3.1 Cl 9.4
Date Sampled	11/02/2020 07:15
Sampled By	Rebecca Collier
Date Tested	14/02/2020
Material Source	Holcim Lynwood Quarry

Sample Location: Stockpile Sampled@07:15

Material Type: DGB 20 (NLYNDGB20)

AS Sieve (mm)	Percent Passing			Percent Retained		
	Spec Min (%)	**Result (%)**	Spec Max (%)	Spec Min (%)	**Result (%)**	Spec Max (%)
26.5	100	**100**	100		**0**	
19.0	95	**99**	100		**1**	
13.2	78	**89**	92	6	**11**	18
9.5	63	**73**	83	7	**15**	17
4.75	44	**46**	64	13	**27**	25
2.36	33	**33**	49	7	**13**	19
0.425	14	**15**	23	14	**18**	30
0.075	7	**7**	14	6	**8**	13
0.0135	3	**4**	7	3	**3**	8



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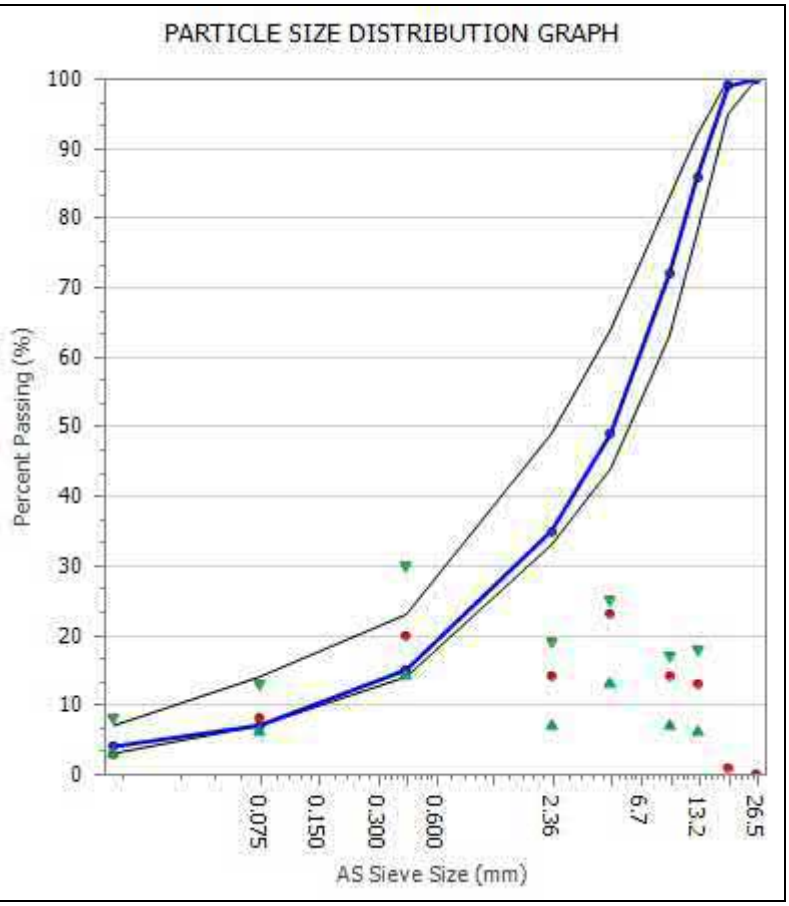
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Client:	HOLCIM PTY LTD	Report Number:	22659/R/14310-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 3 of 5

Test Procedures:	T106 + T107, T102, T105

Sample Number	22659/S/36906	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020 07:15		
Sampled By	Rebecca Collier		
Date Tested	14/02/2020		
Material Source	Holcim Lynwood Quarry	Material Type	DGB 20 (NLYNDGB20)

AS Sieve (mm)	Percent Passing			Percent Retained		
	Spec Min (%)	**Result (%)**	Spec Max (%)	Spec Min (%)	**Result (%)**	Spec Max (%)
26.5	100	**100**	100		**0**	
19.0	95	**99**	100		**1**	
13.2	78	**86**	92	6	**13**	18
9.5	63	**72**	83	7	**14**	17
4.75	44	**49**	64	13	**23**	25
2.36	33	**35**	49	7	**14**	19
0.425	14	**15**	23	14	**20**	30
0.075	7	**7**	14	6	**8**	13
0.0135	3	**4**	7	3	**3**	8



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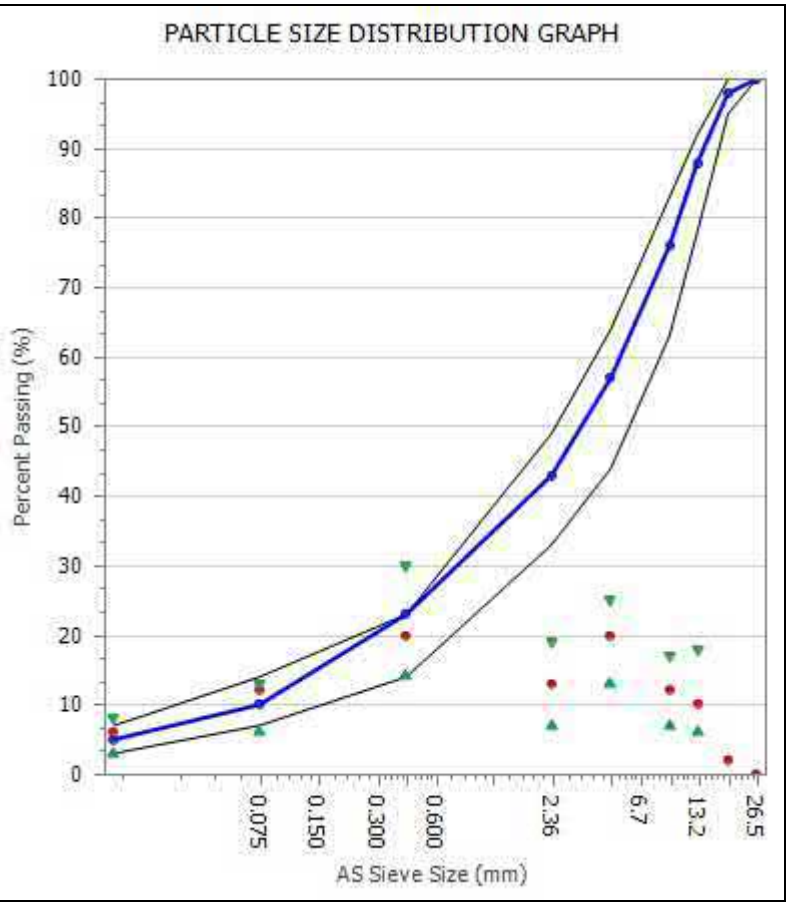
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Client:	HOLCIM PTY LTD	Report Number:	22659/R/14310-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 4 of 5

Test Procedures:	T106 + T107, T102 (CA3), T105		
Sample Number	22659/S/37271	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@10:20
Date Sampled	21/02/2020 10:20		
Sampled By	Jack O'Dowd		
Date Tested	21/02/2020		
Material Source	Holcim Lynwood Quarry	Material Type	DGB 20 (NLYNDGB20)

AS Sieve (mm)	Percent Passing			Percent Retained		
	Spec Min (%)	**Result (%)**	Spec Max (%)	Spec Min (%)	**Result (%)**	Spec Max (%)
26.5	100	**100**	100		**0**	
19.0	95	**98**	100		**2**	
13.2	78	**88**	92	6	**10**	18
9.5	63	**76**	83	7	**12**	17
4.75	44	**57**	64	13	**20**	25
2.36	33	**43**	49	7	**13**	19
0.425	14	**23**	23	14	**20**	30
0.075	7	**10**	14	6	**12**	13
0.0135	3	**5**	7	3	**6**	8



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Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	17/03/2020 Page 5 of 5

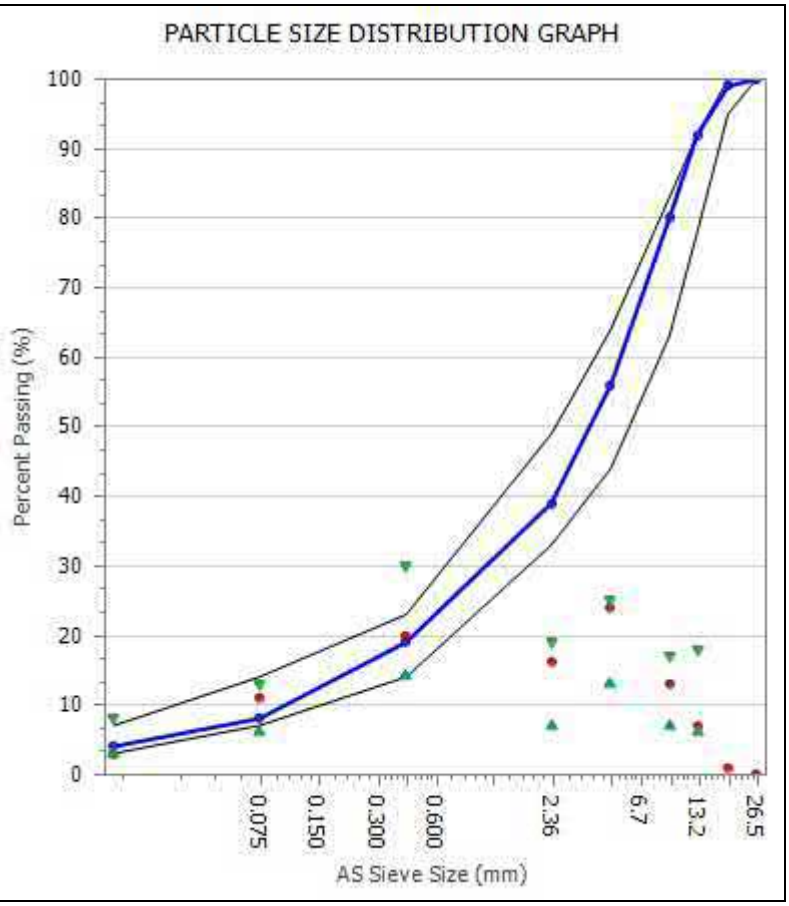
Test Procedures:	T106 + T107, T102 (CA3), T105
Sample Number	22659/S/37272
Sampling Method	AS1141.3.1 Cl 9.4
Date Sampled	21/02/2020 10:20
Sampled By	Jack O'Dowd
Date Tested	21/02/2020
Material Source	Holcim Lynwood Quarry

Sample Location

Stockpile Sampled@10:20

Material Type DGB 20 (NLYNDGB20)

AS Sieve (mm)	Percent Passing			Percent Retained		
	Spec Min (%)	**Result (%)**	Spec Max (%)	Spec Min (%)	**Result (%)**	Spec Max (%)
26.5	100	**100**	100		**0**	
19.0	95	**99**	100		**1**	
13.2	78	**92**	92	6	**7**	18
9.5	63	**80**	83	7	**13**	17
4.75	44	**56**	64	13	**24**	25
2.36	33	**39**	49	7	**16**	19
0.425	14	**19**	23	14	**20**	30
0.075	7	**8**	14	6	**11**	13
0.0135	3	**4**	7	3	**3**	8



Remarks Supplement to Simplified Report Number 200305RC1154

NATA

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

Accreditation Number: 1986
Corporate Site Number: 22659

Approved Signatory: Christopher Lo
Form ID: W9RetRep Rev 1

Construction Sciences

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
South Marulan Road,
South Marulan NSW 2579

Laboratory: NSW Central Aggregates Laboratory

Holcim
Subcontracting Cardno testing services.
Concrete enquiries phone 131 188
Aggregate enquiries phone 1300 555 277

PARTICLE SHAPE BY PROPORTIONAL CALLIPER REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14094-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	26/02/2020 Page 1 of 3

Test Procedures:	T213
Sample Number	22659/S/36903
Sampling Method	AS1141.3.1 Cl 9.4
Date Sampled	11/02/2020
Sampled By	Rebecca Collier
Date Tested	26/02/2020
Material Source	Holcim Lynwood Quarry

Sample Location	
Stockpile	Sampled@07:15
Material Type	DGB 20 (NLYNDGB20)

Caliper Ratio	2:1
Flat Particles (%)	11.2
Elongated Particles (%)	5.5
Flat & Elongated Particles (%)	0.0

Specification	NLYNDGB20 RMS 3051 Ed 6	Spec Minimum	Result	Spec Maximum
	Misshapen Particles (%):	-	17	35

Remarks	Supplement to Simplified Report Number 200226CL1404

NATA

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Accreditation Number: 1986
Corporate Site Number: 22659

Approved Signatory: Christopher Lo
Form ID: W37Rep Rev 1

Construction Sciences

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Laboratory: NSW Central Aggregates Laboratory

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Aggregate enquiries phone 1300 555 277

PARTICLE SHAPE BY PROPORTIONAL CALLIPER REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14094-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	26/02/2020 Page 2 of 3

Test Procedures:	T213

Sample Number	22659/S/36905	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	25/02/2020		
Material Source	Holcim Lynwood Quarry	Material Type	DGB 20 (NLYNDGB20)

Caliper Ratio	2:1
Flat Particles (%)	12.6
Elongated Particles (%)	6.0
Flat & Elongated Particles (%)	0.0

Specification	NLYNDGB20 RMS 3051 Ed 6	Spec Minimum	Result	Spec Maximum
	Misshapen Particles (%):	-	19	35

Remarks	Supplement to Simplified Report Number 200226CL1404

NATA

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Accreditation Number: 1986
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PARTICLE SHAPE BY PROPORTIONAL CALLIPER REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14094-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	26/02/2020 Page 3 of 3

Test Procedures:	T213

Sample Number	22659/S/36906	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	24/02/2020		
Material Source	Holcim Lynwood Quarry	Material Type	DGB 20 (NLYNDGB20)

Caliper Ratio	2:1
Flat Particles (%)	21.9
Elongated Particles (%)	7.5
Flat & Elongated Particles (%)	1.4

Specification	NLYNDGB20 RMS 3051 Ed 6	Spec Minimum	Result	Spec Maximum
	Misshapen Particles (%):	-	31	35

Remarks	Supplement to Simplified Report Number 200226CL1404

NATA

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Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 22659



Approved Signatory: Christopher Lo
Form ID: W37Rep Rev 1

Construction Sciences

Holcim
Subcontracting Construction Sciences testing services.
Concrete enquiries phone 131 188
Aggregate enquiries phone 1300 555 277

Report for
Acid Soluble Sulfate Content in Road Construction Materials

Wollongong Laboratory
Unit 1, 140 Industrial Road, Oak Flats, NSW, 2529

Client:	Holcim Australia Pty Ltd	Report No:	T1179753232-090320
Address:	799 Pacific Hwy Chatswood NSW 2067	Project No:	10848/P/8
		Request No:	10848/T/11797
Project:	Supplied Sampled Materials Testing - Lynwood	Sample No:	10848/S/53232
		Client Request Ref:	

Client Reference:	22659/S/36903	Area Description:		
Component:		Location:	Client Sample ID	Sampled@07:15
Sample Source:	Holcim Lynwood Quarry			22659/S/36903
Sample Description:	DGB 20 (NLYNDGB20)			
Sampling Method:	AS1141.3.1 Cl 9.4			
Sampled By:	Rebecca Collier	Date Sampled:	11/02/20 07:15	
Tested By:	Joshua Mulligan	Date Tested:	09/03/20	

Test Method: T219

TEST RESULT

Percent SO_3	**0.06**	(Acid soluble sulfate expressed as SO_3 (Sulfite))

Remarks: Results apply to sample/s as received.

Corporate Site Number: 10848
Accreditation Number: 1986

NATA WORLD RECOGNISED ACCREDITATION

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

Signature



Name: Tim Mathie
Function: Authorised Signatory
Date: 13-Mar-20

Construction Sciences

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
South Marulan Road,
South Marulan NSW 2579

Laboratory: NSW Central Aggregates Laboratory

Holcim
Subcontracting Cardno testing services.
Concrete enquiries phone 131 188
Aggregate enquiries phone 1300 555 277

WET/DRY VARIATION REPORT

Client:	HOLCIM PTY LTD	Report Number:	22659/R/14199-1
Client Address:	LEVEL 8, 799 PACIFIC HWY, CHATSWOOD	Project Number:	22659/P/8
Project:	Lynwood Quarry Material Assessment	Lot Number:	DGB20-122
Location:	Lynwood	Internal Test Request:	22659/T/8379
Supplied To:	n/a	Client Reference/s:	DGB20-122 TR-341
Area Description:		Report Date / Page:	5/03/2020 Page 1 of 1

Test Procedures:	T215		
Sample Number	22659/S/36903	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Stockpile	Sampled@07:15
Date Sampled	11/02/2020		
Sampled By	Rebecca Collier		
Date Tested	4/03/2020		
Material Source	Holcim Lynwood Quarry	Material Type	DGB 20 (NLYNDGB20)

Preparation Notes:	-	Test Cylinder Diameter (mm)	150mm
Bulk Sample Type:	-	Nominal Bulk Sample Size (mm):	20
Test Fraction (mm):	19.0mm - 9.5mm	Material Breakdown (%)	0.0
Ten Percent Fines Dry (kN):	**173**	Ten Percent Fines Wet (kN):	**146**

Specification:	NLYNDGB20 RMS 3051 Ed 6			Wet / Dry Strength Spec:	Min:	-	Max: 35
Ten Percent Fines Dry Spec:	Min:		Max:	Ten Percent Fines Wet Spec:	Min:	70	Max: -

Wet / Dry Strength Variation (%) 16

Duplicate testing was performed in accordance with T215

Remarks: Supplement to Simplified Report Number 200305RC1154

NATA

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Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation Number: 1986
Corporate Site Number: 22659

Approved Signatory: Christopher Lo
Form ID: W13Rep Rev 1

Division

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Walan
62 Wellington St,
Riverstone, NSW
2765

18 May, 2020

luke.mcneilage@lafargeholcim.com

Dear Paul Doyle,

RE: DGB20 ex RHDC as ENM

I would like to confirm that all constituents contained within Holcim Lynwoods DGB20 product is compliant as per the ENM classification requirements. The material is natural and sourced solely from Lynwood hardrock quarry. Material sold from Lynwood is free from contaminates as tabled in the ENM report.

The material was sampled at Lynwood Quarries Primary Scalping Circuit which is the earliest point in the production process in which a comprehensive sample can be obtained (ref. Image 1). The sample is deemed to representative of all possible raw material constituents that may be found in final products. I have also attached for your review Lynwood Quarries petrographic analysis for both manufactured sand and aggregate products.



We trust that you have received the test report with the test results to classify the individual components as ENM.

Should you have any further queries, please do not hesitate to contact me.

Yours sincerely,

Luke McNeilage (Technical Supervisor)

Mobile: 0419474701

Division

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Walan
62 Wellington St,
Riverstone, NSW
2765

18 May, 2020

luke.mcneilage@lafargeholcim.com

Dear Paul Doyle,

RE: Request for Updated DGB20 Compliance Certificates (Submission)

As requested the blend ratio used to construct this stockpile was 4:1 Lynwood Crusher Run: Lynwood Crusher Dust.

Holcim would like to confirm that all Lynwood Quarry DGB20 stockpiles are tested to RMS 3051 ED6. 4000T DGB20 Stockpile SP-122 has been verified as conforming as per RMS3051 11.4.1.1 and 11.4.2.

Stockpile Grading Conformity Calculations RMS 3051 Edition 6 Rev 0

	% Passing Sieve SP-122					Passing Specification							
Sieve mm	Sample 1 S/36903	Sample 2 S/36905	Sample 3 S/36906	Sample 4 S/37271	Sample 5 S/37272	Lower	Upper	Mean	Lowest	Highest	T1	Tn	Conforming?
26.5	100	100	100	100	100	100	100	100	100	100	0.00	0.00	Conforming
19	98	99	99	98	99	95	100	99	98	99	0.00	0.00	Conforming
13.2	89	89	86	88	92	78	92	89	86	92	0.00	0.00	Conforming
9.5	73	73	72	76	80	63	83	75	72	80	0.00	0.00	Conforming
6.7	0	0	0	0	0	-	-	-	-	-	-	-	-
4.75	49	46	49	57	56	44	64	51	46	57	0.00	0.00	Conforming
2.36	36	33	35	43	39	33	49	37	33	43	0.00	0.00	Conforming
0.425	16	15	15	23	19	14	23	18	15	23	0.00	0.00	Conforming
0.075	8	7	7	10	8	7	14	8	7	10	0.00	0.00	Conforming
0.0135	5	4	4	5	4	3	7	4	4	5	0.00	0.00	Conforming

	% Retained Sieve					Retained Specification							
Sieve mm	Sample 1 S/38344	Sample 2 S/38345	Sample 3 S/38346	Sample 4 S/38347	Sample 5 S/38568	Lower	Upper	Mean	Lowest	Highest	T1	Tn	Conforming?
19													
	9	10	13	10	7	6	18	10	7	13	0.00	0.00	Conforming
13.2													
	16	16	14	12	12	7	17	14	12	16	0.00	0.00	Conforming
9.5													
	24	27	23	19	24	13	25	23	19	27	0.00	1.25	Conforming
4.75													
	13	13	14	14	17	7	19	14	13	17	0.00	0.00	Conforming
2.36													
	20	18	20	20	20	14	30	20	18	20	0.00	0.00	Conforming
0.425													
	8	8	8	13	11	6	13	10	8	13	0.00	0.00	Conforming
0.075													
	3	3	3	5	4	3	8	4	3	5	0.00	0.00	Conforming
0.0135													

Sample No.s & Corresponding Critical T-Values from 3051			
No. Samples	3	4	5
Value	1.15	1.46	1.67

We trust that you have received the suite of confirming tests for SP-122.

Yours sincerely,

Luke McNeilage (Technical Supervisor)

Mobile: 0419474701

Analytical Table
Wentworthville Public School

	Metals								Soil Properties		PAH				BTEX				TRH				TPH	Foreign Material Content								RTA_TZ76								Inorganic	Asbestos	
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Conductivity (1:5 aqueous extract)	pH (aqueous extract)	Benzo(a) pyrene	Naphthalene	Benzo(a)pyrene TEQ <sac (Zero)	PAHs (Sum)	Benzene	Toluene	Ethylbenzene	Xylene (Sum)	C6 - C10 less BTEX (F1)	C10 - C16 less Naphthalene (F2)	C16 - C34	C34 - C40	C10 - C36 (Sum)	Cloth	Paint	Paper	Plastic	Bitumen	Rubber	Wood	Total (rubber, plastic, bitumen, paper, cloth, paint and wood)	Ceramic and slag (other than blast furnace slag)*	Clay lumps and other friable material*	Plaster*	Asphalt*	Glass*	Metal*	Stone*	Vegetable matter*	Initial Weight	Asbestos Reported Result	Asbestos (Fibrous and Fibrous FA+AF)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µs/cm	pH_Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	KG	Comment	% (w/w)
EQL	2	0.4	5	5	5	0.1	5	5	10	0.1	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.3	20	50	100	100	50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.01		
NSW 2014 Excavated Natural Material (Absolute Max)	40	1	150	200	100	1	60	300	3,500	4.5 to 10	1			40	0.5	65	25	15					500								0.1											
NSW 2014 Excavated Natural Material (Max Average)	20	0.5	75	100	50	0.5	30	150	1,500	5 to 9	0.5			20									250								0.05											
Field ID	**Date**																																									
DISC_1C	14-05-20	<2	<0.4	<5	<5	<5	<0.1	<5	10	36	8.0	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	<0.1	0.9	<0.1	<0.1	<0.1	<0.1	99	<0.05	<0.01	1 [#1]	0.0000
DISC_1D	14-05-20	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.3	<20	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DISC_2C	14-05-20	<2	<0.4	8.3	<5	<5	<0.1	<5	12	31	8.0	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	<0.1	2.1	<0.1	<0.1	<0.1	<0.1	98	<0.05	<0.01	1 [#1]	0.0000
DISC_2D	14-05-20	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.3	<20	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DISC_3C	14-05-20	<2	<0.4	<5	<5	<5	<0.1	<5	5.4	35	7.9	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	99	<0.05	<0.01	1 [#1]	0.0000
DISC_3D	14-05-20	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.3	<20	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																																										
Number of Results		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	ND	ND
Minimum Detect		ND	ND	8.3	ND	ND	ND	ND	5.4	31	7.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration		<2	<0.4	8.3	<5	<5	<0.1	<5	12	36	8	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.3	<20	<50	<100	<100	<50	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	ND	<0.1	2.1	<0.1	<0.1	<0.1	<0.1	99	<0.05	<0.01	ND	ND
Average Concentration *		1	0.2	4.4	2.5	2.5	0.05	2.5	9.1	34	8	0.25	0.25	0.25	0.25	0.05	0.05	0.05	0.15	10	25	50	50	25	0.025	0.025	0.025	0.025	0.025	0.025	0.025	ND	0.05	1.2	0.05	0.05	0.05	0.05	99	0.025	0.005	ND	ND
95% UCL (Student*s1) *		1	0.2	10.08	2.5	2.5	0.05	2.5	14.84	38.46	8.064	0.25	0.25	0.25	0.25	0.05	0.05	0.05	0.15	10	25	50	50	25	0.025	0.025	0.025	0.025	0.025	0.025	0.025	ND	0.05	2.538	0.05	0.05	0.05	0.05	99.64	0.025	0.005	ND	ND

* A Non Detect Multiplier of 0.5 has been applied.

Comments
#1 No asbestos detected.No trace asbestos detected.

Photographs	
Report Name:	Western Stage 1 Validation Report
Project Reference:	PS119057
Site Details:	Wentworthville Public School

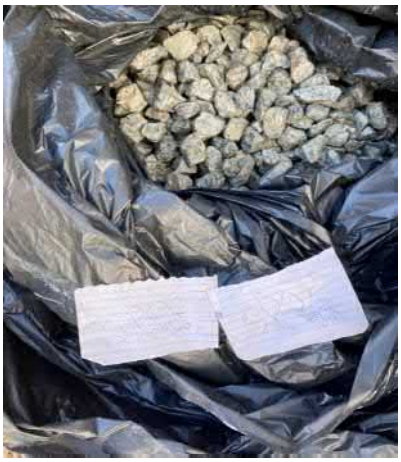


Photo 1: Example of imported material used around OSD tank



Photo 2: Imported Lynwood certified material (quarried product)



Photo 3: Placement of imported material



Photo 4: Placement of imported material around any exposed walls

End of photolog

WSP Australia P/L NSW
Level 27, Ernst & Young Centre
Sydney
NSW 2001

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: **Hamish Donovan**

Report **719520-S**
Project name WWPS - ENM
Project ID PS119057
Received Date May 14, 2020

Client Sample ID			**DISC_1C**	**DISC_1D**	**DISC_2C**	**DISC_2D**
Sample Matrix			**Solid**	**Soil**	**Solid**	**Soil**
Eurofins Sample No.			**S20-My20968**	**S20-My20969**	**S20-My20970**	**S20-My20971**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	107	-	107
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	-	< 0.5

Client Sample ID			DISC_1C	DISC_1D	DISC_2C	DISC_2D
Sample Matrix			Solid	Soil	Solid	Soil
Eurofins Sample No.			S20-My20968	S20-My20969	S20-My20970	S20-My20971
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	84	-	85
p-Terphenyl-d14 (surr.)	1	%	-	97	-	96
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	36	-	31	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	8.0	-	8.0	-
% Moisture	1	%	1.2	1.9	1.0	< 1
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	< 5	-	8.3	-
Copper	5	mg/kg	< 5	-	< 5	-
Lead	5	mg/kg	< 5	-	< 5	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	< 5	-	< 5	-
Zinc	5	mg/kg	10	-	12	-
Foreign Materials - ENM						
Initial Weight	0.01	kg	< 0.01	-	< 0.01	-
Foreign Material - Type I						
Metal*	0.1	%	< 0.1	-	< 0.1	-
Glass*	0.1	%	< 0.1	-	< 0.1	-
Asphalt*	0.1	%	< 0.1	-	< 0.1	-
Stone*	0.1	%	99	-	98	-
Ceramic and slag (other than blast furnace slag)*	0.1	%	< 0.1	-	< 0.1	-
Foreign Material - Type II						
Plaster*	0.1	%	< 0.1	-	< 0.1	-
Clay lumps and other friable material*	0.1	%	0.9	-	2.1	-
Foreign Material - Type III						
Rubber*	0.05	%	< 0.05	-	< 0.05	-
Plastic*	0.05	%	< 0.05	-	< 0.05	-
Bitumen*	0.05	%	< 0.05	-	< 0.05	-
Paper*	0.05	%	< 0.05	-	< 0.05	-
Cloth*	0.05	%	< 0.05	-	< 0.05	-
Paint*	0.05	%	< 0.05	-	< 0.05	-
Wood*	0.05	%	< 0.05	-	< 0.05	-
Vegetable matter*	0.05	%	< 0.05	-	< 0.05	-

Client Sample ID			DISC_3C	DISC_3D
Sample Matrix			Solid	Soil
Eurofins Sample No.			S20-My20972	S20-My20973
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	-	< 20
TRH C10-C14	20	mg/kg	-	< 20
TRH C15-C28	50	mg/kg	-	< 50
TRH C29-C36	50	mg/kg	-	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50
BTEX				
Benzene	0.1	mg/kg	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1
Xylenes - Total*	0.3	mg/kg	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	97
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	87
p-Terphenyl-d14 (surr.)	1	%	-	94
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	35	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.9	-
% Moisture	1	%	21	4.2

Client Sample ID			DISC_3C	DISC_3D
Sample Matrix			Solid	Soil
Eurofins Sample No.			S20-My20972	S20-My20973
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	< 2	-
Cadmium	0.4	mg/kg	< 0.4	-
Chromium	5	mg/kg	< 5	-
Copper	5	mg/kg	< 5	-
Lead	5	mg/kg	< 5	-
Mercury	0.1	mg/kg	< 0.1	-
Nickel	5	mg/kg	< 5	-
Zinc	5	mg/kg	5.4	-
Foreign Materials - ENM				
Initial Weight	0.01	kg	< 0.01	-
Foreign Material - Type I				
Metal*	0.1	%	< 0.1	-
Glass*	0.1	%	< 0.1	-
Asphalt*	0.1	%	< 0.1	-
Stone*	0.1	%	99	-
Ceramic and slag (other than blast furnace slag)*	0.1	%	< 0.1	-
Foreign Material - Type II				
Plaster*	0.1	%	< 0.1	-
Clay lumps and other friable material*	0.1	%	0.6	-
Foreign Material - Type III				
Rubber*	0.05	%	< 0.05	-
Plastic*	0.05	%	< 0.05	-
Bitumen*	0.05	%	< 0.05	-
Paper*	0.05	%	< 0.05	-
Cloth*	0.05	%	< 0.05	-
Paint*	0.05	%	< 0.05	-
Wood*	0.05	%	< 0.05	-
Vegetable matter*	0.05	%	< 0.05	-

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
Eurofins | mgt Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 14, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 14, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 14, 2020	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 14, 2020	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	May 14, 2020	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Sydney	May 14, 2020	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25°C as rec.)	Sydney	May 14, 2020	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Metals M8	Sydney	May 14, 2020	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	May 14, 2020	14 Days
- Method: LTM-GEN-7080 Moisture			
Foreign Material - Type I	Sydney	May 14, 2020	180 Days
- Method: RMS Method T276			
Foreign Material - Type II	Sydney	May 14, 2020	180 Days
- Method: RMS Method T276			
Foreign Material - Type III	Sydney	May 14, 2020	180 Days
- Method: RMS Method T276			

eurofins | Environment Testing

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IANZ # 1290

Company Name: WSP Australia P/L NSW
Address: Level 27, Ernst & Young Centre
Sydney
NSW 2001

Project Name: WWPS - ENM
Project ID: PS119057

Order No.: PS119057
Report #: 719520
Phone: 02 9272 5586
Fax: 02 9272 5101

Received: May 14, 2020 5:57 PM
Due: May 15, 2020
Priority: 1 Day
Contact Name: Hamish Donovan

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos Absence /Presence	Conductivity (1:5 aqueous extract at 25°C as rec.)	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Foreign Materials - ENM	Moisture Set	Eurofins | mgt Suite B4
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	DISC_1C	Not Provided		Solid	S20-My20968	X	X	X	X	X	X	
2	DISC_1D	Not Provided		Soil	S20-My20969						X	X
3	DISC_2C	Not Provided		Solid	S20-My20970	X	X	X	X	X	X	
4	DISC_2D	Not Provided		Soil	S20-My20971						X	X
5	DISC_3C	Not Provided		Solid	S20-My20972	X	X	X	X	X	X	
6	DISC_3D	Not Provided		Soil	S20-My20973						X	X
Test Counts						3	3	3	3	3	6	3

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/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							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	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	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	94			70-130	Pass	
TRH C10-C14	%	78			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	103			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	108			70-130	Pass	
o-Xylene	%	106			70-130	Pass	
Xylenes - Total*	%	107			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	84			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	90			70-130	Pass	
Acenaphthylene	%	90			70-130	Pass	
Anthracene	%	93			70-130	Pass	
Benz(a)anthracene	%	108			70-130	Pass	
Benzo(a)pyrene	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	99			70-130	Pass	
Benzo(k)fluoranthene	%	104			70-130	Pass	
Chrysene	%	107			70-130	Pass	
Dibenz(a.h)anthracene	%	97			70-130	Pass	
Fluoranthene	%	99			70-130	Pass	
Fluorene	%	90			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	95			70-130	Pass	
Naphthalene	%	90			70-130	Pass	
Phenanthrene	%	95			70-130	Pass	
Pyrene	%	97			70-130	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25°C as rec.)	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	105			70-130	Pass	
Cadmium	%	117			70-130	Pass	
Chromium	%	113			70-130	Pass	
Copper	%	114			70-130	Pass	
Lead	%	112			70-130	Pass	
Mercury	%	112			70-130	Pass	
Nickel	%	113			70-130	Pass	
Zinc	%	111			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S20-My13828	NCP	%	77			70-130	Pass	
Cadmium	S20-My13828	NCP	%	119			70-130	Pass	
Chromium	S20-My13146	NCP	%	105			70-130	Pass	
Copper	S20-My13828	NCP	%	117			70-130	Pass	
Lead	S20-My13828	NCP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	S20-My13828	NCP	%	115			70-130	Pass	
Nickel	S20-My13828	NCP	%	110			70-130	Pass	
Zinc	S20-My13828	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S20-My12761	NCP	%	71			70-130	Pass	
TRH C10-C14	S20-My03989	NCP	%	76			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S20-My12761	NCP	%	87			70-130	Pass	
Toluene	S20-My12761	NCP	%	94			70-130	Pass	
Ethylbenzene	S20-My12761	NCP	%	95			70-130	Pass	
m&p-Xylenes	S20-My12761	NCP	%	92			70-130	Pass	
o-Xylene	S20-My12761	NCP	%	91			70-130	Pass	
Xylenes - Total*	S20-My12761	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S20-My12761	NCP	%	77			70-130	Pass	
TRH C6-C10	S20-My12761	NCP	%	76			70-130	Pass	
TRH >C10-C16	S20-My03989	NCP	%	75			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S20-My12764	NCP	%	94			70-130	Pass	
Acenaphthylene	S20-My12764	NCP	%	96			70-130	Pass	
Anthracene	S20-My12764	NCP	%	97			70-130	Pass	
Benz(a)anthracene	S20-My12764	NCP	%	116			70-130	Pass	
Benzo(a)pyrene	S20-My12764	NCP	%	114			70-130	Pass	
Benzo(b&j)fluoranthene	S20-My12764	NCP	%	118			70-130	Pass	
Benzo(g.h.i)perylene	S20-My12764	NCP	%	104			70-130	Pass	
Benzo(k)fluoranthene	S20-My12764	NCP	%	107			70-130	Pass	
Chrysene	S20-My12764	NCP	%	110			70-130	Pass	
Dibenz(a.h)anthracene	S20-My12764	NCP	%	102			70-130	Pass	
Fluoranthene	S20-My12764	NCP	%	105			70-130	Pass	
Fluorene	S20-My12764	NCP	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S20-My12764	NCP	%	100			70-130	Pass	
Naphthalene	S20-My12764	NCP	%	94			70-130	Pass	
Phenanthrene	S20-My12764	NCP	%	98			70-130	Pass	
Pyrene	S20-My12764	NCP	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S20-My13097	NCP	uS/cm	230	260	9.8	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S20-My13097	NCP	pH Units	9.3	9.3	Pass	30%	Pass	
% Moisture	S20-My20900	NCP	%	6.0	6.3	4.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S20-My13358	NCP	mg/kg	3.9	3.7	5.0	30%	Pass	
Cadmium	S20-My13358	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S20-My13358	NCP	mg/kg	27	26	3.0	30%	Pass	
Copper	S20-My13358	NCP	mg/kg	12	11	6.0	30%	Pass	
Lead	S20-My13358	NCP	mg/kg	15	15	<1	30%	Pass	
Mercury	S20-My13358	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	S20-My13358	NCP	mg/kg	11	11	5.0	30%	Pass	
Zinc	S20-My13358	NCP	mg/kg	36	35	5.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S20-My13140	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S20-My20926	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S20-My20926	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S20-My20926	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S20-My13140	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S20-My13140	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S20-My13140	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S20-My13140	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S20-My13140	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S20-My13140	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S20-My13140	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S20-My13140	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S20-My20926	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S20-My20926	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S20-My20926	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S20-My12763	NCP	mg/kg	< 0.5	< 0.5	<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

Authorised By

Alena Bounkeua	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Inorganic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
Nibha Vaidya	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.

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Certificate of Analysis

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.

WSP Australia P/L NSW
Level 27, Ernst & Young Centre
Sydney
NSW 2001

Attention:	Hamish Donovan
Report	719520-AID
Project Name	WWPS - ENM
Project ID	PS119057
Received Date	May 14, 2020
Date Reported	May 15, 2020

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.*

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.

Project Name WWPS - ENM
Project ID PS119057
Date Sampled
Report 719520-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
DISC_1C	20-My20968	not provided	Approximate Sample 888g / 130x120x50mm Sample consisted of: Grey aggregates	No asbestos detected. No trace asbestos detected.
DISC_2C	20-My20970	not provided	Approximate Sample 862g / 110x120x50mm Sample consisted of: Grey aggregates	No asbestos detected. No trace asbestos detected.
DISC_3C	20-My20972	not provided	Approximate Sample 797g / 130x120x50mm Sample consisted of: Grey aggregates	No asbestos detected. No trace asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	May 15, 2020	Indefinite

eurofins | Environment Testing

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NATA # 1261 Site # 20794

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

Company Name: WSP Australia P/L NSW
Address: Level 27, Ernst & Young Centre
Sydney
NSW 2001

Project Name: WWPS - ENM
Project ID: PS119057

Order No.: PS119057
Report #: 719520
Phone: 02 9272 5586
Fax: 02 9272 5101

Received: May 14, 2020 5:57 PM
Due: May 15, 2020
Priority: 1 Day
Contact Name: Hamish Donovan

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Asbestos Absence /Presence	Conductivity (1:5 aqueous extract at 25°C as rec.)	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Foreign Materials - ENM	Moisture Set	Eurofins | mgt Suite B4
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
Perth Laboratory - NATA Site # 23736												
External Laboratory												
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
1	DISC_1C	Not Provided		Solid	S20-My20968	X	X	X	X	X	X	
2	DISC_1D	Not Provided		Soil	S20-My20969						X	X
3	DISC_2C	Not Provided		Solid	S20-My20970	X	X	X	X	X	X	
4	DISC_2D	Not Provided		Soil	S20-My20971						X	X
5	DISC_3C	Not Provided		Solid	S20-My20972	X	X	X	X	X	X	
6	DISC_3D	Not Provided		Soil	S20-My20973						X	X
Test Counts						3	3	3	3	3	6	3

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:

Sayeed Abu	Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

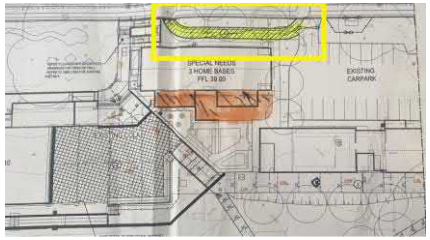
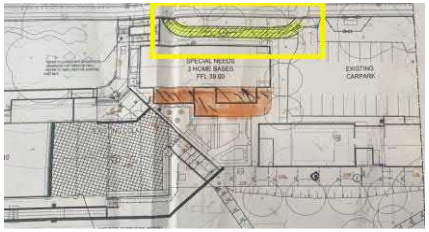
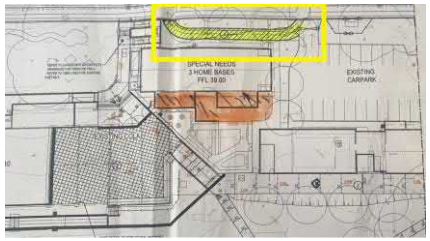
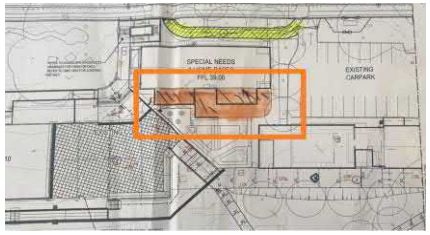
Final Report – this report replaces any previously issued Report

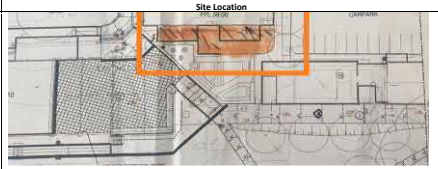
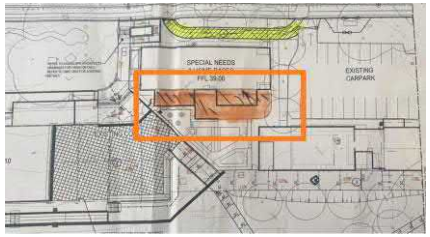
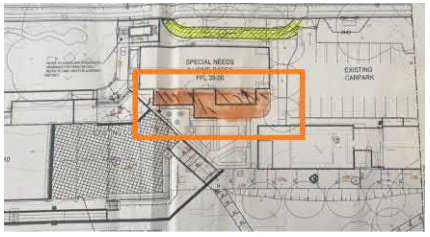
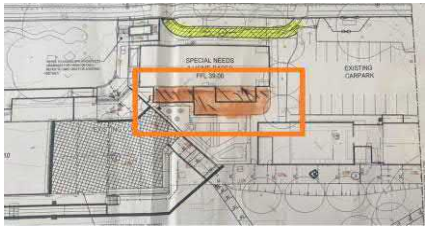
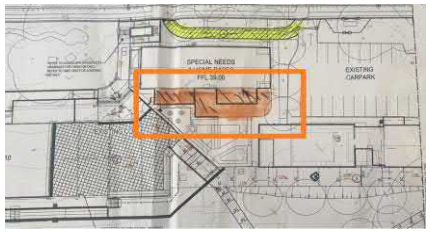
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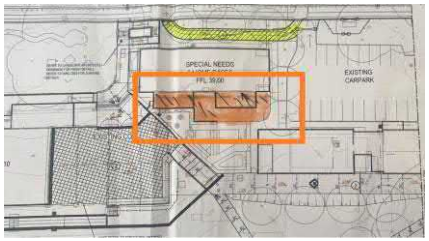
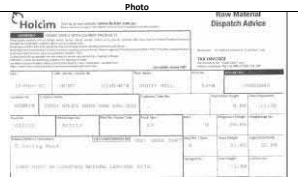
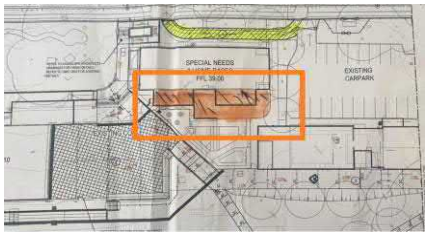
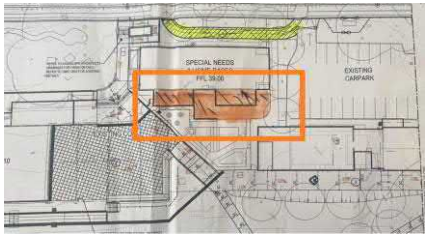
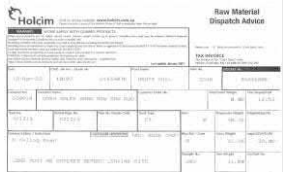
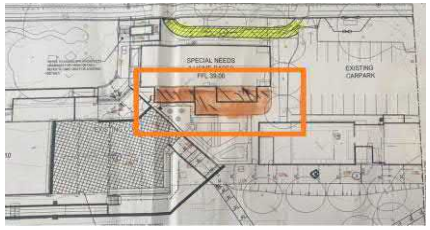
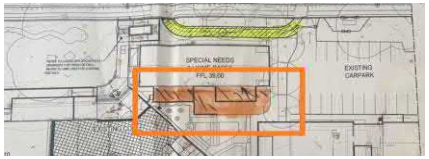
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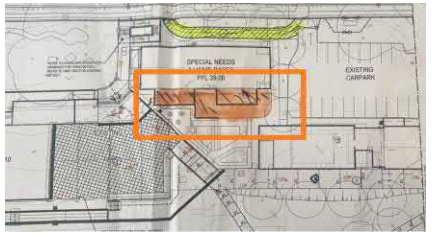
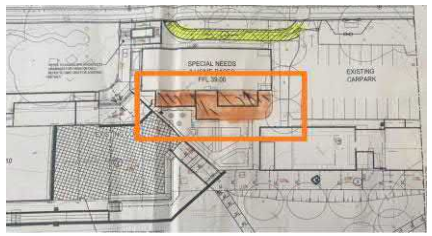
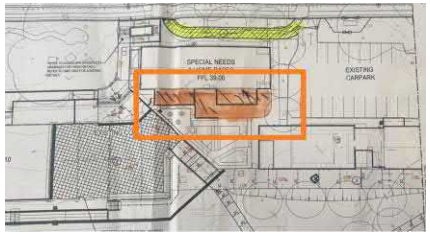
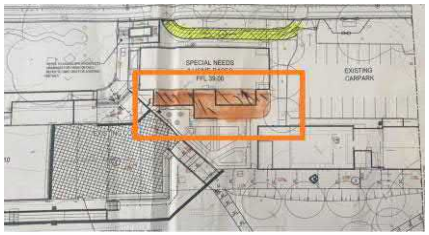
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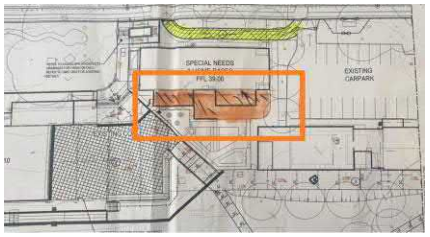
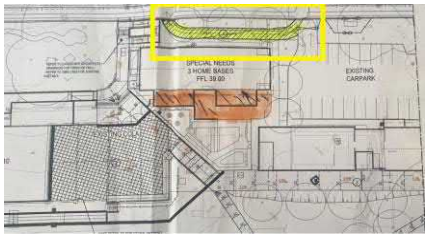
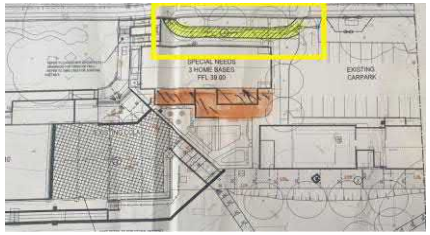
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Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
6/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2766	ELI709	DGB20 Natural	34826758	17.16			Roadbase to level up to contracted level
6/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2767	ELI709	DGB20 Natural	34826764	18.68			Roadbase to level up to contracted level
6/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2767	ELI709	DGB20 Natural	34826766	17.56			Roadbase to level up to contracted level
8/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2767	ELI709	DGB20 Natural	34826775	17.58			Roadbase to level up to contracted level
										

Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
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Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
13/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2767	AZIZ13	DGB20 Natural	34826805	20.06			Roadbase to level up to contracted level
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Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
										
14/04/2022	GLC Civil Projects	Holcim	Holcim 5 Kellog Road Rooty Hill NSW 2767	ELI705	DGB20 Natural	34826816	17.58			Roadbase to level up to contracted level
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Project: Wentworthville Public School										
PM: Cameron Powell						SM: Paul Caristo				
Date	Subcontractor	Supplier	Source	Truck Registration	Material	Docket No.	Quantity	Site Location	Photo	Comments
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E1.3 HI-QUALITY ORGANIC GARDEN MIX

Environment Protection Licence

Licence - 12517

Licence Details	
Number:	12517
Anniversary Date:	17-August

Licensee

SUEZ RECYCLING & RECOVERY PTY LTD

LOCKED BAG 5015

KINGSGROVE DC NSW 2208

Premises

EASTERN CREEK ORRF

WALLGROVE ROAD

EASTERN CREEK NSW 2766

Scheduled Activity

Composting

Waste processing (non-thermal treatment)

Fee Based Activity	Scale
Composting	> 5000-50000 T annual capacity to receive organics
Non-thermal treatment of general waste	Any annual processing capacity

Contact Us

NSW EPA

4 Parramatta Square

12 Darcy Street

PARRAMATTA NSW 2150

Phone: 131 555

Email: info@epa.nsw.gov.au

Locked Bag 5022

PARRAMATTA NSW 2124

Environment Protection Licence

Licence - 12517

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Information about this licence

Dictionary

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

Responsibilities of licensee

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

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

Variation of licence conditions

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

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

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

Duration of licence

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

Licence review

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

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

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

Environment Protection Licence

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The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

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

Transfer of licence

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

Public register and access to monitoring data

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

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

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

This licence is issued to:

SUEZ RECYCLING & RECOVERY PTY LTD
LOCKED BAG 5015
KINGSGROVE DC NSW 2208

subject to the conditions which follow.

Environment Protection Licence

Licence - 12517

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

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

Scheduled Activity	Fee Based Activity	Scale
Composting	Composting	> 5000 - 50000 T annual capacity to receive organics
Waste processing (non-thermal treatment)	Non-thermal treatment of general waste	Any annual processing capacity

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
EASTERN CREEK ORRF
WALLGROVE ROAD
EASTERN CREEK
NSW 2766
PART LOT 11 DP 1048435, PART LOT 2 DP 1073820
PART LOT 2 DP1073820 (TITLE HELD IN CF11/1049029) & PART LOT 11 DP1048435 LABELLED AS "GREEN WASTE PROCESSING AREA 1 & 2 & GREENWASTE LEACHATE DAM 1 & 2" ON PLAN PREPARED BY HAMMOND SMEALLIE & CO REF

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

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

Environment Protection Licence

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Surface Landfill Gas		Surface monitoring across the green waste platform

P1.2 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.3 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
2	Ambient Water Quality		Greenwaste leachate dam 1 on plan prepared by Hammond & Smeallie & Co REF 11277 Dated 15 September 2010
3	Ambient Water Quality		Greenwaste leachate dam 2 on plan prepared by Hammond & Smeallie & Co REF 11277 Dated 15 September 2010

3 Limit Conditions

L1 Pollution of waters

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

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled

"Description" in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled "Activity" in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled "Other Limits" in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Wood waste	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting	Quantity stored and/or recovered by way of processing at the premises must not exceed 50,000 tonnes per year
NA	Garden waste	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting	Quantity stored and/or recovered by way of processing at the premises must not exceed 50,000 tonnes per year
NA	Virgin excavated natural material	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting	The storage of VENM sand on the premises must not exceed 13,000m³ at any one time.

L3 Potentially offensive odour

L3.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

L4 Other limit conditions

L4.1 The height of stockpiles above the ground surface must not exceed 4.0 metres.

L4.2 The maximum quantity of materials used in the production of product, whether processed or unprocessed, must not exceed 18,000 tonnes at any time at the Premises.

L4.3 The storage of oversize material must not to exceed 9,000m³

Environment Protection Licence

Licence - 12517

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

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

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O4 Emergency response

O4.1 The licensee must maintain a fire mitigation plan to ensure that fire prevention measures are in place at the premises to manage any fire outbreaks.

O4.2 All activities and operations at the premises must be carried out in a manner that will prevent and minimise the risk of fires.

O5 Waste management

O5.1 Waste liquor irrigation must be conducted in a manner that prevents spray drifts.

O5.2 The last licensee must prepare and submit to the EPA within twelve months prior to the last load of waste being received a closure plan in accordance with section 76 of the Protection of the Environment Operations Act 1997.

O5.3 The licensee shall ensure that the eastern leachate dam has a depth indicator that accurately demonstrates 0.75 metre freeboard and that the western leachate dam has a depth indicator that accurately demonstrates 1 (one) metre freeboard.

O5.4 Leachate level within the two leachate dams must be maintained below the freeboard level at all times.

During rain events greater than the design incident (67.7mm 2 hour rain event (ARI)) the licensee must contain all leachate and remove all excess leachate to a premises that can lawfully dispose of it.

O5.5 The licensee shall manage all stored and processed materials in a manner that ensures leachate will freely drain, pad access between windrows and stockpiles is mainted free of accumulated material, fire fighting vehicles can freely travel between windrows and stockpiles, material does not accumulate in leachate drainage lines.

These works shall be completed before 31 January 2016 and shall continue to be maintained

O5.6 Oversize material must be regularly processed, with the maximum interval between batches not exceeding four months.

O5.7 By 31 May 2018, the licensee shall implement windrows to all decontaminated materials that are subject to the initial 4 weeks of decomposition.

O5.8 The licensee shall ensure that windrows are maintained to a 3 meter height or lower.

O5.9 All waste material undergoing composting processes and finished compost must be aeratedthrough routine turning to minimise odour emissions.

5 Monitoring and Recording Conditions

M1 Monitoring records

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

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

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

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

Environment Protection Licence

Licence - 12517

POINT 1

Pollutant	Units of measure	Frequency	Sampling Method
Methane	parts per million	Quarterly	Special Method 1

M2.3 Water and/ or Land Monitoring Requirements

POINT 2

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Yearly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Yearly	Grab sample
Total organic carbon	milligrams per litre	Yearly	Grab sample
Total suspended solids	milligrams per litre	Yearly	Grab sample

POINT 3

Pollutant	Units of measure	Frequency	Sampling Method
Biochemical oxygen demand	milligrams per litre	Yearly	Grab sample
Nitrogen (ammonia)	milligrams per litre	Yearly	Grab sample
Total organic carbon	milligrams per litre	Yearly	Grab sample
Total suspended solids	milligrams per litre	Yearly	Grab sample

M2.4 “Special Method 1” means in accordance with Benchmark Technique 17 of the EPA’s “Environmental Guidelines: Solid Waste Landfills”.

M2.5 The EPA must be notified within 24 hours if the surface landfill gas monitoring requires by condition M2.1 indicates a gas concentration of 500ppm or greater or a methane concentration greater than 1.25% (v/v).

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any

methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Recording of pollution complaints

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

M4.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

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

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

M5 Telephone complaints line

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

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

M5.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

Environment Protection Licence

Licence - 12517

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

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

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

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

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

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

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

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

Environment Protection Licence

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

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

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

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

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

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

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

R4 Other reporting conditions

Annual Waste Summary Reporting

R4.1 The licensee must complete and submit to the EPA an Annual Waste Summary Report each financial year.

R4.2 The Annual Waste Summary Report must be submitted to the EPA via the Waste and Resource Reporting Portal (WARRP) within 60 days of the end of the financial year.

7 General Conditions

G1 Copy of licence kept at the premises or plant

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

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

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

8 Pollution Studies and Reduction Programs

U1 Access management for fire fighting and waste control

U1.1 The licensee shall provide a report to EPA satisfaction including an assessment by NSW Fire and Rescue Service of the sufficiency of access between stored and processed materials onsite to accommodate emergency response vehicles for the purpose of fire-fighting and isolation of heat impacted material; and that sufficient access is allowed for the purpose of landfill gas monitoring across the entire Premises. The report must be provided before 31 August 2018.

9 Special Conditions

E1 Environment Management Plan (EMP)

E1.1 The licensee must prepare an Environment Management Plan (EMP) to ensure compliance with the conditions of this licence and relevant Environmental Legislation for the premises. The EMP must, as a minimum, address the matters listed in Appendix C of the DEC's Environmental Guidelines: Composting and Related Organics Processing Facilities Guidelines (July 2004).

E1.2 The licensee must submit the EMP required by condition E1.1 of this licence to the DEC's Manager Waste Operations by 30 November 2006.

Environment Protection Licence

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr Stephen Beaman

Environment Protection Authority

(By Delegation)

Date of this edition: 17-August-2006

Environment Protection Licence

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End Notes

1	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
2	Licence varied by notice 1093108, issued on 14-Nov-2008, which came into effect on 14-Nov-2008.
3	Licence varied by notice 1104517, issued on 20-Jan-2011, which came into effect on 20-Jan-2011.
4	Licence transferred through application 146432, approved on 01-Mar-2011, which came into effect on 01-Mar-2011.
5	Licence varied by notice 1514356 issued on 30-May-2013
6	Licence varied by notice 1531277 issued on 27-Nov-2015
7	Licence varied by notice 1540816 issued on 28-Oct-2016
8	Licence varied by notice 1546201 issued on 01-Nov-2016
9	Licence varied by notice 1548504 issued on 08-Dec-2017
10	Licence varied by notice 1559600 issued on 11-Dec-2017
11	Licence varied by notice 1607424 issued on 09-Jun-2021

Product Data Sheet

Product	Organic Garden Mix		
Facility	**Eastern Creek ORRF**		
Date Revised	16/02/2022	Revision	5

pH	7.79	units	Electrical Conductivity (EC)	1759	µS/cm
Glass, Metal & Rigid Plastics >2mm	≤0.50	%	Moisture Content	36.41	%
Plastics - Light, Flexible or Film >5mm	≤0.05	%	Density	0.88	kg/L
Stones & Lumps of Clay >5mm	-	%	Maximum Particle Size	20	mm

Results last updated 16/02/2022

Please contact your SUEZ Representative if further information is required.

Karen Muir karen.muir@suez.com

Notes:

- Results are an average to the above mentioned date
- Results are subject to change across individual batches
- Primary ingredients are Pasteurised Garden Organics and VENM Sand.
- *Product not suitable for topdressing lawns. Please use Organic Top Dress.*

8th June 2022

James Meyers
37 Lee Holm Rd
ST MARYS NSW 2760

Recycling & Recovery

Dear James,

RE: Supply of Organic Garden Mix

Please find below the information you requested regarding our Organic Garden Mix.

SUEZ Organic Resource Recovery Facilities (formerly SITA Organics) are certified manufacturers of AS4419 & AS4454 products and operate under an ISO9001 Certified Quality System. AS4454 is the Australian standard for Composts, Soil Conditioners and Mulches. AS4419 is the Australian Standard for Soils for Landscaping and Garden Use, is the standard for garden mixes.

Organic Garden Mix is a blend of Sand and Pasteurised Garden Organics. This product complies with the "*Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014. The Pasteurised Garden Organics Order 2016*".

The pasteurised garden organics used as an ingredient in this product is manufactured in accordance with "*AS4454 – 2012 Composts, Soil Conditioners and Mulches*".

The Sand used to make this product has been classified as VENM (Virgin Excavated Natural Material) as defined by NSW EPA under "*The Protection of the Environment Operations Act 1997 (POEO Act)*".

If you require any further information, please do not hesitate to contact me on (02) 9708 7819 or 0409 644 417.

Regards,

Karen Muir
Market Development Manager

VENM Assessment

Lot 130 & 131, Gan Gan Road, Anna Bay

Report Ref: P20171-VENM-001-Rev0

Written by:

Reviewed by:

Email: office@huntercivilab.com.au

Client: CLIENT/COMPANY

31 August 2020

Prepared for

Hay Enterprises Pty Ltd
P.O BOX 366
Salamander Bay NSW 2317
Ph: 0401499749
Email: chelsea@hayenterprises.com.au

Prepared by

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Project Details

Site Address:	Lot 130 & 131, Gan Gan Road, Anna Bay	
Project Type:	VENM Assessment	
Project no	**Report type**	**Report no**
P20171	VENM	001

Report Register

Revision Number	Reported By	Reviewed By	Date
Rev0	Jake Duck	Malcolm Adrien	31/8/2020

We confirm that the following report has been produced for CLIENT/COMPANY, based on the described methods and conditions within.

For and on behalf of Hunter Civilab,

Malcolm Adrien
Environmental Services Manager

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1 Introduction 1
1.1 Background 1
2 Desktop Investigation 1
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Annex List:

Annex A – Tabulated Soil Results

Annex B – NATA Endorsed Laboratory Reports

1 Introduction

1.1 Background

Hunter Civilab (HC) was engaged by CLIENT/COMPANY to assess in-situ material located at Lot 130 & 131, Gan Gan Road, Anna Bay (herein referred to as the Site) against Virgin Excavated Natural Material definitions within The Protection of the Environment Operations Act 1997 (POEO Act). Information provided by the client indicated that an area of a 10ha sand dune is utilized for sand extraction and the material requires certification for compliance with VENM definitions.
The Assessment works were undertaken in accordance with HC services agreement Q2020_486, dated 17th August 2020.

2 Desktop Investigation

2.1 Acid Sulfate Soils Risk Maps

Review of the National ASS metadata (CSIRO, 2017) identifies the site location and local surroundings fall within an area of high risk ASS occurrence. Based on the Site locality and acid sulfate soils risk maps, acid sulfate soils analysis was conducted as part of this assessment.

3 Objectives and Scopes of Work

The objective of this investigation was to assess the suitability of in-situ material for export and re-use under the Virgin Excavated Natural Material order. The scope of works completed is characterised by the following core elements:

- Review of National ASS metadata (CSIRO, 2017) to determine the potential suitability of the material to be classified as VENM (already completed);
- Inspection of the excavation area to assess soil horizons;
- Collection of 2 primary soil samples for chemical analysis and 1 composite sample for acid sulfate soils analysis;
- Laboratory analysis of sample for chemical criteria specified in the National Environmental Protection Measure (NEPM) for residential soils;
- Assessment of analytical results against adopted assessment criteria; and
- Preparation of an VENM Assessment report in general accordance with relevant legislation and best practice guidance.

4 Site Works

Hunter Civilab attended the site on 14th August 2020 to execute the agreed scope of works. The visual assessment identified an excavation area from the sand dunes at the rear of an undeveloped parcel of land, with a natural fine to medium-grained pale-yellow sand.

Two test pits were excavated towards the rear of the site to a maximum depth of 1m BGL targeting the area where surplus materials are proposed to be generated.

A total of two samples comprising one sample from each test pit was collected. Samples were sent to a NATA accredited laboratory (SGS) sub-contracted to complete analysis specific to targeted analytes. All samples were labelled with unique identifiers referencing the sampling location and date. Soil jars were stored on ice until submission to SGS.

Table 4.1 – Soil sample log

Sample ID	Soil Description
S1	Sand, fine to medium-grained, pale yellow
S2	Sand, fine to medium-grained, pale yellow

A Site Features Plan including the assessment area and sampling locations is presented as *Figure 1* of **Annex A**. A photographic log of the assessed material is presented below in *Photograph 1*.

Photograph 1 –In-situ material inspected and sampled for analysis on 14th August 2020.



5 VENM Assessment

5.1 VENM Order Assessment Criteria

The Protection of the Environment Operations Act 1997 defines VENM as natural material (such as clay, gravel, sand, soil or rock fines):

- that has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities; and
- that does not contain any sulfidic ores or soils or any other waste.

5.2 Analytical Results

Results of chemical analysis were assessed against NEPM Residential A Health-based investigation levels and a tabulated summary of this assessment is presented in **Annex B**. In summary:

- Heavy Metals were reported within HIL A Assessment criterion;
- TRH, BTEX, PAH, OCP, OPP, PCB and Phenols were reported as non-detect and acceptable within HIL A assessment criteria.
- SPOCAS analysis indicates the material is not considered to contain sulfidic ores.

5.3 Quality Assurance / Quality Control

Quality assurance measures for Hunter Civilab environmental sampling within this VENM assessment were adopted to provide confidence in the analytical results to support determinations on material categorisation and to facilitate satisfaction of project-specific objectives. Adopted measures included complimentary regimes of field and laboratory-based quality assurance techniques and quality control sampling/analysis. Quality assurance measures, results and implications for data quality associated with this assessment is broadly defined within the following categories:

- Sample collection, storage transport and analysis;
- Laboratory quality control procedures and results; and
- The occurrence of apparently unusual and anomalous results.

Tabulated assessments of laboratory quality control samples are presented within **Annex C**. In summary, the analytical data is considered sufficiently complete, representative, comparable, accurate and precise to serve as an adequate basis for interpretation for the purposes of this project.

6 Conclusion

Hunter Civilab were engaged by CLIENT/COMPANY to assess the suitability of in-situ material at Lot 130 & 131, Gan Gan Road, Anna Bay for export and re-use as VENM.

The assessment included a desktop review of available information (i.e. acid sulfate risk maps), excavation of 2 test pits on-site, a visual inspection of soil at the site and collection of 2 primary samples from in-situ material for laboratory analysis.

Based on the above findings, Hunter Civilab considers that soil on-site meets to meet the definition of VENM and is suitable for re-use under the Protection of the Environment Operations Act.

For and on behalf of

Valley Civilab Pty Ltd, trading as Hunter Civilab

Reported by:



Jake Duck
Environmental Scientist

Reviewed by:



Malcolm Adrien
Environmental Services Manager

Annex A

	Metals								TRH NEPM (2013)							BTEX			
	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	TRH C6-C10 Fraction	TRH C6-C10 minus BTEX (F1)	TRH >C10-C16 Fraction	TRH >C10-C16 - Naphthalene (F2)	TRH >C16-C34 (F3)	TRH >C34-C40 (F4)	Napthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	1	0.3	0.5	0.5	1	0.5	2	0.05	25	25	25	25	90	120	0.1	0.1	0.1	0.1	0.3
EILs (NEPM 2013)	100				1100										170				
ESLs - Fine (NEPM 2013)										180		120	1300	5600		65	105	125	105
ESLs - Coarse (NEPM 2013)										180		120	300	2800		50	85	70	45
HIL A (NEPM 2013)	100	20	100	6000	300	400	7400	40											
HSL A - Soil Vapour Clay 0 - <1m (NEPM 2013)										50		280			5	0.7	480	NL	110
Management Limits - Fine Soil (NEPM 2013)									*800*		*1,000*		*3,500*	*10,000*					
Management Limits - Coarse Soil (NEPM 2013)									*700*		*1,000*		*2,500*	*10,000*					
HSL A - Direct Contact (CRC Care 2011)									**4,400**		**3,300**		**4,500**	**6,300**	**1,400**	**100**	**14,000**	**4,500**	**12,000**
Sample ID	**Sampled Date**																		
S1	14/08/2020	**3**	<0.3	**1.6**	**<0.5**	**<1**	**<0.5**	**<2**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
S2	14/08/2020	**3**	<0.3	**1.6**	**<0.5**	**<1**	**<0.5**	**<2**	<0.05	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.1	<0.3
Statistical Summary																			
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	3	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	3	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	3	-	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	PAH						OCP														OPP	PCB
	Naphthalene	Benzo(a)pyrene	Carcinogenic PAHs, BaP TEQ <LOR=0	Carcinogenic PAHs, BaP TEQ <LOR=LOR	Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	Total PAH	Aldrin	o,p'-DDE	o,p'-DDD	o,p'-DDT	Gamma Chlordane	Alpha Chlordane	Dieldrin	Alpha Endosulfan	Beta Endosulfan	Benzene	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Toxaphene	Chlorpyrifos (Chlorpyrifos Ethyl)	Total PCBs (Arochlors)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	0.1	0.1	0.2	0.3	0.2	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	1	0.2	1
EILs (NEPM 2013)	170									180												
ESLs - Coarse/Fine (NEPM 2013)		0.7																				
HIL A (NEPM 2013)			3	3	3	300	6	240	240	240	50	50	6	270	270	10	6	10	300	20	160	1
HSL A - Direct Contact (CRC Care 2011)	**1,400**																					
Sample ID	**Sampled Date**																					
S1	14/08/2020	<0.1	<0.1	<0.2	<0.3	<0.2	<0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
S2	14/08/2020	<0.1	<0.1	<0.2	<0.3	<0.2	<0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<1	<0.2	<1
Statistical Summary																						
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Detect	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Detect	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Concentration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	SPOCAS				
	pH-KCL	pH-OX	Titratable Peroxide Acidity (TPA)	Titratable Sulfidic Acidity (TSA)	Peroxide Oxidisable Sulphur (Spos)
	pH	pH	mol H^+ / t	mol H^+ / t	% w/w
Limit of Reporting	-	-	5	5	0.005
ASS Manual Action Criteria					
Coarse Texture (sands to loamy sands)	4.5	3.5	18	18	0.03
Medium Texture (sandy loams to light clays)	4.5	3.5	36	36	0.06
Fine texture (medium to heavy clays and silty clays)	4.5	3.5	62	62	0.1

Sample ID	Sampled Date					
S1/2 Comp	14/8/2020	9.7	7.3	<5	<5	<0.005

Statistical Summary					
Number of Results	1	1	1	1	1
Number of Detects	0	0	0	0	0
Minimum Detect	9.7	7.3	0	0	0
Maximum Detect	9.7	7.3	0	0	0
Average Concentration	-	-	-	-	-
Number of Guideline Exceedances	0	0	0	0	0

Note:

ASS Manual Action Criteria based on >1000t of soil disturbed.



Annex B

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Jake Duck	Manager	Huong Crawford
Client	VALLEY CIVILAB PTY LTD	Laboratory	SGS Alexandria Environmental
Address	PO BOX 3127 THORNTON NSW 2322	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 4966 1844	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	jake.duck@huntercivilab.com.au	Email	au.environmental.sydney@sgs.com
Project	**P20171 (Anna Bay)**	SGS Reference	**SE210133 R0**
Order Number	**1065**	Date Received	19 Aug 2020
Samples	3	Date Reported	26 Aug 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SPOCAS subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146. CE147872

SIGNATORIES

Bennet LO
Senior Organic Chemist/Metals Chemis

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Parameter	Units	LOR	Sample Number: SE210133.001 Sample Matrix: Soil Sample Date: 14 Aug 2020 Sample Name: S1	SE210133.002 Soil 14 Aug 2020 S2	SE210133.003 Soil 14 Aug 2020 S1/2 Comp
VOC's in Soil Method: AN433 Tested: 21/8/2020					
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	-
Polycyclic VOCs					
Naphthalene	mg/kg	0.1	<0.1	<0.1	-
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**98**	**98**	-
d8-toluene (Surrogate)	%	-	**96**	**95**	-
Bromofluorobenzene (Surrogate)	%	-	**83**	**83**	-
Totals					
Total Xylenes	mg/kg	0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433 Tested: 21/8/2020					
TRH C6-C10	mg/kg	25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	-
Surrogates					
d4-1,2-dichloroethane (Surrogate)	%	-	**98**	**98**	-
d8-toluene (Surrogate)	%	-	**96**	**95**	-
Bromofluorobenzene (Surrogate)	%	-	**83**	**83**	-
VPH F Bands					
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-

Parameter	Units	LOR	Sample Number: SE210133.001 Sample Matrix: Soil Sample Date: 14 Aug 2020 Sample Name: S1	SE210133.002 Soil 14 Aug 2020 S2	SE210133.003 Soil 14 Aug 2020 S1/2 Comp
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403 Tested: 21/8/2020					
TRH C10-C14	mg/kg	20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-
TRH F Bands					
TRH >C10-C16	mg/kg	25	<25	<25	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 Tested: 21/8/2020					
Naphthalene	mg/kg	0.1	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Pyrene	mg/kg	0.1	<0.1	<0.1	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-
Chrysene	mg/kg	0.1	<0.1	<0.1	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	-
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	-
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	-
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	**88**	**97**	-
2-fluorobiphenyl (Surrogate)	%	-	**88**	**96**	-
d14-p-terphenyl (Surrogate)	%	-	**91**	**95**	-
OC Pesticides in Soil Method: AN420 Tested: 21/8/2020					
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
Alpha BHC	mg/kg	0.1	<0.1	-	-
Lindane	mg/kg	0.1	<0.1	-	-
Heptachlor	mg/kg	0.1	<0.1	-	-
Aldrin	mg/kg	0.1	<0.1	-	-
Beta BHC	mg/kg	0.1	<0.1	-	-
Delta BHC	mg/kg	0.1	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
o,p'-DDE	mg/kg	0.1	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	-
p,p'-DDE	mg/kg	0.1	<0.1	-	-
Dieldrin	mg/kg	0.2	<0.2	-	-

Parameter	Units	LOR	Sample Number: SE210133.001 Sample Matrix: Soil Sample Date: 14 Aug 2020 Sample Name: S1	SE210133.002 Soil 14 Aug 2020 S2	SE210133.003 Soil 14 Aug 2020 S1/2 Comp
OC Pesticides in Soil Method: AN420 Tested: 26/8/2020 (continued)					
Endrin	mg/kg	0.2	<0.2	-	-
o,p'-DDD	mg/kg	0.1	<0.1	-	-
o,p'-DDT	mg/kg	0.1	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	-
p,p'-DDD	mg/kg	0.1	<0.1	-	-
p,p'-DDT	mg/kg	0.1	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
Methoxychlor	mg/kg	0.1	<0.1	-	-
Endrin Ketone	mg/kg	0.1	<0.1	-	-
Isodrin	mg/kg	0.1	<0.1	-	-
Mirex	mg/kg	0.1	<0.1	-	-
Total CLP OC Pesticides	mg/kg	1	<1	-	-
Surrogates					
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**104**	-	-
OP Pesticides in Soil Method: AN420 Tested: 21/8/2020					
Dichlorvos	mg/kg	0.5	<0.5	-	-
Dimethoate	mg/kg	0.5	<0.5	-	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	-
Fenitrothion	mg/kg	0.2	<0.2	-	-
Malathion	mg/kg	0.2	<0.2	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
Methidathion	mg/kg	0.5	<0.5	-	-
Ethion	mg/kg	0.2	<0.2	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-
Total OP Pesticides*	mg/kg	1.7	<1.7	-	-
Surrogates					
2-fluorobiphenyl (Surrogate)	%	-	**88**	-	-
d14-p-terphenyl (Surrogate)	%	-	**91**	-	-
PCBs in Soil Method: AN420 Tested: 21/8/2020					
Arochlor 1016	mg/kg	0.2	<0.2	-	-
Arochlor 1221	mg/kg	0.2	<0.2	-	-
Arochlor 1232	mg/kg	0.2	<0.2	-	-
Arochlor 1242	mg/kg	0.2	<0.2	-	-
Arochlor 1248	mg/kg	0.2	<0.2	-	-
Arochlor 1254	mg/kg	0.2	<0.2	-	-
Arochlor 1260	mg/kg	0.2	<0.2	-	-
Arochlor 1262	mg/kg	0.2	<0.2	-	-
Arochlor 1268	mg/kg	0.2	<0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE210133.001 Soil 14 Aug 2020 S1	SE210133.002 Soil 14 Aug 2020 S2	SE210133.003 Soil 14 Aug 2020 S1/2 Comp
PCBs in Soil Method: AN420 Tested: 21/8/2020 (continued)						
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		**104**	-	-
Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: AN040/AN320 Tested: 24/8/2020						
Arsenic, As	mg/kg	1		**3**	**3**	-
Cadmium, Cd	mg/kg	0.3		<0.3	<0.3	-
Chromium, Cr	mg/kg	0.5		**1.6**	**1.6**	-
Copper, Cu	mg/kg	0.5		<0.5	<0.5	-
Nickel, Ni	mg/kg	0.5		<0.5	<0.5	-
Lead, Pb	mg/kg	1		<1	<1	-
Zinc, Zn	mg/kg	2		<2.0	<2.0	-
Mercury in Soil Method: AN312 Tested: 24/8/2020						
Mercury	mg/kg	0.05		<0.05	<0.05	-
Moisture Content Method: AN002 Tested: 21/8/2020						
% Moisture	%w/w	1		**2.0**	**1.1**	-
TAA (Titratable Actual Acidity) Method: AN219 Tested: 26/8/2020						
pH KCl*	pH Units	-		-	-	**9.7**
Titratable Actual Acidity	kg H2SO4/T	0.25		-	-	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		-	-	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		-	-	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	<0.005
Calcium (CaKCl)	%w/w	0.005		-	-	**0.078**
Magnesium (MgKCl)	%w/w	0.005		-	-	<0.005
TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 26/8/2020						
Peroxide pH (pH Ox)	pH Units	-		-	-	**7.3**
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25		-	-	<0.25
TPA as moles H+/tonne	moles H+/T	5		-	-	<5
TPA as S % W/W	%w/w S	0.01		-	-	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5		-	-	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25		-	-	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01		-	-	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01		-	-	**0.55**
ANCE as moles H+/tonne	moles H+/T	5		-	-	**110**
ANCE as S % W/W	%w/w S	0.01		-	-	**0.18**
Peroxide Oxidisable Sulphur (Spos)*	%w/w	0.005		-	-	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne*	moles H+/T	5		-	-	<5
Sulphur (Sp)	%w/w	0.005		-	-	<0.005
Calcium (Cap)	%w/w	0.005		-	-	**0.29**
Reacted Calcium (CaA)*	%w/w	0.005		-	-	**0.21**
Reacted Calcium (CaA)*	moles H+/T	5		-	-	**110**
Magnesium (Mgp)	%w/w	0.005		-	-	<0.005
Reacted Magnesium (MgA)*	%w/w	0.005		-	-	<0.005
Reacted Magnesium (MgA)*	moles H+/T	5		-	-	<5
Net Acid Soluble Sulphur as % w/w*	%w/w	0.005		-	-	-
Net Acid Soluble Sulphur as moles H+/tonne*	moles H+/T	5		-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE210133.001 Soil 14 Aug 2020 S1	SE210133.002 Soil 14 Aug 2020 S2	SE210133.003 Soil 14 Aug 2020 S1/2 Comp
SPOCAS Net Acidity Calculations **Method: AN220** **Tested: 26/8/2020**						
s-Net Acidity	%w/w S	0.005		-	-	<0.005
a-Net Acidity	moles H+/T	5		-	-	<5
Liming Rate*	kg CaCO3/T	0.1		-	-	<0.1
Verification s-Net Acidity*	%w/w S	-20		-	-	**-0.12**
a-Net Acidity without ANCE*	moles H+/T	5		-	-	<5
Liming Rate without ANCE*	kg CaCO3/T	0.1		-	-	<0.1

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB207338	mg/kg	0.05	<0.05	1 - 10%	97%	92%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB207302	%w/w	1	1 - 5%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Hexachlorobenzene (HCB)	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Alpha BHC	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Lindane	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Heptachlor	LB207292	mg/kg	0.1	<0.1	0%	117%	120%
Aldrin	LB207292	mg/kg	0.1	<0.1	0%	110%	111%
Beta BHC	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Delta BHC	LB207292	mg/kg	0.1	<0.1	0%	106%	108%
Heptachlor epoxide	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDE	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Endosulfan	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Gamma Chlordane	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Alpha Chlordane	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
trans-Nonachlor	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDE	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Dieldrin	LB207292	mg/kg	0.2	<0.2	0%	116%	119%
Endrin	LB207292	mg/kg	0.2	<0.2	0%	119%	120%
o,p'-DDD	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
o,p'-DDT	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Beta Endosulfan	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
p,p'-DDD	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
p,p'-DDT	LB207292	mg/kg	0.1	<0.1	0%	101%	101%
Endosulfan sulphate	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Aldehyde	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Methoxychlor	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Endrin Ketone	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Isodrin	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Mirex	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Total CLP OC Pesticides	LB207292	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB207292	%	-	108%	4%	104%	109%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dichlorvos	LB207292	mg/kg	0.5	<0.5	0%	75%
Dimethoate	LB207292	mg/kg	0.5	<0.5	0%	NA
Diazinon (Dimpylate)	LB207292	mg/kg	0.5	<0.5	0%	87%
Fenitrothion	LB207292	mg/kg	0.2	<0.2	0%	NA
Malathion	LB207292	mg/kg	0.2	<0.2	0%	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB207292	mg/kg	0.2	<0.2	0%	94%
Parathion-ethyl (Parathion)	LB207292	mg/kg	0.2	<0.2	0%	NA
Bromophos Ethyl	LB207292	mg/kg	0.2	<0.2	0%	NA
Methidathion	LB207292	mg/kg	0.5	<0.5	0%	NA
Ethion	LB207292	mg/kg	0.2	<0.2	0%	82%
Azinphos-methyl (Guthion)	LB207292	mg/kg	0.2	<0.2	0%	NA
Total OP Pesticides*	LB207292	mg/kg	1.7	<1.7	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
2-fluorobiphenyl (Surrogate)	LB207292	%	-	100%	1%	84%
d14-p-terphenyl (Surrogate)	LB207292	%	-	102%	3%	86%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB207292	mg/kg	0.1	<0.1	0%	111%	111%
2-methylnaphthalene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
1-methylnaphthalene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Acenaphthylene	LB207292	mg/kg	0.1	<0.1	0%	112%	113%
Acenaphthene	LB207292	mg/kg	0.1	<0.1	0%	115%	115%
Fluorene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Phenanthrene	LB207292	mg/kg	0.1	<0.1	0%	119%	118%
Anthracene	LB207292	mg/kg	0.1	<0.1	0%	115%	114%
Fluoranthene	LB207292	mg/kg	0.1	<0.1	0%	118%	115%
Pyrene	LB207292	mg/kg	0.1	<0.1	0%	119%	120%
Benzo(a)anthracene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Chrysene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(b&j)fluoranthene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(k)fluoranthene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(a)pyrene	LB207292	mg/kg	0.1	<0.1	0%	114%	126%
Indeno(1,2,3-cd)pyrene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Dibenzo(ah)anthracene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Benzo(ghi)perylene	LB207292	mg/kg	0.1	<0.1	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=0	LB207292	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR	LB207292	TEQ (mg/kg)	0.3	<0.3	0%	NA	NA
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	LB207292	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA
Total PAH (18)	LB207292	mg/kg	0.8	<0.8	0%	NA	NA
Total PAH (NEPM/WHO 16)	LB207292	mg/kg	0.8	<0.8			

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d5-nitrobenzene (Surrogate)	LB207292	%	-	96%	2 - 3%	83%	84%
2-fluorobiphenyl (Surrogate)	LB207292	%	-	100%	1 - 2%	84%	89%
d14-p-terphenyl (Surrogate)	LB207292	%	-	102%	3 - 4%	86%	86%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arochlor 1016	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1221	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1232	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1242	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1248	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1254	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1260	LB207292	mg/kg	0.2	<0.2	0%	88%	86%
Arochlor 1262	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Arochlor 1268	LB207292	mg/kg	0.2	<0.2	0%	NA	NA
Total PCBs (Arochlors)	LB207292	mg/kg	1	<1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB207292	%	-	108%	6%	109%	101%

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB207336	mg/kg	1	<1	2 - 4%	103%	98%
Cadmium, Cd	LB207336	mg/kg	0.3	<0.3	0 - 3%	118%	85%
Chromium, Cr	LB207336	mg/kg	0.5	<0.5	2 - 10%	100%	100%
Copper, Cu	LB207336	mg/kg	0.5	<0.5	5 - 7%	100%	97%
Nickel, Ni	LB207336	mg/kg	0.5	<0.5	3 - 20%	97%	98%
Lead, Pb	LB207336	mg/kg	1	<1	5 - 10%	101%	98%
Zinc, Zn	LB207336	mg/kg	2	<2.0	3 - 10%	99%	99%

TRH (Total Recoverable Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C10-C14	LB207292	mg/kg	20	<20	0%	93%	85%
TRH C15-C28	LB207292	mg/kg	45	<45	0%	78%	68%
TRH C29-C36	LB207292	mg/kg	45	<45	0%	75%	63%
TRH C37-C40	LB207292	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB207292	mg/kg	110	<110	0%	NA	NA
TRH >C10-C40 Total (F bands)	LB207292	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH >C10-C16	LB207292	mg/kg	25	<25	0%	88%	85%
TRH >C10-C16 - Naphthalene (F2)	LB207292	mg/kg	25	<25	0%	NA	NA
TRH >C16-C34 (F3)	LB207292	mg/kg	90	<90	0%	75%	65%
TRH >C34-C40 (F4)	LB207292	mg/kg	120	<120	0%	80%	NA

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB207289	mg/kg	0.1	<0.1	0%	84%	84%
Toluene	LB207289	mg/kg	0.1	<0.1	0%	87%	88%
Ethylbenzene	LB207289	mg/kg	0.1	<0.1	0%	86%	85%
m/p-xylene	LB207289	mg/kg	0.2	<0.2	0%	83%	84%
o-xylene	LB207289	mg/kg	0.1	<0.1	0%	82%	83%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB207289	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB207289	%	-	92%	2 - 8%	99%	96%
d8-toluene (Surrogate)	LB207289	%	-	86%	2 - 10%	88%	84%
Bromofluorobenzene (Surrogate)	LB207289	%	-	79%	2 - 9%	80%	79%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes	LB207289	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX	LB207289	mg/kg	0.6	<0.6	0%	NA	NA

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB207289	mg/kg	25	<25	0%	94%	95%
TRH C6-C9	LB207289	mg/kg	20	<20	0%	91%	92%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
d4-1,2-dichloroethane (Surrogate)	LB207289	%	-	92%	2 - 8%	99%	96%
d8-toluene (Surrogate)	LB207289	%	-	86%	2 - 10%	88%	84%
Bromofluorobenzene (Surrogate)	LB207289	%	-	79%	2 - 9%	80%	79%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB207289	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB207289	mg/kg	25	<25	0%	99%	100%

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN218	Soil samples are subjected to extreme oxidising conditions using hydrogen peroxide. Continuous application of heat and peroxide ensure all sulfide is converted to sulfuric acid. Excess peroxide is broken down by a copper catalyst prior to titration for acidity. Calcium, magnesium, and sulfur are determined by ICP-OES. Also included is a carbonate modification step which, depending on pH after the initial oxidation, gives a measure of ANC.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	SPOCAS Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
***	Indicative data, theoretical holding time exceeded and NATA accreditation does not cover the performance of this service.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**P20171 (Anna Bay)**
Order Number	**SE210133**
Samples	3

LABORATORY DETAILS

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SGS Reference	**CE147872 R0**
Date Received	19 Aug 2020
Date Reported	26 Aug 2020

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(3146/19038)

SIGNATORIES

Anthony NILSSON
Operations Manager

Jon DICKER
Manager Northern QLD

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	CE147872.001 Soil 14 Aug 2020 SE210133.001	CE147872.002 Soil 14 Aug 2020 SE210133.002	CE147872.003 Soil 14 Aug 2020 SE210133.003
Moisture Content Method: AN002 Tested: 25/8/2020						
% Moisture	%w/w	0.5		-	-	**1.5**
TAA (Titratable Actual Acidity) Method: AN219 Tested: 26/8/2020						
pH KCl	pH Units	-		-	-	**9.7**
Titratable Actual Acidity	kg H2SO4/T	0.25		-	-	<0.25
Titratable Actual Acidity (TAA) moles H+/tonne	moles H+/T	5		-	-	<5
Titratable Actual Acidity (TAA) S%w/w	%w/w S	0.01		-	-	<0.01
Sulphur (SKCl)	%w/w	0.005		-	-	<0.005
Calcium (CaKCl)	%w/w	0.005		-	-	**0.078**
Magnesium (MgKCl)	%w/w	0.005		-	-	<0.005
TPA (Titratable Peroxide Acidity) Method: AN218 Tested: 26/8/2020						
Peroxide pH (pH Ox)	pH Units	-		-	-	**7.3**
TPA as kg H_2SO_4/tonne	kg H2SO4/T	0.25		-	-	<0.25
TPA as moles H+/tonne	moles H+/T	5		-	-	<5
TPA as S % W/W	%w/w S	0.01		-	-	<0.01
Titratable Sulfidic Acidity as moles H+/tonne	moles H+/T	5		-	-	<5
Titratable Sulfidic Acidity as kg H_2SO_4/tonne	kg H2SO4/T	0.25		-	-	<0.25
Titratable Sulfidic Acidity as S % W/W	%w/w S	0.01		-	-	<0.01
ANCE as % $CaCO_3$	% CaCO3	0.01		-	-	**0.55**
ANCE as moles H+/tonne	moles H+/T	5		-	-	**110**
ANCE as S % W/W	%w/w S	0.01		-	-	**0.18**
Peroxide Oxidisable Sulphur (Spos)	%w/w	0.005		-	-	<0.005
Peroxide Oxidisable Sulphur as moles H+/tonne	moles H+/T	5		-	-	<5
Sulphur (Sp)	%w/w	0.005		-	-	<0.005
Calcium (Cap)	%w/w	0.005		-	-	**0.29**
Reacted Calcium (CaA)	%w/w	0.005		-	-	**0.21**
Reacted Calcium (CaA)	moles H+/T	5		-	-	**110**
Magnesium (Mgp)	%w/w	0.005		-	-	<0.005
Reacted Magnesium (MgA)	%w/w	0.005		-	-	<0.005
Reacted Magnesium (MgA)	moles H+/T	5		-	-	<5
Net Acid Soluble Sulphur as % w/w	%w/w	0.005		-	-	-
Net Acid Soluble Sulphur as moles H+/tonne	moles H+/T	5		-	-	-
SPOCAS Net Acidity Calculations Method: AN220 Tested: 26/8/2020						
s-Net Acidity	%w/w S	0.005		-	-	<0.005
a-Net Acidity	moles H+/T	5		-	-	<5
Liming Rate	kg CaCO3/T	0.1		-	-	<0.1
Verification s-Net Acidity	%w/w S	-20		-	-	**-0.12**
a-Net Acidity without ANCE	moles H+/T	5		-	-	<5
Liming Rate without ANCE	kg CaCO3/T	0.1		-	-	<0.1

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TAA (Titratable Actual Acidity) **Method: ME-(AU)-[ENV]AN219**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH KCl	LB081724	pH Units	-	5.8	0%	98%
Titratable Actual Acidity	LB081724	kg H2SO4/T	0.25	<0.25	0%	NA
Titratable Actual Acidity (TAA) moles H+/tonne	LB081724	moles H+/T	5	<5	0%	92%
Titratable Actual Acidity (TAA) S%w/w	LB081724	%w/w S	0.01	<0.01	0%	92%
Sulphur (SKCl)	LB081724	%w/w	0.005	<0.005	0%	88%
Calcium (CaKCl)	LB081724	%w/w	0.005	<0.005	0 - 3%	102%
Magnesium (MgKCl)	LB081724	%w/w	0.005	<0.005	0%	99%

TPA (Titratable Peroxide Acidity) **Method: ME-(AU)-[ENV]AN218**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Peroxide pH (pH Ox)	LB081725	pH Units	-	6.3	0%	96%
TPA as kg H_2SO_4/tonne	LB081725	kg H2SO4/T	0.25	1.2	0%	102%
TPA as moles H+/tonne	LB081725	moles H+/T	5	25	0%	102%
TPA as S % W/W	LB081725	%w/w S	0.01	0.04	0%	102%
ANCE as % $CaCO_3$	LB081725	% CaCO3	0.01	<0.01	0%	
ANCE as moles H+/tonne	LB081725	moles H+/T	5	<5	0%	
ANCE as S % W/W	LB081725	%w/w S	0.01	<0.01	0%	
Sulphur (Sp)	LB081725	%w/w	0.005	<0.005	0 - 3%	88%
Calcium (Cap)	LB081725	%w/w	0.005	<0.005	2 - 3%	102%
Magnesium (Mgp)	LB081725	%w/w	0.005	<0.005	0 - 7%	97%

METHOD SUMMARY

CE147872 R0

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN218	Soil samples are subjected to extreme oxidising conditions using hydrogen peroxide. Continuous application of heat and peroxide ensure all sulfide is converted to sulfuric acid. Excess peroxide is broken down by a copper catalyst prior to titration for acidity. Calcium, magnesium, and sulfur are determined by ICP-OES. Also included is a carbonate modification step which, depending on pH after the initial oxidation, gives a measure of ANC.
AN219	Dried pulped sample is extracted for 4 hours in a 1 M KCl solution. The ratio of sample to solution is 1:40. The extract is titrated for acidity. Calcium, magnesium, and sulfur are determined by ICP-AES.
AN220	SPOCAS Suite: Scheme for the calculation of net acidities and liming rates using a Fineness Factor of 1.5.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
***	Indicative data, theoretical holding time exceeded and NATA accreditation does not cover the performance of this service.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Hunter Civilab	Project Name/No:	P20171 (Anna Bay)
Address:	3/62 Sandringham Avenue Thornton 2322	Purchase Order No:	1065
		Results Required By:	5 day
		Telephone:	0499 151 225 / 0499 160 449
Contact Name:	Malcolm Adrien	Facsimile:	
		Email Results:	malcolm.adrien@huntercivilab.com.au; jake.duck@huntercivilab.com.au;

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL17	CL10	SPOCAS
S1	14/8	1		X		1	X		
S2	↓	2		X		1		X	
S1/2 Comp	↓	3		X		1			X

SGS EHS Sydney COC
SE210133

Relinquished By:	Date/Time: 18/8	Received By: B. Duhy	Date/Time 19/08/20 @ 11 ~
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

		Asbestos	TRH				BTEX					PAH							
		Estimated Fibres	C6 - C10 Fraction minus BTEX (F1)	TRH >C10-C16 less Naphthalene (F2) - (Silica Gel Clean-Up)	C16 - C34 Fraction - (Silica Gel Clean-Up)	C34 - C40 Fraction - (Silica Gel Clean-Up)	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	Benzo(a) pyrene	Chrysene	Fluoranthene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	PAHs (Sum of positives)
		%w/w	mg/kg	mg/kg	µg/L	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.001	20	25	90	100	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.8
NEPM 2013 Table 1B(5) Generic/calculated EIL - Urban Res & Public Open Space											170								
NEPM 2013 Table 1A(1) HILs Res A Soil																		300	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m			45	110			0.5	160	55	40	3								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil >=0m, <2m			180	120	1300	5600	65	105	125	45		0.7							
Field ID	**Date**																		
H1 QUAL_SOIL_01	**27/05/2022**	<0.001	<25	<25	220	140	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.8
H1 QUAL_SOIL_02	**27/05/2022**	<0.001	<25	32	240	130	<0.1	<0.1	<0.1	<0.3	<0.1	0.1	0.1	0.2	0.1	0.1	0.2	1.2	1.2
H1 QUAL_SOIL_03	**27/05/2022**	<0.001	<25	52	500	230	<0.1	<0.1	<0.1	<0.3	<0.1	0.1	<0.1	0.2	<0.1	0.1	0.2	0.8	0.8

	Metals								OCP	OPP	PCB
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	DDT	Chlorpyrifos	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	0.3	0.5	0.5	1	0.05	0.5	2	0.05	0.2	0.1
NEPM 2013 Table 1B(5) Generic/calculated EIL - Urban Res & Public Open Space	100		190	190	1,100		1,100	400	180		
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20		6,000	300	40	400	7,400		160	1
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil >=0m, <2m											
Field ID	**Date**										
H1 QUAL_SOIL_01	**27/05/2022**	6	<0.3	11	33	16	<0.05	5.6	84	<0.1	<0.2	<1
H1 QUAL_SOIL_02	**27/05/2022**	6	<0.3	20	30	17	<0.05	6.8	82	<0.1	<0.2	<1
H1 QUAL_SOIL_03	**27/05/2022**	6	<0.3	9.7	32	16	<0.05	4.5	97	<0.1	<0.2	<1

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27/5/2022
Date Reported	31/5/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Huong CRAWFORD
Production Manager

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008	TS01_270522 SOIL - 27/5/2022 SE232521.009
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[98%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[99%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[96%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[96%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[97%]
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
TRH C10-C14	mg/kg	20	-	-	-	<20	<20
TRH C15-C28	mg/kg	45	-	-	-	<45	<45
TRH C29-C36	mg/kg	45	-	-	-	<45	<45
TRH C37-C40	mg/kg	100	-	-	-	<100	<100
TRH >C10-C16	mg/kg	25	-	-	-	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	-	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	-	-	-	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	-	-	-	<120	<120
TRH C10-C36 Total	mg/kg	110	-	-	-	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	-	<210	<210

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008	TS01_270522 SOIL - 27/5/2022 SE232521.009
TRH C10-C14	mg/kg	20	<20	<20	-	-
TRH C15-C28	mg/kg	45	<45	<45	-	-
TRH C29-C36	mg/kg	45	<45	<45	-	-
TRH C37-C40	mg/kg	100	<100	<100	-	-
TRH >C10-C16	mg/kg	25	<25	<25	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	-	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil [AN403] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003
TRH C10-C14-Silica	mg/kg	20	<20	<20	**32**
TRH C15-C28-Silica	mg/kg	45	**88**	**110**	**250**
TRH C29-C36-Silica	mg/kg	45	**280**	**270**	**510**
TRH C37-C40-Silica	mg/kg	100	<100	<100	<100
TRH >C10-C16-Silica	mg/kg	25	<25	**32**	**52**
TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25	**32**	**52**
TRH >C16-C34-Silica (F3)	mg/kg	90	**220**	**240**	**500**
TRH >C34-C40-Silica (F4)	mg/kg	120	**140**	**130**	**230**
TRH C10-C36-Silica	mg/kg	110	**370**	**380**	**790**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.2**	**0.2**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**1.2**	**0.8**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**1.2**	**0.8**	<0.8	<0.8

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 27/5/2022 (continued)

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Arsenic, As	mg/kg	1	**6**	**6**	**6**	**4**	**4**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**11**	**20**	**9.7**	**1.7**	**1.7**
Copper, Cu	mg/kg	0.5	**33**	**30**	**32**	<0.5	<0.5
Lead, Pb	mg/kg	1	**16**	**17**	**16**	<1	<1
Nickel, Ni	mg/kg	0.5	**5.6**	**6.8**	**4.5**	<0.5	<0.5
Zinc, Zn	mg/kg	2	**84**	**82**	**97**	<2.0	<2.0

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Arsenic, As	mg/kg	1	**4**	**4**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**1.7**	**1.6**
Copper, Cu	mg/kg	0.5	<0.5	<0.5
Lead, Pb	mg/kg	1	<1	<1
Nickel, Ni	mg/kg	0.5	<0.5	<0.5
Zinc, Zn	mg/kg	2	<2.0	<2.0

Mercury in Soil [AN312] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
% Moisture	%w/w	1	**46.2**	**38.3**	**40.9**	**3.8**	**4.4**

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008
% Moisture	%w/w	1	**3.3**	**4.0**	<1.0

Fibre Identification in soil [AN602] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Total Sample Weight*	g	1	**343**	**336**	**359**	**463**	**421**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Total Sample Weight*	g	1	**472**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

VOCs in Water [AN433] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene (VOC)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	<1

OC Pesticides in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Alpha BHC	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
Beta BHC	µg/L	0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1
Delta BHC	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Aldrin	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1
Isodrin	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1
Total OC	µg/L	1	<1
Total OC	µg/L	1	<1

OP Pesticides in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Dichlorvos	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2
Malathion	µg/L	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Ethion	µg/L	0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2

PCBs in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Arochlor 1016	µg/L	1	<1
Arochlor 1221	µg/L	1	<1
Arochlor 1232	µg/L	1	<1
Arochlor 1242	µg/L	1	<1
Arochlor 1248	µg/L	1	<1
Arochlor 1254	µg/L	1	<1
Arochlor 1260	µg/L	1	<1
Arochlor 1262	µg/L	1	<1
Arochlor 1268	µg/L	1	<1
Total Arochlors*	µg/L	5	<5

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	6

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27 May 2022
Date Reported	31 May 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE232521.001	H1 QUAL_SOIL_01	Soil	343g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.002	H1 QUAL_SOIL_02	Soil	336g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.003	H1 QUAL_SOIL_03	Soil	359g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.004	ANL_SAND_01	Soil	463g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE232521.005	ANL_SAND_02	Soil	421g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE232521.006	ANL_SAND_03	Soil	472g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Total Sample Weight*	g	1	**343**	**336**	**359**	**463**	**421**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Total Sample Weight*	g	1	**472**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE232521 R0

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
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Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27 May 2022
Date Reported	31 May 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil	1 item
Matrix Spike	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	4 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	9 Soil, 1 Water
Date documentation received	27/5/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_01	SE232521.004	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_02	SE232521.005	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_03	SE232521.006	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249666	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
QA01_270522	SE232521.007	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249672	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TS01_270522	SE232521.009	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249663	27 May 2022	27 May 2022	10 Jun 2022	30 May 2022	10 Jun 2022	31 May 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TS01_270522	SE232521.009	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249663	27 May 2022	27 May 2022	10 Jun 2022	30 May 2022	10 Jun 2022	31 May 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	116
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	117
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	113
	ANL_SAND_01	SE232521.004	%	60 - 130%	108
	ANL_SAND_02	SE232521.005	%	60 - 130%	106
	ANL_SAND_03	SE232521.006	%	60 - 130%	101
	QA01_270522	SE232521.007	%	60 - 130%	109

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	75

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	97
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	98
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	95
	ANL_SAND_01	SE232521.004	%	60 - 130%	91
	ANL_SAND_02	SE232521.005	%	60 - 130%	87
	ANL_SAND_03	SE232521.006	%	60 - 130%	86
	QA01_270522	SE232521.007	%	60 - 130%	96
d14-p-terphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	100
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	99
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	98
	ANL_SAND_01	SE232521.004	%	60 - 130%	94
	ANL_SAND_02	SE232521.005	%	60 - 130%	89
	ANL_SAND_03	SE232521.006	%	60 - 130%	87
	QA01_270522	SE232521.007	%	60 - 130%	100

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	97
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	98
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	95
	ANL_SAND_01	SE232521.004	%	70 - 130%	91
	ANL_SAND_02	SE232521.005	%	70 - 130%	87
	ANL_SAND_03	SE232521.006	%	70 - 130%	86
	QA01_270522	SE232521.007	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	100
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	99
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	98
	ANL_SAND_01	SE232521.004	%	70 - 130%	94
	ANL_SAND_02	SE232521.005	%	70 - 130%	89
	ANL_SAND_03	SE232521.006	%	70 - 130%	87
	QA01_270522	SE232521.007	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	95
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	96
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	93
	ANL_SAND_01	SE232521.004	%	70 - 130%	90
	ANL_SAND_02	SE232521.005	%	70 - 130%	87
	ANL_SAND_03	SE232521.006	%	70 - 130%	84
	QA01_270522	SE232521.007	%	70 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	88
d5-nitrobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	66

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	116
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	117
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	113
	ANL_SAND_01	SE232521.004	%	60 - 130%	108
	ANL_SAND_02	SE232521.005	%	60 - 130%	106
	ANL_SAND_03	SE232521.006	%	60 - 130%	101
	QA01_270522	SE232521.007	%	60 - 130%	109

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	75

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	84
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	84
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	78
	ANL_SAND_01	SE232521.004	%	60 - 130%	99
	ANL_SAND_02	SE232521.005	%	60 - 130%	96
	ANL_SAND_03	SE232521.006	%	60 - 130%	94
	QA01_270522	SE232521.007	%	60 - 130%	89
	TB01_270522	SE232521.008	%	60 - 130%	95
	TS01_270522	SE232521.009	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	98
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	89
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	87
	ANL_SAND_01	SE232521.004	%	60 - 130%	111
	ANL_SAND_02	SE232521.005	%	60 - 130%	107
	ANL_SAND_03	SE232521.006	%	60 - 130%	106
	QA01_270522	SE232521.007	%	60 - 130%	101
	TB01_270522	SE232521.008	%	60 - 130%	112
	TS01_270522	SE232521.009	%	60 - 130%	110
d8-toluene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	92
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	83
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	80
	ANL_SAND_01	SE232521.004	%	60 - 130%	104
	ANL_SAND_02	SE232521.005	%	60 - 130%	100
	ANL_SAND_03	SE232521.006	%	60 - 130%	100
	QA01_270522	SE232521.007	%	60 - 130%	94
	TB01_270522	SE232521.008	%	60 - 130%	107
	TS01_270522	SE232521.009	%	60 - 130%	104

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	82
d8-toluene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	85

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	84
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	84
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	78
	ANL_SAND_01	SE232521.004	%	60 - 130%	99
	ANL_SAND_02	SE232521.005	%	60 - 130%	96
	ANL_SAND_03	SE232521.006	%	60 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA01_270522	SE232521.007	%	60 - 130%	89
	TB01_270522	SE232521.008	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	98
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	89
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	87
	ANL_SAND_01	SE232521.004	%	60 - 130%	111
	ANL_SAND_02	SE232521.005	%	60 - 130%	107
	ANL_SAND_03	SE232521.006	%	60 - 130%	106
	QA01_270522	SE232521.007	%	60 - 130%	101
	TB01_270522	SE232521.008	%	60 - 130%	112
d8-toluene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	92
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	83
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	80
	ANL_SAND_01	SE232521.004	%	60 - 130%	104
	ANL_SAND_02	SE232521.005	%	60 - 130%	100
	ANL_SAND_03	SE232521.006	%	60 - 130%	100
	QA01_270522	SE232521.007	%	60 - 130%	94
	TB01_270522	SE232521.008	%	60 - 130%	107

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	RB01_270522	SE232521.010	%	60 - 130%	82
d8-toluene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	85

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB249666.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB249735.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB249655.001	Alpha BHC	µg/L	0.1	<0.1
	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
	Beta BHC	µg/L	0.1	<0.1
	Lindane (gamma BHC)	µg/L	0.1	<0.1
	Delta BHC	µg/L	0.1	<0.1
	Heptachlor	µg/L	0.1	<0.1
	Aldrin	µg/L	0.1	<0.1
	Heptachlor epoxide	µg/L	0.1	<0.1
	Gamma Chlordane	µg/L	0.1	<0.1
	Alpha Chlordane	µg/L	0.1	<0.1
	Alpha Endosulfan	µg/L	0.1	<0.1
	p,p'-DDE	µg/L	0.1	<0.1
	Dieldrin	µg/L	0.1	<0.1
	Endrin	µg/L	0.1	<0.1
	Beta Endosulfan	µg/L	0.1	<0.1
	p,p'-DDD	µg/L	0.1	<0.1
	Endosulfan sulphate	µg/L	0.1	<0.1
	p,p'-DDT	µg/L	0.1	<0.1
	Endrin ketone	µg/L	0.1	<0.1
	Methoxychlor	µg/L	0.1	<0.1
	Endrin aldehyde	µg/L	0.1	<0.1
	Isodrin	µg/L	0.1	<0.1
	Mirex	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	55

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	92

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Dichlorvos	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Azinphos-methyl	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	89
		2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	92

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	60
		2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	84

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB249655.001	Arochlor 1016	µg/L	1	<1
	Arochlor 1221	µg/L	1	<1
	Arochlor 1232	µg/L	1	<1
	Arochlor 1242	µg/L	1	<1
	Arochlor 1248	µg/L	1	<1
	Arochlor 1254	µg/L	1	<1
	Arochlor 1260	µg/L	1	<1
	Arochlor 1262	µg/L	1	<1
	Arochlor 1268	µg/L	1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB249728.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB249672.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249638.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249655.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249637.001	TRH C10-C14-Silica	mg/kg	20	<20
	TRH C15-C28-Silica	mg/kg	45	<45
	TRH C29-C36-Silica	mg/kg	45	<45
	TRH C37-C40-Silica	mg/kg	100	<100
	TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25
	TRH >C16-C34-Silica (F3)	mg/kg	90	<90
	TRH >C34-C40-Silica (F4)	mg/kg	120	<120

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249641.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	118
		d8-toluene (Surrogate)	%	-	113
		Bromofluorobenzene (Surrogate)	%	-	101
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249663.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	102

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249641.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	118

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249663.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	102

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232462.010	LB249735.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE232521.007	LB249735.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249643.011	% Moisture	%w/w	1	70.2	68.9	31	2
SE232521.008	LB249643.021	% Moisture	%w/w	1	<1	<1	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	1
SE232521.007	LB249638.030		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.007	LB249638.030		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	30	7

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE232521.007	LB249638.028		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	1
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE232521.007	LB249638.028		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.008	LB249655.025		Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
			Fluorene	µg/L	0.1	<0.1	<0.1	200	0
			Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
			Anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.3	30	3
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.3	30	0
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.4	30	7

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1
SE232521.007	LB249638.030		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232462.010	LB249728.014	Arsenic, As	mg/kg	1	2	2	87	7
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	5.2	5.4	39	4
		Copper, Cu	mg/kg	0.5	31	33	32	4
		Nickel, Ni	mg/kg	0.5	8.6	8.9	36	4
		Lead, Pb	mg/kg	1	10	10	40	5
		Zinc, Zn	mg/kg	2	46	48	34	4
SE232521.007	LB249728.022	Arsenic, As	mg/kg	1	4	3	59	25
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	1.6	1.4	63	12
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
		Nickel, Ni	mg/kg	0.5	<0.5	<0.5	157	0
		Lead, Pb	mg/kg	1	<1	<1	200	0
		Zinc, Zn	mg/kg	2	<2	<2	165	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232476.007	LB249672.014	Copper, Cu	µg/L	1	7	6	31	2
		Zinc, Zn	µg/L	5	17	17	45	3
SE232508.008	LB249672.028	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	0.1	<0.1	111	10
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	2	2	67	4
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	8	8	28	1
		Zinc, Zn	µg/L	5	<5	<5	200	0
SE232521.010	LB249672.032	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE232521.007	LB249638.030		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.008	LB249655.025		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<320	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.003	LB249637.018	TRH C10-C14-Silica	mg/kg	20	32	24	101	29
		TRH C15-C28-Silica	mg/kg	45	250	130	54	59 ②
		TRH C29-C36-Silica	mg/kg	45	510	390	40	26
		TRH C37-C40-Silica	mg/kg	100	<100	<100	200	0
		TRH C10-C36-Silica	mg/kg	110	790	550	46	35
		TRH >C10-C16-Silica	mg/kg	25	52	35	87	39
		TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	52	35	87	39
		TRH >C16-C34-Silica (F3)	mg/kg	90	500	340	52	38
		TRH >C34-C40-Silica (F4)	mg/kg	120	230	170	89	29

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249641.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	8.5	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.7	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.4	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE232521.007	LB249641.026	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.007	LB249641.026	Monocyclic	o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	11.5	50	13
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.8	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	10.0	50	12
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.001	LB249663.027	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.3	9.4	30	1
			d8-toluene (Surrogate)	µg/L	-	9.5	9.3	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.5	10.5	30	1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249641.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	8.5	30	6
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.7	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.4	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE232521.007	LB249641.026		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	11.5	30	13
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.8	30	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	10.0	30	12
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232393.001	LB249663.026		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<50	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.2	9.0	30	9
			d8-toluene (Surrogate)	µg/L	-	8.5	9.2	30	8
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.2	30	3
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
SE232508.001	LB249663.027		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.3	9.4	30	1
			d8-toluene (Surrogate)	µg/L	-	9.5	9.3	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.5	10.5	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249735.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	116

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	82
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	81
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	81
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	82
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	99
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	93

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	97
		Heptachlor	µg/L	0.1	0.2	0.2	60 - 140	95
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	89
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	103
		Endrin	µg/L	0.1	0.2	0.2	60 - 140	118
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	113
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.09	0.15	40 - 130	58

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	91
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	95
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	98
		Ethion	mg/kg	0.2	1.7	2	60 - 140	85
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Dichlorvos	µg/L	0.5	6.4	8	60 - 140	80
		Diazinon (Dimpylate)	µg/L	0.5	7.9	8	60 - 140	99
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.0	8	60 - 140	100
		Ethion	µg/L	0.2	8.5	8	60 - 140	106
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	91
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	97
		Anthracene	mg/kg	0.1	3.6	4	60 - 140	90
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	96
		Benzo(a)pyrene	mg/kg	0.1	4.5	4	60 - 140	113
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002	Naphthalene	µg/L	0.1	30	40	60 - 140	75
	Acenaphthylene	µg/L	0.1	37	40	60 - 140	92
	Acenaphthene	µg/L	0.1	35	40	60 - 140	87
	Phenanthrene	µg/L	0.1	36	40	60 - 140	90
	Anthracene	µg/L	0.1	36	40	60 - 140	90
	Fluoranthene	µg/L	0.1	36	40	60 - 140	89

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Pyrene	µg/L	0.1	37	40	60 - 140	93
		Benzo(a)pyrene	µg/L	0.1	37	40	60 - 140	93
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	114

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002	Arochlor 1260	µg/L	1	<1	0.4	60 - 140	122

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249728.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	103
	Cadmium, Cd	mg/kg	0.3	3.9	4.81	70 - 130	81
	Chromium, Cr	mg/kg	0.5	34	38.31	80 - 120	90
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	106
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	97
	Zinc, Zn	mg/kg	2	270	273	80 - 120	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249672.002	Arsenic, As	µg/L	1	19	20	80 - 120	95
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	21	20	80 - 120	107
	Copper, Cu	µg/L	1	21	20	80 - 120	105
	Lead, Pb	µg/L	1	19	20	80 - 120	97
	Nickel, Ni	µg/L	1	21	20	80 - 120	106
	Zinc, Zn	µg/L	5	23	20	80 - 120	113

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		TRH C10-C14	mg/kg	20	44	40	60 - 140	110
		TRH C15-C28	mg/kg	45	52	40	60 - 140	130
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	103
	TRH F Bands	TRH >C10-C16	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	128
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	102
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	120
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	111
	TRH F Bands	TRH >C10-C16	µg/L	60	1300	1200	60 - 140	111
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	117
		TRH >C34-C40 (F4)	µg/L	500	670	600	60 - 140	111

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249637.002	TRH C10-C14-Silica	mg/kg	20	48	40	70 - 130	120
	TRH C15-C28-Silica	mg/kg	45	52	40	70 - 130	130
	TRH C29-C36-Silica	mg/kg	45	<45	40	70 - 130	105
	TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	48	40	70 - 130	120
	TRH >C16-C34-Silica (F3)	mg/kg	90	<90	40	70 - 130	128
	TRH >C34-C40-Silica (F4)	mg/kg	120	<120	20	70 - 130	120

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249641.002	Monocyclic	Benzene	mg/kg	0.1	4.7	5	60 - 140	93
	Aromatic	Toluene	mg/kg	0.1	4.6	5	60 - 140	92
		Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	95
		m/p-xylene	mg/kg	0.2	9.2	10	60 - 140	92
		o-xylene	mg/kg	0.1	5.0	5	60 - 140	100
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.4	10	70 - 130	124
		d8-toluene (Surrogate)	mg/kg	-	11.5	10	70 - 130	115
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	10	70 - 130	107

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249663.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	112
	Aromatic	Toluene	µg/L	0.5	48	45.45	60 - 140	105
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	100	90.9	60 - 140	110
		o-xylene	µg/L	0.5	50	45.45	60 - 140	110
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	10	60 - 140	75
		d8-toluene (Surrogate)	µg/L	-	7.9	10	70 - 130	79
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249641.002		TRH C6-C10	mg/kg	25	67	92.5	60 - 140	73
		TRH C6-C9	mg/kg	20	61	80	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.4	10	70 - 130	124
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	10	70 - 130	107
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	62.5	60 - 140	62

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249663.002		TRH C6-C10	µg/L	50	970	946.63	60 - 140	102
		TRH C6-C9	µg/L	40	830	818.71	60 - 140	102
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	10	60 - 140	75
		d8-toluene (Surrogate)	µg/L	-	7.9	10	70 - 130	79
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	670	639.67	60 - 140	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232490.001	LB249666.004	Mercury	mg/L	0.0001	0.0016	-0.012	0.008	80

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232462.001	LB249735.004	Mercury	mg/kg	0.05	0.25	<0.05	0.2	122

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0.05498977306	-	-
			Alpha BHC	mg/kg	0.1	<0.1	0.00174721525	-	-
			Lindane	mg/kg	0.1	<0.1	0.00823871473	-	-
			Heptachlor	mg/kg	0.1	0.2	0.00145113534	0.2	101
			Aldrin	mg/kg	0.1	0.2	0.00504796989	0.2	96
			Beta BHC	mg/kg	0.1	<0.1	0.00043596102	-	-
			Delta BHC	mg/kg	0.1	0.2	0.01442540278	0.2	100
			Heptachlor epoxide	mg/kg	0.1	<0.1	0.00516141779	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	0.04288792898	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	0.00834405445	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	0.03699035537	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	0.01187282056	-	-
			Dieldrin	mg/kg	0.2	0.2	0.06314531695	0.2	77
			Endrin	mg/kg	0.2	0.2	0.00720342911	0.2	104
			o,p'-DDD	mg/kg	0.1	<0.1	0.00014354575	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	0.03714849709	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	0.02711865477	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	0.03714849709	-	-
			p,p'-DDT	mg/kg	0.1	0.2	0	0.2	88
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	0.00324549957	-	-
			Methoxychlor	mg/kg	0.1	<0.1	0.02697857795	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	0.01314529605	-	-
			Isodrin	mg/kg	0.1	<0.1	0.08675944892	-	-
			Mirex	mg/kg	0.1	<0.1	0.02360449048	-	-
			Total CLP OC Pesticides	mg/kg	1	1	0	-	-
			Total OC VIC EPA	mg/kg	1	1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.17007263364	-	117

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Dichlorvos	mg/kg	0.5	2.2	0.01905346881	2	108
			Dimethoate	mg/kg	0.5	<0.5	0.05159585699	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.3	0.00884413380	2	116
			Fenitrothion	mg/kg	0.2	<0.2	0.00326095084	-	-
			Malathion	mg/kg	0.2	<0.2	0.01656834428	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.5	0	2	124
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.08783597368	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.00192265402	-	-
			Methidathion	mg/kg	0.5	<0.5	0	-	-
			Ethion	mg/kg	0.2	2.4	0	2	121
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.02758635168	-	-
			Total OP Pesticides*	mg/kg	1.7	9.4	0	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.46696474391	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47584319545	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Naphthalene	mg/kg	0.1	4.4	0.29080084873	4	104
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.08952378978	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.12240936886	-	-
			Acenaphthylene	mg/kg	0.1	4.3	0.56410890846	4	92
			Acenaphthene	mg/kg	0.1	3.9	0.28921667486	4	91
			Fluorene	mg/kg	0.1	0.1	0.64822210125	-	-
			Phenanthrene	mg/kg	0.1	6.1	6.97760428743	4	-23 ⑨
			Anthracene	mg/kg	0.1	4.4	1.15645030484	4	80
			Fluoranthene	mg/kg	0.1	7.5	10.3316611098	4	-70 ⑨
			Pyrene	mg/kg	0.1	7.9	10.6402162322	4	-69 ⑨
			Benzo(a)anthracene	mg/kg	0.1	1.9	4.25083298513	-	-
			Chrysene	mg/kg	0.1	1.8	4.07252179078	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	2.7	6.23242650597	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	1.0	2.54664211087	-	-
			Benzo(a)pyrene	mg/kg	0.1	6.9	5.73168464595	4	30 ⑨
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.7	4.21915517812	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	0.3	0.74884964365	-	-
			Benzo(ghi)perylene	mg/kg	0.1	1.7	4.36606364266	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	8.0	8.28991896027	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	8.0	8.28991896027	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	8.0	8.28991896027	-	-
			Total PAH (18)	mg/kg	0.8	57	33.1897977228	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.45832063651	-	98
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.46696474391	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47584319545	-	99

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Arochlor 1016	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1260	mg/kg	0.2	0.5	0	0.4	131
			Arochlor 1262	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	0	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.17007263364	-	117

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232462.001	LB249728.004	Arsenic, As	mg/kg	1	47	3	50	88
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	49	4.1	50	89
		Copper, Cu	mg/kg	0.5	71	27	50	88
		Nickel, Ni	mg/kg	0.5	51	7.9	50	86
		Lead, Pb	mg/kg	1	53	9	50	87
		Zinc, Zn	mg/kg	2	82	40	50	83

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232519.001	LB249672.030	Arsenic, As	µg/L	1	21	0.531	20	104
		Cadmium, Cd	µg/L	0.1	20	0.002	20	102
		Chromium, Cr	µg/L	1	22	1.215	20	103
		Copper, Cu	µg/L	1	22	2.163	20	100
		Lead, Pb	µg/L	1	19	0.134	20	93
		Nickel, Ni	µg/L	1	21	0.638	20	102
		Zinc, Zn	µg/L	5	32	10.888	20	106

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249641.004	Monocyclic	Benzene	mg/kg	0.1	3.4	0.00350918552	5	69
		Aromatic	Toluene	mg/kg	0.1	3.6	0.01166989335	5	72
			Ethylbenzene	mg/kg	0.1	3.4	0.00410665291	5	68
			m/p-xylene	mg/kg	0.2	6.5	0.00922659248	10	65
			o-xylene	mg/kg	0.1	3.5	0.00450208811	5	69
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	0.01546635469	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.05461179814	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.53100930871	10	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	7.70583900218	10	71
		Totals	Total Xylenes	mg/kg	0.3	10	0.01372868059	-	-
			Total BTEX	mg/kg	0.6	20	0	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE232519.001	LB249663.028	Monocyclic	Benzene	µg/L	0.5	0	45.45	118
		Aromatic	Toluene	µg/L	0.5	0.05674311538	45.45	118
			Ethylbenzene	µg/L	0.5	0.01003076044	45.45	113
			m/p-xylene	µg/L	1	0.03300504339	90.9	113
			o-xylene	µg/L	0.5	0.01445311868	45.45	114
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	0.03452030015	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.22653013426	-	97
			d8-toluene (Surrogate)	µg/L	-	8.44274309396	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	10.7492427645	-	104

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249641.004		TRH C6-C10	mg/kg	25	65	3.80825644838	92.5	66
			TRH C6-C9	mg/kg	20	57	2.97341370309	80	68
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.05461179814	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.53100930871	10	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	7.70583900218	-	71
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	0.00350918552	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	45	3.80825644838	62.5	65

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE232519.001	LB249663.028		TRH C6-C10	µg/L	50	0	946.63	98
			TRH C6-C9	µg/L	40	0	818.71	101
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.22653013426	-	97
			d8-toluene (Surrogate)	µg/L	-	8.44274309396	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	10.7492427645	-	104
		VPH F	Benzene (F0)	µg/L	0.5	0	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	0	639.67	97

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 27/5/2022
Report Due	Tue 31/5/2022
SGS Reference	**SE232521**

SUBMISSION DETAILS

This is to confirm that 10 samples were received on Friday 27/5/2022. Results are expected to be ready by COB Tuesday 31/5/2022. Please quote SGS reference SE232521 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	9 Soil, 1 Water
Date documentation received	27/5/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

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SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	TRH Silica Gel (Total Recoverable	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	H1 QUAL_SOIL_01	30	14	26	11	-	9	11	7
002	H1 QUAL_SOIL_02	30	14	26	11	-	9	11	7
003	H1 QUAL_SOIL_03	30	14	26	11	-	9	11	7
004	ANL_SAND_01	30	14	26	11	10	-	11	7
005	ANL_SAND_02	30	14	26	11	10	-	11	7
006	ANL_SAND_03	30	14	26	11	10	-	11	7
007	QA01_270522	30	14	26	11	10	-	11	7
008	TB01_270522	-	-	-	-	10	-	11	7
009	TS01_270522	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	H1 QUAL_SOIL_01	2	9	1	1	7
002	H1 QUAL_SOIL_02	2	9	1	1	7
003	H1 QUAL_SOIL_03	2	9	1	1	7
004	ANL_SAND_01	2	9	1	1	7
005	ANL_SAND_02	2	9	1	1	7
006	ANL_SAND_03	2	9	1	1	7
007	QA01_270522	-	-	1	1	7
008	TB01_270522	-	-	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	PCBs in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
010	RB01_270522	30	13	22	11	7	9	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water
010	RB01_270522	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

SGS EHS Sydney COC

SE232521

Company Name:	WSP	Project Name/No:	PS127030
Address:	Lvl 27/680 George St. Sydney NSW 2000	Purchase Order No:	2 day TAT
		Results Required Date:	TBA
		Telephone:	D: M: 0478 051 688
Contact Name:	James Green	Email Results to:	James.green@wsp.com
Quotation No:			

SGS ID	Client Sample ID	Sampled ~~Report ID~~	Matrix: Soil Sample	Matrix: Water Sample	Matrix: FRAGMENT	NO. OF CONTAINERS	BTEXN, PAH, M8	TRH (w/ SG clean-up)	TRH	OCP/OPP/PCB	Asbestos w/w/. NEPM	TRH/BTEX	Notes/Guidelines/LOR/ Special instructions
1	HI QUAL_SOIL_01	27/5/22	✓			2	✓	✓		✓	✓		
2	HI QUAL_SOIL_02		↓			↓	✓	✓		✓	✓		
3	HI QUAL_SOIL_03						✓	✓		✓	✓		
4	ANL_SAND_01						✓		✓	✓	✓		
5	ANL_SAND_02						✓		✓	✓	✓		
6	ANL_SAND_03					↓	✓		✓	✓	✓		
7	QA01_270522					1	✓		✓	✓			
	QA01A_270522						✓		✓	✓			Please forward to Eurofins
8	TB01_270522						✓					✓	
9	TS01_270522		↓			↓						✓	
10	RB01_270522	↓		✓		4	✓		✓	✓			

Relinquished By: / WSP: James Green	Date/Time: 27/5/22	Received By: George Zhi	Date/Time: 27/5/22 @ 3pm
Relinquished By: "	Date/Time: 2:15pm	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 4 °C	Sample Security Sealed: Yes / No	Hazards:

Comments / Subcontracting details:

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SGS Environmental Services NSW
PO: 50385415
Unit 16/33 Maddox St
Alexandria NSW 2015

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Accreditation Number 1261
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Attention: **James Green**

Report **893186-S**
Project name
Project ID PS127030
Received Date May 31, 2022

Client Sample ID			**QA01A-270522**
Sample Matrix			**Soil**
Eurofins Sample No.			**S22-My0074091**
Date Sampled			**May 27, 2022**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	82
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			QA01A-270522
Sample Matrix			Soil
Eurofins Sample No.			S22-My0074091
Date Sampled			May 27, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	84
p-Terphenyl-d14 (surr.)	1	%	84
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	79
Tetrachloro-m-xylene (surr.)	1	%	91
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2

Client Sample ID			QA01A-270522
Sample Matrix			Soil
Eurofins Sample No.			S22-My0074091
Date Sampled			May 27, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	90
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	79
Tetrachloro-m-xylene (surr.)	1	%	91
Heavy Metals			
Arsenic	2	mg/kg	2.9
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	< 5
% Moisture	1	%	4.2

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 31, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 31, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	May 31, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Unit 16/33 Maddox St
Alexandria NSW 2015

Project Name:
Project ID: PS127030

Order No.:
Report #: 893186
Phone: 02 8594 0400
Fax: 02 8594 0499

Received: May 31, 2022 11:48 AM
Due: Jun 2, 2022
Priority: 2 Day
Contact Name: James Green

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QA01A-270522	May 27, 2022		Soil	S22-My0074091	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Total PAH*	mg/kg	-			0.5	N/A	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	84			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	114			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	102			70-130	Pass	
Xylenes - Total*	%	102			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	96			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	109			70-130	Pass	
Benzo(a)pyrene	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	82			70-130	Pass	
Chrysene	%	78			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	100			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	107			70-130	Pass	
Pyrene	%	100			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	86			70-130	Pass	
4.4'-DDD	%	98			70-130	Pass	
4.4'-DDE	%	91			70-130	Pass	
4.4'-DDT	%	80			70-130	Pass	
a-HCH	%	87			70-130	Pass	
Aldrin	%	92			70-130	Pass	
b-HCH	%	88			70-130	Pass	
d-HCH	%	90			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dieldrin	%	88			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	81			70-130	Pass	
Endrin	%	82			70-130	Pass	
Endrin aldehyde	%	93			70-130	Pass	
Endrin ketone	%	83			70-130	Pass	
g-HCH (Lindane)	%	86			70-130	Pass	
Heptachlor	%	83			70-130	Pass	
Heptachlor epoxide	%	89			70-130	Pass	
Hexachlorobenzene	%	91			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	85			70-130	Pass	
Ethion	%	85			70-130	Pass	
Fenitrothion	%	83			70-130	Pass	
Methyl parathion	%	93			70-130	Pass	
Mevinphos	%	85			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	85			70-130	Pass	
Aroclor-1260	%	92			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Cadmium	%	104			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	105			80-120	Pass	
Mercury	%	105			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	N22-My0070649	NCP	%	79			70-130	Pass	
TRH C10-C14	S22-Jn0002623	NCP	%	92			70-130	Pass	
Naphthalene	N22-My0070649	NCP	%	80			70-130	Pass	
TRH C6-C10	N22-My0070649	NCP	%	79			70-130	Pass	
TRH >C10-C16	S22-Jn0002623	NCP	%	87			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N22-My0070649	NCP	%	86			70-130	Pass	
Toluene	N22-My0070649	NCP	%	84			70-130	Pass	
Ethylbenzene	N22-My0070649	NCP	%	85			70-130	Pass	
m&p-Xylenes	N22-My0070649	NCP	%	85			70-130	Pass	
o-Xylene	N22-My0070649	NCP	%	86			70-130	Pass	
Xylenes - Total*	N22-My0070649	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S22-My0070422	NCP	%	95			70-130	Pass	
Acenaphthylene	S22-My0070422	NCP	%	98			70-130	Pass	
Anthracene	S22-My0070422	NCP	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	S22-My0070422	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	S22-My0070422	NCP	%	100			70-130	Pass	
Benzo(b&j)fluoranthene	S22-My0070422	NCP	%	100			70-130	Pass	
Benzo(g.h.i)perylene	S22-My0070422	NCP	%	88			70-130	Pass	
Benzo(k)fluoranthene	S22-My0070422	NCP	%	85			70-130	Pass	
Chrysene	S22-My0070422	NCP	%	81			70-130	Pass	
Dibenz(a.h)anthracene	S22-My0070422	NCP	%	96			70-130	Pass	
Fluoranthene	S22-My0070422	NCP	%	99			70-130	Pass	
Fluorene	S22-My0070422	NCP	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-My0070422	NCP	%	97			70-130	Pass	
Naphthalene	S22-My0070422	NCP	%	95			70-130	Pass	
Phenanthrene	S22-My0070422	NCP	%	104			70-130	Pass	
Pyrene	S22-My0070422	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S22-My0070422	NCP	%	84			70-130	Pass	
4.4'-DDD	S22-My0070422	NCP	%	78			70-130	Pass	
4.4'-DDE	S22-My0070422	NCP	%	89			70-130	Pass	
a-HCH	S22-My0070422	NCP	%	83			70-130	Pass	
Aldrin	S22-My0070422	NCP	%	88			70-130	Pass	
b-HCH	S22-My0070422	NCP	%	79			70-130	Pass	
d-HCH	S22-My0070422	NCP	%	84			70-130	Pass	
Dieldrin	S22-My0070422	NCP	%	90			70-130	Pass	
Endosulfan I	S22-My0070422	NCP	%	84			70-130	Pass	
Endosulfan II	S22-My0070422	NCP	%	71			70-130	Pass	
Endosulfan sulphate	S22-My0070422	NCP	%	74			70-130	Pass	
Endrin	S22-My0070422	NCP	%	73			70-130	Pass	
Endrin aldehyde	S22-My0070422	NCP	%	104			70-130	Pass	
Endrin ketone	S22-My0070422	NCP	%	73			70-130	Pass	
g-HCH (Lindane)	S22-My0070422	NCP	%	83			70-130	Pass	
Heptachlor	S22-My0070422	NCP	%	76			70-130	Pass	
Heptachlor epoxide	S22-My0070422	NCP	%	79			70-130	Pass	
Hexachlorobenzene	S22-My0070422	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S22-My0070422	NCP	%	86			70-130	Pass	
Mevinphos	S22-My0070422	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S22-My0070422	NCP	%	84			70-130	Pass	
Aroclor-1260	S22-My0070422	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-My0075621	NCP	%	81			75-125	Pass	
Cadmium	S22-My0075621	NCP	%	86			75-125	Pass	
Chromium	S22-My0073334	NCP	%	104			75-125	Pass	
Copper	S22-My0074154	NCP	%	106			75-125	Pass	
Lead	S22-My0075621	NCP	%	92			75-125	Pass	
Mercury	S22-My0075621	NCP	%	98			75-125	Pass	
Nickel	S22-My0074154	NCP	%	104			75-125	Pass	
Zinc	S22-My0074154	NCP	%	107			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S22-My0074091	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-My0074091	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-My0074091	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-My0074091	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-My0074091	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
g-HCH (Lindane)	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-My0075620	NCP	mg/kg	14	13	3.0	30%	Pass	
Cadmium	S22-My0075620	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-My0075620	NCP	mg/kg	61	75	21	30%	Pass	
Copper	S22-My0075620	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S22-My0075620	NCP	mg/kg	17	15	9.0	30%	Pass	
Mercury	S22-My0075620	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-My0075620	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S22-My0075620	NCP	mg/kg	7.2	8.0	10	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-My0074091	CP	%	4.2	4.2	1.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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

Authorised by:

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Gabriele Cordero	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



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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NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

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

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

Sample Receipt Advice

Company name:	SGS Environmental Services NSW
Contact name:	James Green
Project name:	Not provided
Project ID:	PS127030
Turnaround time:	2 Day
Date/Time received	May 31, 2022 11:48 AM
Eurofins reference	893186

Sample Information

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

Notes

Contact

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

Asim Khan on phone : or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to James Green - James.Green@wsp.com.

Global Leader - Results you can trust

SGS

GS Environmental Services Sydney
nit 16, 33 Maddox Street
lexandria NSW 2015
elephone No: (02) 85940400
acsimile No: (02) 85940499
mail: au.samplereceipt.sydney@sgs.com

ab ID Number: *(please quote on correspondence)*

CHAIN OF CUSTODY & ANALYSIS REQUEST

Company Name:	WSP	Project Name/No:	PS127030	
Address:	Lvl 27/680 George St Sydny NSW 2000	Purchase Order No:	2 day TAT	
		Results Required Date:	TBA	
		Telephone:	D:	M: 0478 051 688
Contact Name:	James Green	Email Results to:	James.green@wsp.com	
Quotation No:				

SGS ID	Client Sample ID	Sampled ~~Report ID~~	Matrix: Soil Sample	Matrix: Water Sample	Matrix: FRAGMENT__	NO. OF CONTAINERS	BTEXN, PAH, MS	TRH (w/ Si cleanup)	TRH	OCP/OPP/PCB	Asbestos w/wt. NEPM	TRH/BTEX	Additional Report Formats / Notes/Guidelines/LOR/ Special instructions
1	HI QUAL_SOIL_01	27/5/22	✓			2	✓	✓		✓	✓		
2	HI QUAL_SOIL_02						✓	✓		✓	✓		
3	HI QUAL_SOIL_03						✓	✓		✓	✓		
4	ANL_SAND_01						✓		✓	✓	✓		
5	ANL_SAND_02						✓		✓	✓	✓		
6	ANL_SAND_03						✓		✓	✓	✓		
7	QA01_270522					1	✓		✓	✓			
	QA01A_270522						✓		✓	✓			Please forward to Eurofins
8	TB01_270522					HW	W					✓	
9	TS01_270522											✓	
10	RB01_270522			✓		4	✓		✓	✓			

Relinquished By: / WSP: James Green	Date/Time: 27/5/22	Received By: George Zhi	Date/Time: 27/5/22 @ 3pm
Relinquished By:	Date/Time: 2:15pm	Received By: SP Eurofins	Date/Time: 31/05/22 11:48 am 14°C
Samples Intact: (Yes) / No	Temperature: 4 °C	Sample Security Sealed: Yes / No	Hazards: #893186

Comments / Subcontracting details:

HI-QUALITY GROUP
Building & Landscape Supplies
ABN 52 145 898 095 ACN 145 898 095

Old Elizabeth Drive & Marrea Road, Kemps Creek NSW 2178
PO Box 42, Kemps Creek NSW 2178
T 02 8788 3838
www.hiquality.com.au

DELIVERY DOCKET / TAX INVOICE

774628

Date: 27 Jan 22	Fleet/Rego No:	Order No:	COD: ☐ Account: ☑
Customer: whole landscapes		Signature:	689 794
Delivery Address: Wentworthville Public School		Site Contact: 0403 689 794	
Material: Blackbutt Gravel	Code:	Qty: 1	
Material:	Code:	Qty:	
Material:	Code:	Qty:	
Material:	Code:	Qty:	
Delivery Time: 10-11 am	Net: 1	Tare:	

From: Smithys

Driver's Name: Gary

Blackbutt + Clay = 2 bags

PRODUCTS: Sands · Roadbases · Recycled Products · Decorative Gravels · Bulk Transport · Aggregates

It is implied that any damage which may occur to property, fencing, gates, buildings or personal injury (and will not be the responsibility of Hi-Quality Building & Landscape Supplies

Materials comply with all the requirements of the NSW EPA Resource Recovery Order received for the product supplied by Hi-Quality. Orders and Exemptions can be found on the following link: https://www.epa.nsw.gov.

Office Copy: White Customer: Yellow Invoice: Blue Book Copy: Green

Landscape Supplies
32 145 898 095 ACN 145 898 095

Cnr Elizabeth Drive & Mamre Road, Kemps Creek NSW 2178
PO Box 40, Kemps Creek NSW 2178
T . 02 8788 3838
www.hiquality.com.au

DELIVERY DOCKET / TAX INVOICE

775048

Date: 1.7.22	Fleet/Rego No:	Order No:	COD: ☐ Account: ☑
Customer: Whole Landscapes		Signature:	
Delivery Address: Wentworthville Public School		Site Contact:	
Material: Garden Mix	Code: Qty: 34	Material:	Code: Qty:
Material:	Code: Qty:	Material:	Code: Qty:
Material:	Code: Qty:	From: ST Marys	
Material:	Code: Qty:	Driver's Name: Glenn.	
Delivery Time: 9-2.	Net: 34	Total:	

PRODUCTS: Sands · Roadbases · Recycled Products · Decorative Gravels · Bulk Transport · Aggregates

It is implied that any damage which may occur to property, fencing, gates, buildings or personal injury past kerb will not be the responsibility of Hi-Quality Building & Landscape Supplies

Materials comply with all the requirements of the NSW EPA Resource Recovery Order relevant to the product supplied by Hi Quality. Orders and Exemptions can be found at the following link *https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption*

Office Copy: White Customer: Yellow Invoice: Blue Book Copy: Green

Book Copy: Green

E1.4 ANL PLAYGROUND SAND

Environment Protection Licence

Licence - 4625

Licence Details	
Number:	4625
Anniversary Date:	13-January

Licensee
AUSTRALIAN NATIVE LANDSCAPES PTY LTD
PO BOX 113
TERREY HILLS NSW 2084

Premises
AUSTRALIAN NATIVE LANDSCAPES PTY LTD
210 MARTIN ROAD
BADGERYS CREEK NSW 2555

Scheduled Activity
Composting
Waste processing (non-thermal treatment)
Waste storage

Fee Based Activity	Scale
Composting	> 50000 T annual capacity to receive organics
Non-thermal treatment of general waste	Any annual processing capacity
Waste storage - other types of waste	Any other types of waste stored

Region
Waste & Resource Recovery
59-61 Goulburn Street SYDNEY NSW 2000
Phone: (02) 9995 5000
Fax: (02) 9995 5999
PO Box A290
SYDNEY SOUTH NSW 1232

Environment Protection Licence

Licence - 4625

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Licence - 4625

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Environment Protection Licence

Licence - 4625

Information about this licence

Dictionary

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

Responsibilities of licensee

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

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

Variation of licence conditions

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

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

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

Duration of licence

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

Licence review

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

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

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

Environment Protection Licence

Licence - 4625

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

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

Transfer of licence

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

Public register and access to monitoring data

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

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

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

This licence is issued to:

AUSTRALIAN NATIVE LANDSCAPES PTY LTD
PO BOX 113
TERREY HILLS NSW 2084

subject to the conditions which follow.

Environment Protection Licence

Licence - 4625

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

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

Scheduled Activity	Fee Based Activity	Scale
Composting	Composting	> 50000 T annual capacity to receive organics
Waste processing (non-thermal treatment)	Non-thermal treatment of general waste	Any annual processing capacity
Waste storage	Waste storage - other types of waste	Any other types of waste stored

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
AUSTRALIAN NATIVE LANDSCAPES PTY LTD
210 MARTIN ROAD
BADGERYS CREEK
NSW 2555
LOT 21 DP 626147, LOT 22 DP 626147

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

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

Environment Protection Licence

Licence - 4625

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

3 Limit Conditions

L1 Pollution of waters

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

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste to be received at the premises, except the wastes expressly referred to in the column titled “Waste” and meeting the definition, if any, in the column titled “Description” in the table below.
Any waste received at the premises must only be used for the activities referred to in relation to that waste in the column titled “Activity” in the table below.
Any waste received at the premises is subject to those limits or conditions, if any, referred to in relation to that waste contained in the column titled “Other Limits” in the table below.
This condition does not limit any other conditions in this licence.

Code	Waste	Description	Activity	Other Limits
NA	Food waste	As defined in Schedule 1 of the POEO Act, in force from time to time	Waste storage Waste processing (non-thermal treatment)	Food waste received for storage and processing is limited to co-mingled municipal kerbside collection of garden waste.
NA	Foundry Sands	As defined in "The foundry sand exemption December 2006"	Waste storage Composting	NA
NA	Wood waste	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting Waste storage	NA
NA	Virgin excavated natural	As defined in Schedule	Composting	NA

	material	1 of the POEO Act, in force from time to time	Waste storage	
NA	Biosolids categorised as unrestricted use, or as restricted use 1, 2 or 3, in accordance with the criteria set out in the biosolids guidelines	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting Waste storage	NA
NA	Garden waste	As defined in Schedule 1 of the POEO Act, in force from time to time	Composting Waste storage Waste processing (non-thermal treatment)	NA
NA	Boiler flyash		Composting Waste storage	NA
NA	Waste coffee grounds		Composting Waste storage	NA
NA	Spent mushroom compost		Composting Waste storage	NA
NA	Tobacco waste		Composting Waste storage	NA
NA	Organic non-odorous DAF sludges		Composting Waste storage	NA
NA	Spent filter sand medium		Composting Waste storage	NA
NA	Spent biofilter medium		Composting Waste storage	NA

Food Organics and Garden Organics drying shed

L2.2 The amount of Food Organics and Garden Organics to be received at the premises per day must not exceed 200 tonnes.

L2.3 Food Organics and Garden Organics received at the premises must only be unloaded, loaded, stored, processed and transferred within the enclosed drying shed.

L3 Noise limits

L3.1 Noise from the premises must not exceed an LA10 (15 minute) noise emission criterion of 50 dB(A), except as expressly provided by this licence.

L3.2 Noise from the premises is to be measured or computed at any point within one metre of any residential boundary or other noise sensitive areas (eg. schools, hospitals, etc) to determine compliance with the above condition. 5dB(A) must be added if the noise is tonal or impulsive in character.

L4 Hours of operation

L4.1 Plant and equipment at the premises, including any plant or equipment operated in relation to the batching or blending of biosolids, must not be operated outside the times of 0700 hours to 1700 hours

Mondays to Saturdays inclusive.

L4.2 The plant and equipment must not be operated on Sundays or Public Holidays.

L4.3 For the purposes of condition L4.1 and L4.2 the following machinery is not considered to be plant and equipment:

a) Aerators in dams;
b) Water carts used for dust control or fire suppression;
c) Pumps or irrigation equipment used for dust control or fire suppression; and
d) Biofilter fan used as part of the odour control system for the FOGO drying shed.

L4.4 The requirements of condition L4.1 and L4.2 do not apply in the event of an emergency that causes or threatens material harm to the environment. For this exception to apply, the licensee must notify the EPA as required by condition R2 of this licence. This exception does not apply to the use of any plant or equipment operated in relation to the batching or blending of biosolids.

L4.5 Trucks must not enter or leave the premises on Sundays or Public Holidays.

L5 Potentially offensive odour

L5.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

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

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O3.2 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

O4 Emergency response

O4.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

O5 Waste management

O5.1 All biosolids received at the premises must be batched and blended within one hour of receipt at the premises.

O5.2 Except as provided by condition O5.3 of this licence, batching and blending of biosolids must be done in accordance with the procedures outlined within the document titled "Standard Operating Procedures Production of Composted Biosolids", Version 3, dated 8 August 2017 and received by the EPA on 11 August 2017 (EPA reference DOC17/415809).

O5.3 Biosolids for transfer from the premises to another facility must be batched and blended by way of mixing with sawdust and covering with sawdust.

O5.4 Food Organics and Garden Organics waste received and processed at the premises must not be composted or blended with any other type of waste or substance received or produced at the premises.

O6 Other operating conditions

O6.1 There must be no incineration or open burning of any material(s) on the premises, except as specifically authorised by the EPA.

5 Monitoring and Recording Conditions

Environment Protection Licence

Licence - 4625

M1 Monitoring records

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

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

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

M1.4 The licensee must record the following information for each load of waste(s) received at the premises:

a) the registration number of the vehicle;

b) the time and date of receipt of the waste;

c) the source of the waste;

d) the type(s) of waste; and

e) the quantity of each type of waste (in tonnes).

M2 Recording of pollution complaints

M2.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M2.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M2.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M2.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M3 Telephone complaints line

M3.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M3.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M3.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

M4 Other monitoring and recording conditions

M4.1 **Foundry Sands Records**

The licensee must keep a record for each load of Foundry Sand, as referred to under Condition L2.1, that is received at the premises. The record must include, but not necessarily be limited to, the following:

a. a copy of the certifying statement of compliance in accordance with *The processed foundry sand exemption 2014.*

b. the quantity (in tonnes) of the foundry sand received;

c. the date and time that the foundry sand was received;

d. the registration number of the vehicle transporting the foundry sand to the premises;

e. the source(s) and address from where the foundry sand was received; and

f. the name and contact details of the company or individual delivering the foundry sand to the premises;

The record must be retained at the premises for at least 3 years after the receipt of the load of the foundry sand. The record must be produced to any authorised officer of the EPA upon request.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be

completed and returned to the EPA.

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

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

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

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

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

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

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

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

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

Environment Protection Licence

Licence - 4625

R3 Written report

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

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

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

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

R4 Other reporting conditions

R4.1 The licensee must prepare and submit to the EPA an annual odour audit produced by a suitably qualified and independent consultant and must contain the following elements:
a) A summary of any odour complaints received by the licensee and actions taken to reduce odour emission;
b) A condition and performance assessment of the odour control system; and
c) If required, the odour audit must recommend odour mitigation works and management practices to ensure odour emissions are minimised.

Annual Waste Summary Reporting

R4.2 The licensee must complete and submit to the EPA an Annual Waste Summary Report each financial year.

R4.3 The Annual Waste Summary Report must be submitted to the EPA via the Waste and Resource Reporting Portal (WARRP) within 60 days of the end of the financial year.

Environment Protection Licence

Licence - 4625

7 General Conditions

G1 Copy of licence kept at the premises or plant

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

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

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

8 Special Conditions

E1 Financial assurance

E1.1 A financial assurance, in favour of the EPA, in the amount of fifty thousand dollars ($50,000) must be maintained during the operation of the facility and thereafter until such time as the EPA is satisfied the premises are environmentally secure.

This assurance must be replenished to the full amount should the EPA have any reason to call up the financial assurance or any part thereof to correct environmental problems which have not been remedied by the occupier upon being given notice to do so.

Failure to maintain the assurance at the full amount will result in suspension of this licence.

This financial assurance shall be indexed to the Consumer Price Index (CPI). The EPA reserves the right to vary the magnitude of the bank guarantee at any time depending upon any reassessment of possible cost(s) of rehabilitation of the premises.

Environment Protection Licence

Licence - 4625

Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

Environment Protection Licence

Licence - 4625

flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder described at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

Environment Protection Licence

Licence - 4625

TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste

Mr Tim Gilbert

Environment Protection Authority

(By Delegation)

Date of this edition: 27-June-2000

Environment Protection Licence

Licence - 4625

End Notes

1	Licence varied by notice 1024353, issued on 29-Oct-2003, which came into effect on 23-Nov-2003.
2	Licence varied by notice 1038044, issued on 19-Oct-2004, which came into effect on 13-Nov-2004.
3	Licence varied by notice 1059801, issued on 29-May-2006, which came into effect on 29-May-2006.
4	Licence varied by notice 1065356, issued on 05-Dec-2006, which came into effect on 05-Dec-2006.
5	Licence varied by notice 1077338, issued on 15-Oct-2007, which came into effect on 15-Oct-2007.
6	Licence varied by notice 1090205, issued on 09-Sep-2008, which came into effect on 09-Sep-2008.
7	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
8	Licence varied by notice 1096554, issued on 19-Jan-2009, which came into effect on 19-Jan-2009.
9	Licence varied by notice 1097970, issued on 11-Mar-2009, which came into effect on 11-Mar-2009.
10	Licence varied by Correction to EPA Regional data record., issued on 23-Jun-2010, which came into effect on 23-Jun-2010.
11	Licence varied by correction to DECCW Region data record, issued on 07-Jul-2010, which came into effect on 07-Jul-2010.
12	Licence varied by notice 1121124, issued on 05-Nov-2010, which came into effect on 05-Nov-2010.
13	Licence varied by notice 1125095, issued on 14-Mar-2011, which came into effect on 14-Mar-2011.
14	Licence varied by notice 1129377, issued on 12-Jul-2011, which came into effect on 12-Jul-2011.
15	Licence varied by notice 1506408 issued on 17-Jul-2012
16	Licence varied by notice 1508298 issued on 27-Aug-2012
17	Licence varied by notice 1533523 issued on 02-Sep-2015
18	Licence varied by notice 1535509 issued on 19-Jun-2017
19	Licence varied by notice 1558441 issued on 13-Apr-2018

AUSTRALIAN NATIVE LANDSCAPES PTY LTD
'Everything for your garden'



Specification Q3– Tiling & Sandpit Sand

Product Category	**Quarried Sands & Aggregates**			
Quality system	ANL – QM - BC			
Formulation	100% Fine Dune Sand			
Typical Analysis				
Physical	Bulk Density - Uncompacted		kg/l	1.56
Particle Size Analysis	Passing	0.600mm	%	100
	Passing	0.425mm	%	100
	Passing	0.300mm	%	98
	Passing	0.150mm	%	1
	Passing	0.075mm	%	Nil
Chemical	pH (H_20)			8.8
	EC		µS/m	9.8

General Information

This product is a washed fine dune sand suitable for use as a mineral component in tile bedding or jointing mixes. Where specific concreting, construction or engineering tolerances must be met, these must be stated. Data for such tolerances will be provided where available.

NB: Material Safety Data Sheets are available on request.

Disclaimer

The information contained in this technical specification is current at the time of publication and applies to this product supplied by, but not manufactured by Australian Native Landscapes. We reserve the right to vary the specification without notice.

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Warabrook NSW 2304
PO Box 324
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Phone (02) 4960 9600

SS & LM Johnston Pty Ltd
10 Jessie Road
Anna Bay NSW 2316

Project 49845.02
6 August 2020
R.001.Rev0
JRK:plh

Attention: Daniel McKay

Email: jemv@ozemail.com.au

Assessment of Virgin Excavated Natural Material
SS & LM Johnson Pty Ltd Quarry
Lot 332 DP7563204
10 Jessie Road, Anna Bay

1. Introduction

This letter presents the results of an assessment of Virgin Excavated Natural Materials (VENM) at SS & LM Johnston sand quarry, Lot 332 DP753204, 10 Jessie Road, Anna Bay, NSW. The work was undertaken at the request of Mr Daniel McKay of SS & LM Johnston Pty Ltd.

It is understood that windblown (aeolian) dune sand is currently transported from the site for off-site use.

An assessment of the windblown dune sand within the boundary of Lot 332 DP753204 was required to confirm the material meets the definition of VENM with reference to NSW EPA guidelines.

The assessment was undertaken with reference to NSW EPA "Waste Classification Guidelines – Part 1: Classifying Waste", November 2014 (NSW EPA, 2014).

It is noted that the windblown (aeolian) dune sand within the southern portion of the site was previously assessed by DP in 2013 (DP, 2013) and was classified as VENM. It is understood that the materials assessed for this current VENM assessment is new windblown (aeolian) dune sand within the same footprint of the previous assessment.

2. Site Description

The SS & LM Johnston Pty Ltd dune sand quarry is located within Lot 332 DP 753204, 10 Jessie Road, Anna Bay as shown on Figure 1.



Figure 1: Site Locality

The excavation face (i.e. edge of sand dune from which dune sand is excavated) is located in the southern part of the site as shown in Figure 2.

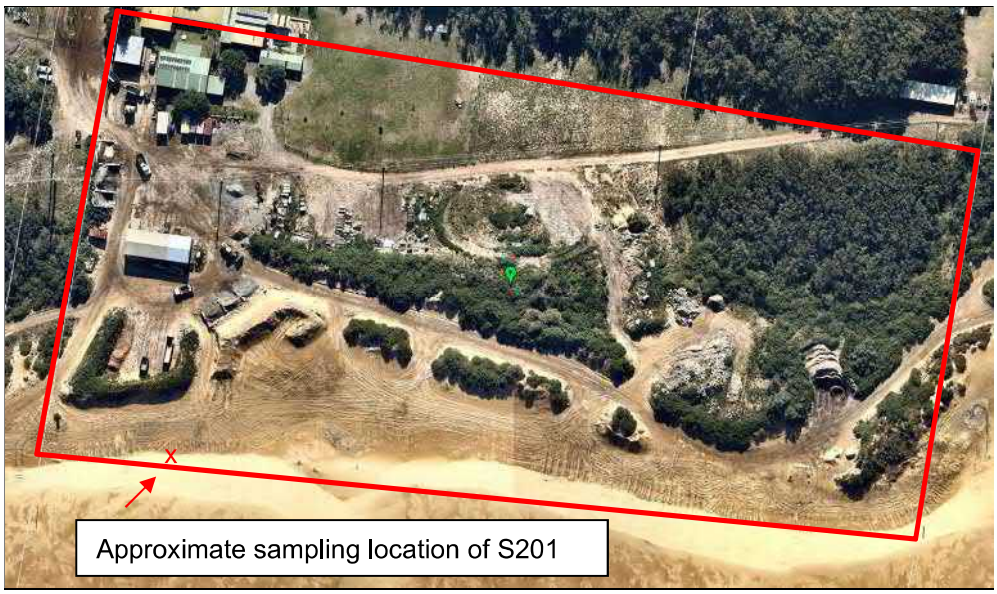


Figure 2: Approximate boundary of Lot 332 DP753204 (Nearmap image dated June 2020) and location of sample S201

Reference to the 1:25 000 Acid Sulphate Soil Risk Map for NSW produced by the Department of Land and Water Conservations indicates the site has a low risk of Acid Sulphate Soil (ASS) conditions at depths greater than 3 m below the ground surface.

Reference to the NSW NCCA Quaternary Geology mapping indicates the southern boundary of the site lies within the Mobile Dune geological unit which typically comprises aeolian deposited marine sands with low pyrite and organic content and may overly other geological units including Holocene aged deposits. The majority of the property (north of the dune sand face) is mapped as Holocene aged beach ridge and associated sandplain unit which typically comprises marine sand, shell and gravel with low pyrite and low organic content.

3. Scope of Works

The scope of work for the VENM assessment by Douglas Partners Pty Ltd (DP) was as follows:

- Review of current / historical aerial photographs to assess potentially contaminating land uses in the vicinity of the quarry;
- Discussions with site personnel to confirm the source of the dune sand and operating procedures;
- Site inspection of the sand quarry by an Environmental Engineer from DP on 4 August 2020; and
- Representative sampling of one sample within the dune sand for identification and acid sulphate soil (ASS) testing;
- ASS screening of one sample.

4. Site Inspection / Results

A brief site inspection was undertaken by an Environmental Engineer from DP on 4 August 2020.

The northern parts of the site comprised the site office building, workshop and equipment storage area.

An inspection of the sand dunes along the southern boundary of the site indicated the materials compromised pale brown / yellow fine-grained sand with no indications of obvious anthropogenic inclusions.

Several stockpiles were located north of the dune sand excavation face comprising various soil and building material types, however, these stockpiles were not assessed as part of this VENM assessment.

Photographs of the site condition at the time of the inspection on 4 August 2020 are shown in Figures 3 and 4.



Figure 3: Typical Face of Sand Dune with access track in foreground (Looking South)



Figure 4: Sand Dunes Along the Southern Boundary (Looking West)

Site personnel (Mr Brad McKay) indicated the following:

- The sand quarry supplies sand from existing sand dunes;
- No excavation below the ground surface is conducted (i.e. only wind deposited dune sand is supplied to customers);
- The excavation works are limited to windblown sand within the site boundary.

It is noted that the extent of the eastern and western site boundaries (Lot 332) are as follows:

- The extent of the site boundary to the east is marked with a telegraph pole located directly adjacent to the south eastern corner of the site;
- The site extends approximately 305 m west of the telegraph pole, roughly aligning with two telegraph poles (one to the south within the dunes and one within the site which has been cut down and covered with tyres).

An ASS screening test was conducted in the DP Laboratory with reference to QASSIT "Acid Sulphate Soils Laboratory Method Guidelines" (Ahern, Sullivan & McElnea, 2004) for the collected sand sample (S201) sampled from the depth of 0 to 0.5 m within the dune sand face as shown on Figure 2. The results indicated a pH in water (pH_F) of 7.8 and a pH following oxidation with peroxide (pH_{FOX}) of 7.6 suggesting the absence of ASS conditions.

5. Comments

Based on the results of the assessment, the natural pale brown / yellow fine-grained sands observed within the face of the sand dune are classified VENM with reference to NSW EPA "Waste Classification Guidelines" (NSW EPA, 2014). The VENM classification is specific to windblown (aeolian deposited) sand dune materials above natural ground levels (approximately >RL 10) and within the boundary of Lot 332 DP753204.

If materials other than the observed pale brown / yellow windblown dune sand are observed or materials from beneath the ground surface are proposed for off-site re-use or disposal, additional inspection and assessment will be required.

6. References

DP (2013), Assessment of Virgin Excavated Natural Material, Lot 332 DP 753204, *10 Jessie Road, Anna Bay, March 2013*, Report 49845.01.00.R.001.Rev0, prepared for SS & LM Johnston Pty Ltd Quarry

NSW EPA (2014), Waste Classification Guidelines, Part 1: Classifying Waste, NSW Environment Protection Authority, Ahern CR, Sullivan LA, McElnea AE (2004), Acid Sulphate Soils, Laboratory Methods Guidelines Version 2.1 - June 2004, Department of Natural Resources, Mines and Energy, Indooropilly, Queensland, Australia

7. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 10 Jessie Road, Anna Bay with reference to DP's proposal NCL20045 dated 30 July 2020 and acceptance received from Mr Daniel McKay of SS & LM Johnson Pty Ltd. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of SS & LM Johnson Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the dune conditions on the site only at the specific sampling and/or testing location, and then only to the depth investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Building demolition materials, such as fibre cement sheeting, brick, metal, plastic and rubber, were identified in fill materials situated within the sand dunes immediately east of the site. Another fibro fragment was also located on the surface of the access track within the site boundary directly north of the sand dunes. These are considered as indicative of the possible presence of hazardous building materials (HBM) including asbestos containing materials (ACM). Management procedures should be in place to ensure dune sands are not temporarily stockpiled or tracked over potentially contaminated areas, which may impact on the VENM classification of the materials.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (environmental) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

pp

Joshua Kramer
Environmental Engineer

Reviewed by

Matthew Blackert
Senior Associate

Attachments: About this Report
Acid Sulphate Soil Screening Test Results

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Douglas Partners
Geotechnics | Environment | Groundwater

Sample ID		Sample Description	Screening Test Results					Laboratory Results							
			pH			Strength of Reaction [b]	Comments	pH_{KCL}	S_{KCL}	Scr %S	s-TAA %S	S_{NAS} %S	$s\text{-}ANC_{BT}$ %S	Net Acidity[c] %S	Existing and Potential Acidity %S
			pH_F	pH_{FOX}	pH_F - pH_{FOX}										
S201		Pale brown / yellow sand	7.8	7.6	0.2	1	-	-	-	-	-	-	-	-	-
Guideline	Coarse sands, poorly buffered		<4[d]	<3.5[e]	≥1[e]	-	Coarse sands, poorly buffered								0.01
	Coarse sands to loamy sands and peats						Coarse sands to loamy sands and peats								0.03
	Medium sandy loams to light clays						Medium sandy loams to light clays								0.06[f]/0.03[g]
	Fine medium to heavy clays & silty clays						Fine medium to heavy clays & silty clays								0.1[f]/0.03[g]

Notes to Table A1:

a Depth below ground surface

b Strength of Reaction
- 1 denotes no or slight reaction
- 2 denotes moderate reaction
- 3 denotes high reaction
- 4 denotes very vigorous reaction
- F denotes bubbling/frothy reaction indicative of organics
- V denotes vapours generated
- B denotes bubbles generated
- H denotes heat generated

c Calculated by the laboratory based on the ABA equation in ASS Laboratory Methods Guidelines

d For actual acid sulphate soils (ASS)

e Indicative value only for Potential Acid Sulphate Soils (PASS)

f QASSIT Action Criteria for disturbance of 1-1000 tonnes of material

g QASSIT Action Criteria for disturbance of more than 1000 tonnes of material

Bold results indicative of ASS

Shaded results indicate an exceedence of QASSIT action criteria

pH_F - Soil pH Test (1:5 soil:distilled water)

pH_{FOX} - Soil Peroxide pH Test (1:4 soil:distilled water following oxidation of soil with 30% hydrogen peroxide (H_2O_2))

*Laboratory methods used to quantify ANC are likely to overestimate environmental effectiveness

Wentworthville Public School - Stage 3
ANL Playground Sand
Chemical Asbestos Summary Table (Appendix E4)

		Asbestos	TRH				BTEX					PAH										
		Estimated Fibres	C6 - C10 Fraction minus BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene	Benzo(a) pyrene	Chrysene	Fluoranthene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	PAHs (Sum of positives)	Arsenic	Cadmium	Chromium
		%w/w	mg/kg	mg/kg	µg/L	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.001	20	25	90	100	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.8	1	0.3	0.5
NEPM 2013 Table 1B(5) Generic/calculated EIL - Urban Res & Public Open Space											170									100		190
NEPM 2013 Table 1A(1) HILs Res A Soil																		300		100	20	
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m			45	110			0.5	160	55	40	3											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil >=0m, <2m			180		300	2,800	50	85	70	105		0.7										
Field ID	**Date**																					
ANL_SAND_01	**27/05/2022**	<0.001	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.8	4	<0.3	1.7
ANL_SAND_02	**27/05/2022**	<0.001	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.8	4	<0.3	1.7
ANL_SAND_03	**27/05/2022**	<0.001	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.8	4	<0.3	1.7
QA01_270522	**27/05/2022**	-	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.8	4	<0.3	1.6
QA01A-270522	**27/05/2022**	-	<20	<50	<100	<100	<0.1	<0.1	<0.1	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	2.9	<0.4	<5

Wentworthville Public School - Stage 3
ANL Playground Sand
Chemical Asbestos Summary Table (Appendix E4)

	Metals					OCP	OPP	PCB
	Copper	Lead	Mercury	Nickel	Zinc	DDT	Chlorpyrifos	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	1	0.05	0.5	2	0.05	0.2	0.1
NEPM 2013 Table 1B(5) Generic/calculated EIL - Urban Res & Public Open Space	190	1,100		1,100	400	180		
NEPM 2013 Table 1A(1) HILs Res A Soil	6,000	300	40	400	7,400		160	1
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand >=0m, <1m								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil >=0m, <2m								
Field ID	**Date**							
ANL_SAND_01	**27/05/2022**	<0.5	<1	<0.05	<0.5	<2	<0.1	<0.2	<1
ANL_SAND_02	**27/05/2022**	<0.5	<1	<0.05	<0.5	<2	<0.1	<0.2	<1
ANL_SAND_03	**27/05/2022**	<0.5	<1	<0.05	<0.5	<2	<0.1	<0.2	<1
QA01_270522	**27/05/2022**	<0.5	<1	<0.05	<0.5	<2	<0.1	<0.2	<1
QA01A-270522	**27/05/2022**	<5	<5	<0.1	<5	<5	<0.05	<0.2	<0.1

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27/5/2022
Date Reported	31/5/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Huong CRAWFORD
Production Manager

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008	TS01_270522 SOIL - 27/5/2022 SE232521.009
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	[98%]
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	[99%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	[96%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	[96%]
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	[97%]
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	-
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
TRH C10-C14	mg/kg	20	-	-	-	<20	<20
TRH C15-C28	mg/kg	45	-	-	-	<45	<45
TRH C29-C36	mg/kg	45	-	-	-	<45	<45
TRH C37-C40	mg/kg	100	-	-	-	<100	<100
TRH >C10-C16	mg/kg	25	-	-	-	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	-	-	-	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	-	-	-	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	-	-	-	<120	<120
TRH C10-C36 Total	mg/kg	110	-	-	-	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	-	-	-	<210	<210

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008	TS01_270522 SOIL - 27/5/2022 SE232521.009
TRH C10-C14	mg/kg	20	<20	<20	-	-
TRH C15-C28	mg/kg	45	<45	<45	-	-
TRH C29-C36	mg/kg	45	<45	<45	-	-
TRH C37-C40	mg/kg	100	<100	<100	-	-
TRH >C10-C16	mg/kg	25	<25	<25	-	-
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	-	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil [AN403] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003
TRH C10-C14-Silica	mg/kg	20	<20	<20	**32**
TRH C15-C28-Silica	mg/kg	45	**88**	**110**	**250**
TRH C29-C36-Silica	mg/kg	45	**280**	**270**	**510**
TRH C37-C40-Silica	mg/kg	100	<100	<100	<100
TRH >C10-C16-Silica	mg/kg	25	<25	**32**	**52**
TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25	**32**	**52**
TRH >C16-C34-Silica (F3)	mg/kg	90	**220**	**240**	**500**
TRH >C34-C40-Silica (F4)	mg/kg	120	**140**	**130**	**230**
TRH C10-C36-Silica	mg/kg	110	**370**	**380**	**790**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.2**	**0.2**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	**1.2**	**0.8**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**1.2**	**0.8**	<0.8	<0.8

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 27/5/2022 (continued)

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Arsenic, As	mg/kg	1	**6**	**6**	**6**	**4**	**4**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**11**	**20**	**9.7**	**1.7**	**1.7**
Copper, Cu	mg/kg	0.5	**33**	**30**	**32**	<0.5	<0.5
Lead, Pb	mg/kg	1	**16**	**17**	**16**	<1	<1
Nickel, Ni	mg/kg	0.5	**5.6**	**6.8**	**4.5**	<0.5	<0.5
Zinc, Zn	mg/kg	2	**84**	**82**	**97**	<2.0	<2.0

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Arsenic, As	mg/kg	1	**4**	**4**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**1.7**	**1.6**
Copper, Cu	mg/kg	0.5	<0.5	<0.5
Lead, Pb	mg/kg	1	<1	<1
Nickel, Ni	mg/kg	0.5	<0.5	<0.5
Zinc, Zn	mg/kg	2	<2.0	<2.0

Mercury in Soil [AN312] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 27/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
% Moisture	%w/w	1	**46.2**	**38.3**	**40.9**	**3.8**	**4.4**

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006	QA01_270522 SOIL - 27/5/2022 SE232521.007	TB01_270522 SOIL - 27/5/2022 SE232521.008
% Moisture	%w/w	1	**3.3**	**4.0**	<1.0

Fibre Identification in soil [AN602] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Total Sample Weight*	g	1	**343**	**336**	**359**	**463**	**421**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Total Sample Weight*	g	1	**472**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

VOCs in Water [AN433] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene (VOC)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	<1

OC Pesticides in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Alpha BHC	µg/L	0.1	<0.1
Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
Beta BHC	µg/L	0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1
Delta BHC	µg/L	0.1	<0.1
Heptachlor	µg/L	0.1	<0.1
Aldrin	µg/L	0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1
Dieldrin	µg/L	0.1	<0.1
Endrin	µg/L	0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1
Isodrin	µg/L	0.1	<0.1
Mirex	µg/L	0.1	<0.1
Total OC	µg/L	1	<1
Total OC	µg/L	1	<1

OP Pesticides in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Dichlorvos	µg/L	0.5	<0.5
Dimethoate	µg/L	0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2
Malathion	µg/L	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2
Methidathion	µg/L	0.5	<0.5
Ethion	µg/L	0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2

PCBs in Water [AN420] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Arochlor 1016	µg/L	1	<1
Arochlor 1221	µg/L	1	<1
Arochlor 1232	µg/L	1	<1
Arochlor 1242	µg/L	1	<1
Arochlor 1248	µg/L	1	<1
Arochlor 1254	µg/L	1	<1
Arochlor 1260	µg/L	1	<1
Arochlor 1262	µg/L	1	<1
Arochlor 1268	µg/L	1	<1
Total Arochlors*	µg/L	5	<5

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 30/5/2022

PARAMETER	UOM	LOR	RB01_270522 WATER - 27/5/2022 SE232521.010
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311(Perth)/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-silica) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	6

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27 May 2022
Date Reported	31 May 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam .

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE232521.001	H1 QUAL_SOIL_01	Soil	343g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.002	H1 QUAL_SOIL_02	Soil	336g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.003	H1 QUAL_SOIL_03	Soil	359g Sand,Soil,Rocks ,Plant Matter	27 May 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE232521.004	ANL_SAND_01	Soil	463g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE232521.005	ANL_SAND_02	Soil	421g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE232521.006	ANL_SAND_03	Soil	472g Sand	27 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 30/5/2022

PARAMETER	UOM	LOR	H1 QUAL_SOIL_01 SOIL - 27/5/2022 SE232521.001	H1 QUAL_SOIL_02 SOIL - 27/5/2022 SE232521.002	H1 QUAL_SOIL_03 SOIL - 27/5/2022 SE232521.003	ANL_SAND_01 SOIL - 27/5/2022 SE232521.004	ANL_SAND_02 SOIL - 27/5/2022 SE232521.005
Total Sample Weight*	g	1	**343**	**336**	**359**	**463**	**421**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ANL_SAND_03 SOIL - 27/5/2022 SE232521.006
Total Sample Weight*	g	1	**472**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE232521 R0

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE232521 R0**
Date Received	27 May 2022
Date Reported	31 May 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil	1 item
Matrix Spike	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	4 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	9 Soil, 1 Water
Date documentation received	27/5/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_01	SE232521.004	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_02	SE232521.005	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022
ANL_SAND_03	SE232521.006	LB249697	27 May 2022	27 May 2022	27 May 2023	30 May 2022	27 May 2023	31 May 2022

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249697	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249666	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249735	27 May 2022	27 May 2022	24 Jun 2022	30 May 2022	24 Jun 2022	31 May 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249643	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	01 Jun 2022	31 May 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022
QA01_270522	SE232521.007	LB249728	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249672	27 May 2022	27 May 2022	23 Nov 2022	30 May 2022	23 Nov 2022	31 May 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE232521 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
QA01_270522	SE232521.007	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TB01_270522	SE232521.008	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
TS01_270522	SE232521.009	LB249638	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249655	27 May 2022	27 May 2022	03 Jun 2022	30 May 2022	09 Jul 2022	31 May 2022

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249637	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	06 Jul 2022	31 May 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TS01_270522	SE232521.009	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249663	27 May 2022	27 May 2022	10 Jun 2022	30 May 2022	10 Jun 2022	31 May 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
H1 QUAL_SOIL_01	SE232521.001	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_02	SE232521.002	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
H1 QUAL_SOIL_03	SE232521.003	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_01	SE232521.004	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_02	SE232521.005	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
ANL_SAND_03	SE232521.006	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
QA01_270522	SE232521.007	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TB01_270522	SE232521.008	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022
TS01_270522	SE232521.009	LB249641	27 May 2022	27 May 2022	10 Jun 2022	27 May 2022	10 Jun 2022	31 May 2022

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01_270522	SE232521.010	LB249663	27 May 2022	27 May 2022	10 Jun 2022	30 May 2022	10 Jun 2022	31 May 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	116
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	117
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	113
	ANL_SAND_01	SE232521.004	%	60 - 130%	108
	ANL_SAND_02	SE232521.005	%	60 - 130%	106
	ANL_SAND_03	SE232521.006	%	60 - 130%	101
	QA01_270522	SE232521.007	%	60 - 130%	109

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	75

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	97
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	98
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	95
	ANL_SAND_01	SE232521.004	%	60 - 130%	91
	ANL_SAND_02	SE232521.005	%	60 - 130%	87
	ANL_SAND_03	SE232521.006	%	60 - 130%	86
	QA01_270522	SE232521.007	%	60 - 130%	96
d14-p-terphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	100
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	99
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	98
	ANL_SAND_01	SE232521.004	%	60 - 130%	94
	ANL_SAND_02	SE232521.005	%	60 - 130%	89
	ANL_SAND_03	SE232521.006	%	60 - 130%	87
	QA01_270522	SE232521.007	%	60 - 130%	100

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	97
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	98
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	95
	ANL_SAND_01	SE232521.004	%	70 - 130%	91
	ANL_SAND_02	SE232521.005	%	70 - 130%	87
	ANL_SAND_03	SE232521.006	%	70 - 130%	86
	QA01_270522	SE232521.007	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	100
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	99
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	98
	ANL_SAND_01	SE232521.004	%	70 - 130%	94
	ANL_SAND_02	SE232521.005	%	70 - 130%	89
	ANL_SAND_03	SE232521.006	%	70 - 130%	87
	QA01_270522	SE232521.007	%	70 - 130%	100
d5-nitrobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	70 - 130%	95
	H1 QUAL_SOIL_02	SE232521.002	%	70 - 130%	96
	H1 QUAL_SOIL_03	SE232521.003	%	70 - 130%	93
	ANL_SAND_01	SE232521.004	%	70 - 130%	90
	ANL_SAND_02	SE232521.005	%	70 - 130%	87
	ANL_SAND_03	SE232521.006	%	70 - 130%	84
	QA01_270522	SE232521.007	%	70 - 130%	94

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	88
d5-nitrobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	66

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	116
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	117
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	113
	ANL_SAND_01	SE232521.004	%	60 - 130%	108
	ANL_SAND_02	SE232521.005	%	60 - 130%	106
	ANL_SAND_03	SE232521.006	%	60 - 130%	101
	QA01_270522	SE232521.007	%	60 - 130%	109

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	75

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	84
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	84
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	78
	ANL_SAND_01	SE232521.004	%	60 - 130%	99
	ANL_SAND_02	SE232521.005	%	60 - 130%	96
	ANL_SAND_03	SE232521.006	%	60 - 130%	94
	QA01_270522	SE232521.007	%	60 - 130%	89
	TB01_270522	SE232521.008	%	60 - 130%	95
	TS01_270522	SE232521.009	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	98
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	89
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	87
	ANL_SAND_01	SE232521.004	%	60 - 130%	111
	ANL_SAND_02	SE232521.005	%	60 - 130%	107
	ANL_SAND_03	SE232521.006	%	60 - 130%	106
	QA01_270522	SE232521.007	%	60 - 130%	101
	TB01_270522	SE232521.008	%	60 - 130%	112
	TS01_270522	SE232521.009	%	60 - 130%	110
d8-toluene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	92
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	83
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	80
	ANL_SAND_01	SE232521.004	%	60 - 130%	104
	ANL_SAND_02	SE232521.005	%	60 - 130%	100
	ANL_SAND_03	SE232521.006	%	60 - 130%	100
	QA01_270522	SE232521.007	%	60 - 130%	94
	TB01_270522	SE232521.008	%	60 - 130%	107
	TS01_270522	SE232521.009	%	60 - 130%	104

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	82
d8-toluene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	85

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	84
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	84
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	78
	ANL_SAND_01	SE232521.004	%	60 - 130%	99
	ANL_SAND_02	SE232521.005	%	60 - 130%	96
	ANL_SAND_03	SE232521.006	%	60 - 130%	94

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	QA01_270522	SE232521.007	%	60 - 130%	89
	TB01_270522	SE232521.008	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	98
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	89
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	87
	ANL_SAND_01	SE232521.004	%	60 - 130%	111
	ANL_SAND_02	SE232521.005	%	60 - 130%	107
	ANL_SAND_03	SE232521.006	%	60 - 130%	106
	QA01_270522	SE232521.007	%	60 - 130%	101
	TB01_270522	SE232521.008	%	60 - 130%	112
d8-toluene (Surrogate)	H1 QUAL_SOIL_01	SE232521.001	%	60 - 130%	92
	H1 QUAL_SOIL_02	SE232521.002	%	60 - 130%	83
	H1 QUAL_SOIL_03	SE232521.003	%	60 - 130%	80
	ANL_SAND_01	SE232521.004	%	60 - 130%	104
	ANL_SAND_02	SE232521.005	%	60 - 130%	100
	ANL_SAND_03	SE232521.006	%	60 - 130%	100
	QA01_270522	SE232521.007	%	60 - 130%	94
	TB01_270522	SE232521.008	%	60 - 130%	107

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	106
d4-1,2-dichloroethane (Surrogate)	RB01_270522	SE232521.010	%	60 - 130%	82
d8-toluene (Surrogate)	RB01_270522	SE232521.010	%	40 - 130%	85

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

Sample Number	Parameter	Units	LOR	Result
LB249666.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB249735.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB249655.001	Alpha BHC	µg/L	0.1	<0.1
	Hexachlorobenzene (HCB)	µg/L	0.1	<0.1
	Beta BHC	µg/L	0.1	<0.1
	Lindane (gamma BHC)	µg/L	0.1	<0.1
	Delta BHC	µg/L	0.1	<0.1
	Heptachlor	µg/L	0.1	<0.1
	Aldrin	µg/L	0.1	<0.1
	Heptachlor epoxide	µg/L	0.1	<0.1
	Gamma Chlordane	µg/L	0.1	<0.1
	Alpha Chlordane	µg/L	0.1	<0.1
	Alpha Endosulfan	µg/L	0.1	<0.1
	p,p'-DDE	µg/L	0.1	<0.1
	Dieldrin	µg/L	0.1	<0.1
	Endrin	µg/L	0.1	<0.1
	Beta Endosulfan	µg/L	0.1	<0.1
	p,p'-DDD	µg/L	0.1	<0.1
	Endosulfan sulphate	µg/L	0.1	<0.1
	p,p'-DDT	µg/L	0.1	<0.1
	Endrin ketone	µg/L	0.1	<0.1
	Methoxychlor	µg/L	0.1	<0.1
	Endrin aldehyde	µg/L	0.1	<0.1
	Isodrin	µg/L	0.1	<0.1
	Mirex	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

OC Pesticides in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	55

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	92

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Dichlorvos	µg/L	0.5	<0.5
		Dimethoate	µg/L	0.5	<0.5
		Diazinon (Dimpylate)	µg/L	0.5	<0.5
		Fenitrothion	µg/L	0.2	<0.2
		Malathion	µg/L	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2
		Parathion-ethyl (Parathion)	µg/L	0.2	<0.2
		Bromophos Ethyl	µg/L	0.2	<0.2
		Methidathion	µg/L	0.5	<0.5
		Ethion	µg/L	0.2	<0.2
		Azinphos-methyl	µg/L	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	89
		2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	92

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249655.001		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	60
		2-fluorobiphenyl (Surrogate)	%	-	72
		d14-p-terphenyl (Surrogate)	%	-	84

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB249638.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB249655.001	Arochlor 1016	µg/L	1	<1
	Arochlor 1221	µg/L	1	<1
	Arochlor 1232	µg/L	1	<1
	Arochlor 1242	µg/L	1	<1
	Arochlor 1248	µg/L	1	<1
	Arochlor 1254	µg/L	1	<1
	Arochlor 1260	µg/L	1	<1
	Arochlor 1262	µg/L	1	<1
	Arochlor 1268	µg/L	1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB249728.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB249672.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249638.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249655.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB249637.001	TRH C10-C14-Silica	mg/kg	20	<20
	TRH C15-C28-Silica	mg/kg	45	<45
	TRH C29-C36-Silica	mg/kg	45	<45
	TRH C37-C40-Silica	mg/kg	100	<100
	TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	<25
	TRH >C16-C34-Silica (F3)	mg/kg	90	<90
	TRH >C34-C40-Silica (F4)	mg/kg	120	<120

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249641.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	118
		d8-toluene (Surrogate)	%	-	113
		Bromofluorobenzene (Surrogate)	%	-	101
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249663.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	102

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249641.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	118

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB249663.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	102

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232462.010	LB249735.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE232521.007	LB249735.022	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249643.011	% Moisture	%w/w	1	70.2	68.9	31	2
SE232521.008	LB249643.021	% Moisture	%w/w	1	<1	<1	200	0

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	1
SE232521.007	LB249638.030		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.007	LB249638.030		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.17	30	7

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE232521.007	LB249638.028		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.027		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.4	30	1
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE232521.007	LB249638.028		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.008	LB249655.025		Naphthalene	µg/L	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	<0.1	<0.1	200	0
			Fluorene	µg/L	0.1	<0.1	<0.1	200	0
			Phenanthrene	µg/L	0.1	<0.1	<0.1	200	0
			Anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.3	30	3
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.3	30	0
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.4	30	7

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1
SE232521.007	LB249638.030		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232462.010	LB249728.014	Arsenic, As	mg/kg	1	2	2	87	7
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	5.2	5.4	39	4
		Copper, Cu	mg/kg	0.5	31	33	32	4
		Nickel, Ni	mg/kg	0.5	8.6	8.9	36	4
		Lead, Pb	mg/kg	1	10	10	40	5
		Zinc, Zn	mg/kg	2	46	48	34	4
SE232521.007	LB249728.022	Arsenic, As	mg/kg	1	4	3	59	25
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	1.6	1.4	63	12
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
		Nickel, Ni	mg/kg	0.5	<0.5	<0.5	157	0
		Lead, Pb	mg/kg	1	<1	<1	200	0
		Zinc, Zn	mg/kg	2	<2	<2	165	0

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232476.007	LB249672.014	Copper, Cu	µg/L	1	7	6	31	2
		Zinc, Zn	µg/L	5	17	17	45	3
SE232508.008	LB249672.028	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	0.1	<0.1	111	10
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	2	2	67	4
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	8	8	28	1
		Zinc, Zn	µg/L	5	<5	<5	200	0
SE232521.010	LB249672.032	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.004	LB249638.029		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE232521.007	LB249638.030		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.008	LB249655.025		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C40	µg/L	320	<320	<320	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	<60	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.003	LB249637.018	TRH C10-C14-Silica	mg/kg	20	32	24	101	29
		TRH C15-C28-Silica	mg/kg	45	250	130	54	59 ②
		TRH C29-C36-Silica	mg/kg	45	510	390	40	26
		TRH C37-C40-Silica	mg/kg	100	<100	<100	200	0
		TRH C10-C36-Silica	mg/kg	110	790	550	46	35
		TRH >C10-C16-Silica	mg/kg	25	52	35	87	39
		TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	52	35	87	39
		TRH >C16-C34-Silica (F3)	mg/kg	90	500	340	52	38
		TRH >C34-C40-Silica (F4)	mg/kg	120	230	170	89	29

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249641.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	8.5	50	6
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.7	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.4	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE232521.007	LB249641.026	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232521.007	LB249641.026	Monocyclic	o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	11.5	50	13
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.8	50	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	10.0	50	12
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232508.001	LB249663.027	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
			Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.3	9.4	30	1
			d8-toluene (Surrogate)	µg/L	-	9.5	9.3	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.5	10.5	30	1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232514.010	LB249641.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.1	8.5	30	6
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.7	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.4	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE232521.007	LB249641.026		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.1	11.5	30	13
			d8-toluene (Surrogate)	mg/kg	-	9.4	10.8	30	13
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	10.0	30	12
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE232393.001	LB249663.026		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<50	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.2	9.0	30	9
			d8-toluene (Surrogate)	µg/L	-	8.5	9.2	30	8
			Bromofluorobenzene (Surrogate)	µg/L	-	10.6	10.2	30	3
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0
SE232508.001	LB249663.027		TRH C6-C10	µg/L	50	<50	<50	200	0
			TRH C6-C9	µg/L	40	<40	<40	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	9.3	9.4	30	1
			d8-toluene (Surrogate)	µg/L	-	9.5	9.3	30	1
			Bromofluorobenzene (Surrogate)	µg/L	-	10.5	10.5	30	1
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	<0.5	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249735.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	116

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	82
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	81
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	81
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	82
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	90
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	99
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	93

OC Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Delta BHC	µg/L	0.1	0.2	0.2	60 - 140	97
		Heptachlor	µg/L	0.1	0.2	0.2	60 - 140	95
		Aldrin	µg/L	0.1	0.2	0.2	60 - 140	89
		Dieldrin	µg/L	0.1	0.2	0.2	60 - 140	103
		Endrin	µg/L	0.1	0.2	0.2	60 - 140	118
		p,p'-DDT	µg/L	0.1	0.2	0.2	60 - 140	113
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	µg/L	-	0.09	0.15	40 - 130	58

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	91
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	95
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.0	2	60 - 140	98
		Ethion	mg/kg	0.2	1.7	2	60 - 140	85
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

OP Pesticides in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Dichlorvos	µg/L	0.5	6.4	8	60 - 140	80
		Diazinon (Dimpylate)	µg/L	0.5	7.9	8	60 - 140	99
		Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	8.0	8	60 - 140	100
		Ethion	µg/L	0.2	8.5	8	60 - 140	106
	Surrogates	2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	3.8	4	60 - 140	95
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	91
		Phenanthrene	mg/kg	0.1	3.9	4	60 - 140	97
		Anthracene	mg/kg	0.1	3.6	4	60 - 140	90
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	96
		Benzo(a)pyrene	mg/kg	0.1	4.5	4	60 - 140	113
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	89

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002	Naphthalene	µg/L	0.1	30	40	60 - 140	75
	Acenaphthylene	µg/L	0.1	37	40	60 - 140	92
	Acenaphthene	µg/L	0.1	35	40	60 - 140	87
	Phenanthrene	µg/L	0.1	36	40	60 - 140	90
	Anthracene	µg/L	0.1	36	40	60 - 140	90
	Fluoranthene	µg/L	0.1	36	40	60 - 140	89

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		Pyrene	µg/L	0.1	37	40	60 - 140	93
		Benzo(a)pyrene	µg/L	0.1	37	40	60 - 140	93
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	72
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	114

PCBs in Water

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002	Arochlor 1260	µg/L	1	<1	0.4	60 - 140	122

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249728.002	Arsenic, As	mg/kg	1	330	318.22	80 - 120	103
	Cadmium, Cd	mg/kg	0.3	3.9	4.81	70 - 130	81
	Chromium, Cr	mg/kg	0.5	34	38.31	80 - 120	90
	Copper, Cu	mg/kg	0.5	310	290	80 - 120	106
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	96
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	97
	Zinc, Zn	mg/kg	2	270	273	80 - 120	98

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249672.002	Arsenic, As	µg/L	1	19	20	80 - 120	95
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	21	20	80 - 120	107
	Copper, Cu	µg/L	1	21	20	80 - 120	105
	Lead, Pb	µg/L	1	19	20	80 - 120	97
	Nickel, Ni	µg/L	1	21	20	80 - 120	106
	Zinc, Zn	µg/L	5	23	20	80 - 120	113

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249638.002		TRH C10-C14	mg/kg	20	44	40	60 - 140	110
		TRH C15-C28	mg/kg	45	52	40	60 - 140	130
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	103
	TRH F Bands	TRH >C10-C16	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	128
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249655.002		TRH C10-C14	µg/L	50	1200	1200	60 - 140	102
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	120
		TRH C29-C36	µg/L	200	1300	1200	60 - 140	111
	TRH F Bands	TRH >C10-C16	µg/L	60	1300	1200	60 - 140	111
		TRH >C16-C34 (F3)	µg/L	500	1400	1200	60 - 140	117
		TRH >C34-C40 (F4)	µg/L	500	670	600	60 - 140	111

TRH Silica Gel (Total Recoverable Hydrocarbons - Silica Gel) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249637.002	TRH C10-C14-Silica	mg/kg	20	48	40	70 - 130	120
	TRH C15-C28-Silica	mg/kg	45	52	40	70 - 130	130
	TRH C29-C36-Silica	mg/kg	45	<45	40	70 - 130	105
	TRH >C10-C16-Silica minus Naphthalene (F2)	mg/kg	25	48	40	70 - 130	120
	TRH >C16-C34-Silica (F3)	mg/kg	90	<90	40	70 - 130	128
	TRH >C34-C40-Silica (F4)	mg/kg	120	<120	20	70 - 130	120

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249641.002	Monocyclic	Benzene	mg/kg	0.1	4.7	5	60 - 140	93
	Aromatic	Toluene	mg/kg	0.1	4.6	5	60 - 140	92
		Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	95
		m/p-xylene	mg/kg	0.2	9.2	10	60 - 140	92
		o-xylene	mg/kg	0.1	5.0	5	60 - 140	100
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.4	10	70 - 130	124
		d8-toluene (Surrogate)	mg/kg	-	11.5	10	70 - 130	115
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	10	70 - 130	107

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249663.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	112
	Aromatic	Toluene	µg/L	0.5	48	45.45	60 - 140	105
		Ethylbenzene	µg/L	0.5	50	45.45	60 - 140	110
		m/p-xylene	µg/L	1	100	90.9	60 - 140	110
		o-xylene	µg/L	0.5	50	45.45	60 - 140	110
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	10	60 - 140	75
		d8-toluene (Surrogate)	µg/L	-	7.9	10	70 - 130	79
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249641.002		TRH C6-C10	mg/kg	25	67	92.5	60 - 140	73
		TRH C6-C9	mg/kg	20	61	80	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.4	10	70 - 130	124
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.7	10	70 - 130	107
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	62.5	60 - 140	62

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB249663.002		TRH C6-C10	µg/L	50	970	946.63	60 - 140	102
		TRH C6-C9	µg/L	40	830	818.71	60 - 140	102
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	7.5	10	60 - 140	75
		d8-toluene (Surrogate)	µg/L	-	7.9	10	70 - 130	79
		Bromofluorobenzene (Surrogate)	µg/L	-	10.9	10	70 - 130	109
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	670	639.67	60 - 140	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311(Perth)/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232490.001	LB249666.004	Mercury	mg/L	0.0001	0.0016	-0.012	0.008	80

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232462.001	LB249735.004	Mercury	mg/kg	0.05	0.25	<0.05	0.2	122

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0.05498977306	-	-
			Alpha BHC	mg/kg	0.1	<0.1	0.00174721525	-	-
			Lindane	mg/kg	0.1	<0.1	0.00823871473	-	-
			Heptachlor	mg/kg	0.1	0.2	0.00145113534	0.2	101
			Aldrin	mg/kg	0.1	0.2	0.00504796989	0.2	96
			Beta BHC	mg/kg	0.1	<0.1	0.00043596102	-	-
			Delta BHC	mg/kg	0.1	0.2	0.01442540278	0.2	100
			Heptachlor epoxide	mg/kg	0.1	<0.1	0.00516141779	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	0.04288792898	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	0.00834405445	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	0.03699035537	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	0.01187282056	-	-
			Dieldrin	mg/kg	0.2	0.2	0.06314531695	0.2	77
			Endrin	mg/kg	0.2	0.2	0.00720342911	0.2	104
			o,p'-DDD	mg/kg	0.1	<0.1	0.00014354575	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	0.03714849709	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	0.02711865477	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	0.03714849709	-	-
			p,p'-DDT	mg/kg	0.1	0.2	0	0.2	88
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	0.00324549957	-	-
			Methoxychlor	mg/kg	0.1	<0.1	0.02697857795	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	0.01314529605	-	-
			Isodrin	mg/kg	0.1	<0.1	0.08675944892	-	-
			Mirex	mg/kg	0.1	<0.1	0.02360449048	-	-
			Total CLP OC Pesticides	mg/kg	1	1	0	-	-
			Total OC VIC EPA	mg/kg	1	1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.17007263364	-	117

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Dichlorvos	mg/kg	0.5	2.2	0.01905346881	2	108
			Dimethoate	mg/kg	0.5	<0.5	0.05159585699	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	2.3	0.00884413380	2	116
			Fenitrothion	mg/kg	0.2	<0.2	0.00326095084	-	-
			Malathion	mg/kg	0.2	<0.2	0.01656834428	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	2.5	0	2	124
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0.08783597368	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	0.00192265402	-	-
			Methidathion	mg/kg	0.5	<0.5	0	-	-
			Ethion	mg/kg	0.2	2.4	0	2	121
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.02758635168	-	-
			Total OP Pesticides*	mg/kg	1.7	9.4	0	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.46696474391	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47584319545	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Naphthalene	mg/kg	0.1	4.4	0.29080084873	4	104
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.08952378978	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.12240936886	-	-
			Acenaphthylene	mg/kg	0.1	4.3	0.56410890846	4	92
			Acenaphthene	mg/kg	0.1	3.9	0.28921667486	4	91
			Fluorene	mg/kg	0.1	0.1	0.64822210125	-	-
			Phenanthrene	mg/kg	0.1	6.1	6.97760428743	4	-23 ⑨
			Anthracene	mg/kg	0.1	4.4	1.15645030484	4	80
			Fluoranthene	mg/kg	0.1	7.5	10.3316611098	4	-70 ⑨
			Pyrene	mg/kg	0.1	7.9	10.6402162322	4	-69 ⑨
			Benzo(a)anthracene	mg/kg	0.1	1.9	4.25083298513	-	-
			Chrysene	mg/kg	0.1	1.8	4.07252179078	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	2.7	6.23242650597	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	1.0	2.54664211087	-	-
			Benzo(a)pyrene	mg/kg	0.1	6.9	5.73168464595	4	30 ⑨
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.7	4.21915517812	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	0.3	0.74884964365	-	-
			Benzo(ghi)perylene	mg/kg	0.1	1.7	4.36606364266	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	8.0	8.28991896027	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	8.0	8.28991896027	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	8.0	8.28991896027	-	-
			Total PAH (18)	mg/kg	0.8	57	33.1897977228	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.45832063651	-	98
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.46696474391	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.47584319545	-	99

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249638.004		Arochlor 1016	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1260	mg/kg	0.2	0.5	0	0.4	131
			Arochlor 1262	mg/kg	0.2	<0.2	0	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	0	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0.17007263364	-	117

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232462.001	LB249728.004	Arsenic, As	mg/kg	1	47	3	50	88
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	86
		Chromium, Cr	mg/kg	0.5	49	4.1	50	89
		Copper, Cu	mg/kg	0.5	71	27	50	88
		Nickel, Ni	mg/kg	0.5	51	7.9	50	86
		Lead, Pb	mg/kg	1	53	9	50	87
		Zinc, Zn	mg/kg	2	82	40	50	83

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232519.001	LB249672.030	Arsenic, As	µg/L	1	21	0.531	20	104
		Cadmium, Cd	µg/L	0.1	20	0.002	20	102
		Chromium, Cr	µg/L	1	22	1.215	20	103
		Copper, Cu	µg/L	1	22	2.163	20	100
		Lead, Pb	µg/L	1	19	0.134	20	93
		Nickel, Ni	µg/L	1	21	0.638	20	102
		Zinc, Zn	µg/L	5	32	10.888	20	106

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249641.004	Monocyclic	Benzene	mg/kg	0.1	3.4	0.00350918552	5	69
		Aromatic	Toluene	mg/kg	0.1	3.6	0.01166989335	5	72
			Ethylbenzene	mg/kg	0.1	3.4	0.00410665291	5	68
			m/p-xylene	mg/kg	0.2	6.5	0.00922659248	10	65
			o-xylene	mg/kg	0.1	3.5	0.00450208811	5	69
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	0.01546635469	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.05461179814	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.53100930871	10	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	7.70583900218	10	71
		Totals	Total Xylenes	mg/kg	0.3	10	0.01372868059	-	-
			Total BTEX	mg/kg	0.6	20	0	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE232519.001	LB249663.028	Monocyclic	Benzene	µg/L	0.5	0	45.45	118
		Aromatic	Toluene	µg/L	0.5	0.05674311538	45.45	118
			Ethylbenzene	µg/L	0.5	0.01003076044	45.45	113
			m/p-xylene	µg/L	1	0.03300504339	90.9	113
			o-xylene	µg/L	0.5	0.01445311868	45.45	114
		Polycyclic	Naphthalene (VOC)	µg/L	0.5	0.03452030015	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.22653013426	-	97
			d8-toluene (Surrogate)	µg/L	-	8.44274309396	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	10.7492427645	-	104

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE232514.001	LB249641.004		TRH C6-C10	mg/kg	25	65	3.80825644838	92.5	66
			TRH C6-C9	mg/kg	20	57	2.97341370309	80	68
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.8	7.05461179814	10	78
			d8-toluene (Surrogate)	mg/kg	-	8.1	7.53100930871	10	81
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.1	7.70583900218	-	71
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	0.00350918552	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	45	3.80825644838	62.5	65

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE232519.001	LB249663.028		TRH C6-C10	µg/L	50	0	946.63	98
			TRH C6-C9	µg/L	40	0	818.71	101
		Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	8.22653013426	-	97
			d8-toluene (Surrogate)	µg/L	-	8.44274309396	-	101
			Bromofluorobenzene (Surrogate)	µg/L	-	10.7492427645	-	104
		VPH F	Benzene (F0)	µg/L	0.5	0	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	0	639.67	97

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**30073144 - PS127030**
Samples	10

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Fri 27/5/2022
Report Due	Tue 31/5/2022
SGS Reference	**SE232521**

SUBMISSION DETAILS

This is to confirm that 10 samples were received on Friday 27/5/2022. Results are expected to be ready by COB Tuesday 31/5/2022. Please quote SGS reference SE232521 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	9 Soil, 1 Water
Date documentation received	27/5/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4°C
Sufficient sample for analysis	Yes	Turnaround time requested	Two Days

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

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SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	TRH Silica Gel (Total Recoverable	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	H1 QUAL_SOIL_01	30	14	26	11	-	9	11	7
002	H1 QUAL_SOIL_02	30	14	26	11	-	9	11	7
003	H1 QUAL_SOIL_03	30	14	26	11	-	9	11	7
004	ANL_SAND_01	30	14	26	11	10	-	11	7
005	ANL_SAND_02	30	14	26	11	10	-	11	7
006	ANL_SAND_03	30	14	26	11	10	-	11	7
007	QA01_270522	30	14	26	11	10	-	11	7
008	TB01_270522	-	-	-	-	10	-	11	7
009	TS01_270522	-	-	-	-	-	-	11	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	H1 QUAL_SOIL_01	2	9	1	1	7
002	H1 QUAL_SOIL_02	2	9	1	1	7
003	H1 QUAL_SOIL_03	2	9	1	1	7
004	ANL_SAND_01	2	9	1	1	7
005	ANL_SAND_02	2	9	1	1	7
006	ANL_SAND_03	2	9	1	1	7
007	QA01_270522	-	-	1	1	7
008	TB01_270522	-	-	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Water	OP Pesticides in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	PCBs in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
010	RB01_270522	30	13	22	11	7	9	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE232521

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water
010	RB01_270522	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 1

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

SGS EHS Sydney COC

SE232521

Company Name:	WSP	Project Name/No:	PS127030
Address:	Lvl 27/680 George St. Sydney NSW 2000	Purchase Order No:	2 day TAT
		Results Required Date:	TBA
		Telephone:	D: M: 0478 051 688
Contact Name:	James Green	Email Results to:	James.green@wsp.com
Quotation No:			

SGS ID	Client Sample ID	Sampled ~~Report ID~~	Matrix: Soil Sample	Matrix: Water Sample	Matrix: FRAGMENT	NO. OF CONTAINERS	BTEXN, PAH, M8	TRH (w/ SG clean-up)	TRH	OCP/OPP/PCB	Asbestos w/w/. NEPM	TRH/BTEX	Notes/Guidelines/LOR/ Special instructions
1	HI QUAL_SOIL_01	27/5/22	✓			2	✓	✓		✓	✓		
2	HI QUAL_SOIL_02		↓			↓	✓	✓		✓	✓		
3	HI QUAL_SOIL_03						✓	✓		✓	✓		
4	ANL_SAND_01						✓		✓	✓	✓		
5	ANL_SAND_02						✓		✓	✓	✓		
6	ANL_SAND_03					↓	✓		✓	✓	✓		
7	QA01_270522					1	✓		✓	✓			
	QA01A_270522						✓		✓	✓			Please forward to Eurofins
8	TB01_270522						✓					✓	
9	TS01_270522		↓			↓						✓	
10	RB01_270522	↓		✓		4	✓		✓	✓			

Relinquished By: / WSP: James Green	Date/Time: 27/5/22	Received By: George Zhi	Date/Time: 27/5/22 @ 3pm
Relinquished By: "	Date/Time: 2:15pm	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 4 °C	Sample Security Sealed: Yes / No	Hazards:

Comments / Subcontracting details:

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SGS Environmental Services NSW
PO: 50385415
Unit 16/33 Maddox St
Alexandria NSW 2015

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Attention: **James Green**

Report **893186-S**
Project name
Project ID PS127030
Received Date May 31, 2022

Client Sample ID			**QA01A-270522**
Sample Matrix			**Soil**
Eurofins Sample No.			**S22-My0074091**
Date Sampled			**May 27, 2022**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	82
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			QA01A-270522
Sample Matrix			Soil
Eurofins Sample No.			S22-My0074091
Date Sampled			May 27, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	84
p-Terphenyl-d14 (surr.)	1	%	84
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	79
Tetrachloro-m-xylene (surr.)	1	%	91
Organophosphorus Pesticides			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2

Client Sample ID			QA01A-270522
Sample Matrix			Soil
Eurofins Sample No.			S22-My0074091
Date Sampled			May 27, 2022
Test/Reference	LOR	Unit	
Organophosphorus Pesticides			
Disulfoton	0.2	mg/kg	< 0.2
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	90
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	79
Tetrachloro-m-xylene (surr.)	1	%	91
Heavy Metals			
Arsenic	2	mg/kg	2.9
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	< 5
% Moisture	1	%	4.2

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	May 31, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	May 31, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	May 31, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	May 31, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Company Name: SGS Environmental Services NSW
Address: PO: 50385415
Unit 16/33 Maddox St
Alexandria NSW 2015

Project Name:
Project ID: PS127030

Order No.:
Report #: 893186
Phone: 02 8594 0400
Fax: 02 8594 0499

Received: May 31, 2022 11:48 AM
Due: Jun 2, 2022
Priority: 2 Day
Contact Name: James Green

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	QA01A-270522	May 27, 2022		Soil	S22-My0074091	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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

Results <10 times the LOR: No Limit

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

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

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Total PAH*	mg/kg	-			0.5	N/A	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
Naphthalene	%	103			70-130	Pass	
TRH C6-C10	%	93			70-130	Pass	
TRH >C10-C16	%	84			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	114			70-130	Pass	
Toluene	%	103			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	102			70-130	Pass	
Xylenes - Total*	%	102			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	96			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	109			70-130	Pass	
Benzo(a)pyrene	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	%	112			70-130	Pass	
Benzo(g.h.i)perylene	%	91			70-130	Pass	
Benzo(k)fluoranthene	%	82			70-130	Pass	
Chrysene	%	78			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	100			70-130	Pass	
Fluorene	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	95			70-130	Pass	
Phenanthrene	%	107			70-130	Pass	
Pyrene	%	100			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	86			70-130	Pass	
4.4'-DDD	%	98			70-130	Pass	
4.4'-DDE	%	91			70-130	Pass	
4.4'-DDT	%	80			70-130	Pass	
a-HCH	%	87			70-130	Pass	
Aldrin	%	92			70-130	Pass	
b-HCH	%	88			70-130	Pass	
d-HCH	%	90			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dieldrin	%	88			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	81			70-130	Pass	
Endrin	%	82			70-130	Pass	
Endrin aldehyde	%	93			70-130	Pass	
Endrin ketone	%	83			70-130	Pass	
g-HCH (Lindane)	%	86			70-130	Pass	
Heptachlor	%	83			70-130	Pass	
Heptachlor epoxide	%	89			70-130	Pass	
Hexachlorobenzene	%	91			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	90			70-130	Pass	
Dimethoate	%	85			70-130	Pass	
Ethion	%	85			70-130	Pass	
Fenitrothion	%	83			70-130	Pass	
Methyl parathion	%	93			70-130	Pass	
Mevinphos	%	85			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	85			70-130	Pass	
Aroclor-1260	%	92			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	107			80-120	Pass	
Cadmium	%	104			80-120	Pass	
Chromium	%	100			80-120	Pass	
Copper	%	100			80-120	Pass	
Lead	%	105			80-120	Pass	
Mercury	%	105			80-120	Pass	
Nickel	%	100			80-120	Pass	
Zinc	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	N22-My0070649	NCP	%	79			70-130	Pass	
TRH C10-C14	S22-Jn0002623	NCP	%	92			70-130	Pass	
Naphthalene	N22-My0070649	NCP	%	80			70-130	Pass	
TRH C6-C10	N22-My0070649	NCP	%	79			70-130	Pass	
TRH >C10-C16	S22-Jn0002623	NCP	%	87			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N22-My0070649	NCP	%	86			70-130	Pass	
Toluene	N22-My0070649	NCP	%	84			70-130	Pass	
Ethylbenzene	N22-My0070649	NCP	%	85			70-130	Pass	
m&p-Xylenes	N22-My0070649	NCP	%	85			70-130	Pass	
o-Xylene	N22-My0070649	NCP	%	86			70-130	Pass	
Xylenes - Total*	N22-My0070649	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S22-My0070422	NCP	%	95			70-130	Pass	
Acenaphthylene	S22-My0070422	NCP	%	98			70-130	Pass	
Anthracene	S22-My0070422	NCP	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	S22-My0070422	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	S22-My0070422	NCP	%	100			70-130	Pass	
Benzo(b&j)fluoranthene	S22-My0070422	NCP	%	100			70-130	Pass	
Benzo(g.h.i)perylene	S22-My0070422	NCP	%	88			70-130	Pass	
Benzo(k)fluoranthene	S22-My0070422	NCP	%	85			70-130	Pass	
Chrysene	S22-My0070422	NCP	%	81			70-130	Pass	
Dibenz(a.h)anthracene	S22-My0070422	NCP	%	96			70-130	Pass	
Fluoranthene	S22-My0070422	NCP	%	99			70-130	Pass	
Fluorene	S22-My0070422	NCP	%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-My0070422	NCP	%	97			70-130	Pass	
Naphthalene	S22-My0070422	NCP	%	95			70-130	Pass	
Phenanthrene	S22-My0070422	NCP	%	104			70-130	Pass	
Pyrene	S22-My0070422	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S22-My0070422	NCP	%	84			70-130	Pass	
4.4'-DDD	S22-My0070422	NCP	%	78			70-130	Pass	
4.4'-DDE	S22-My0070422	NCP	%	89			70-130	Pass	
a-HCH	S22-My0070422	NCP	%	83			70-130	Pass	
Aldrin	S22-My0070422	NCP	%	88			70-130	Pass	
b-HCH	S22-My0070422	NCP	%	79			70-130	Pass	
d-HCH	S22-My0070422	NCP	%	84			70-130	Pass	
Dieldrin	S22-My0070422	NCP	%	90			70-130	Pass	
Endosulfan I	S22-My0070422	NCP	%	84			70-130	Pass	
Endosulfan II	S22-My0070422	NCP	%	71			70-130	Pass	
Endosulfan sulphate	S22-My0070422	NCP	%	74			70-130	Pass	
Endrin	S22-My0070422	NCP	%	73			70-130	Pass	
Endrin aldehyde	S22-My0070422	NCP	%	104			70-130	Pass	
Endrin ketone	S22-My0070422	NCP	%	73			70-130	Pass	
g-HCH (Lindane)	S22-My0070422	NCP	%	83			70-130	Pass	
Heptachlor	S22-My0070422	NCP	%	76			70-130	Pass	
Heptachlor epoxide	S22-My0070422	NCP	%	79			70-130	Pass	
Hexachlorobenzene	S22-My0070422	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S22-My0070422	NCP	%	86			70-130	Pass	
Mevinphos	S22-My0070422	NCP	%	83			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S22-My0070422	NCP	%	84			70-130	Pass	
Aroclor-1260	S22-My0070422	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-My0075621	NCP	%	81			75-125	Pass	
Cadmium	S22-My0075621	NCP	%	86			75-125	Pass	
Chromium	S22-My0073334	NCP	%	104			75-125	Pass	
Copper	S22-My0074154	NCP	%	106			75-125	Pass	
Lead	S22-My0075621	NCP	%	92			75-125	Pass	
Mercury	S22-My0075621	NCP	%	98			75-125	Pass	
Nickel	S22-My0074154	NCP	%	104			75-125	Pass	
Zinc	S22-My0074154	NCP	%	107			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S22-My0074091	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-My0074091	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-My0074091	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-My0074091	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-My0074091	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-My0074091	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-My0074091	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-My0074091	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
g-HCH (Lindane)	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S22-My0070285	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S22-My0070285	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S22-My0070285	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S22-My0070285	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S22-My0070285	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-My0075620	NCP	mg/kg	14	13	3.0	30%	Pass	
Cadmium	S22-My0075620	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-My0075620	NCP	mg/kg	61	75	21	30%	Pass	
Copper	S22-My0075620	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S22-My0075620	NCP	mg/kg	17	15	9.0	30%	Pass	
Mercury	S22-My0075620	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-My0075620	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S22-My0075620	NCP	mg/kg	7.2	8.0	10	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-My0074091	CP	%	4.2	4.2	1.0	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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

Authorised by:

Robert Biviano	Analytical Services Manager
Gabriele Cordero	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



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

Sample Receipt Advice

Company name:	SGS Environmental Services NSW
Contact name:	James Green
Project name:	Not provided
Project ID:	PS127030
Turnaround time:	2 Day
Date/Time received	May 31, 2022 11:48 AM
Eurofins reference	893186

Sample Information

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

Notes

Contact

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

Asim Khan on phone : or by email: AsimKhan@eurofins.com

Results will be delivered electronically via email to James Green - James.Green@wsp.com.

Global Leader - Results you can trust

SGS

GS Environmental Services Sydney
nit 16, 33 Maddox Street
lexandria NSW 2015
elephone No: (02) 85940400
acsimile No: (02) 85940499
mail: au.samplereceipt.sydney@sgs.com

ab ID Number: *(please quote on correspondence)*

CHAIN OF CUSTODY & ANALYSIS REQUEST

Company Name:	WSP	Project Name/No:	PS127030	
Address:	Lvl 27/680 George St Sydny NSW 2000	Purchase Order No:	2 day TAT	
		Results Required Date:	TBA	
		Telephone:	D:	M: 0478 051 688
Contact Name:	James Green	Email Results to:	James.green@wsp.com	
Quotation No:				

SGS ID	Client Sample ID	Sampled ~~Report ID~~	Matrix: Soil Sample	Matrix: Water Sample	Matrix: FRAGMENT__	NO. OF CONTAINERS	BTEXN, PAH, MS	TRH (w/ Si cleanup)	TRH	OCP/OPP/PCB	Asbestos w/wt. NEPM	TRH/BTEX	Additional Report Formats / Notes/Guidelines/LOR/ Special instructions
1	HI QUAL_SOIL_01	27/5/22	✓			2	✓	✓		✓	✓		
2	HI QUAL_SOIL_02						✓	✓		✓	✓		
3	HI QUAL_SOIL_03						✓	✓		✓	✓		
4	ANL_SAND_01						✓		✓	✓	✓		
5	ANL_SAND_02						✓		✓	✓	✓		
6	ANL_SAND_03						✓		✓	✓	✓		
7	QA01_270522					1	✓		✓	✓			
	QA01A_270522						✓		✓	✓			Please forward to Eurofins
8	TB01_270522					HW	W					✓	
9	TS01_270522											✓	
10	RB01_270522			✓		4	✓		✓	✓			

Relinquished By: / WSP: James Green	Date/Time: 27/5/22	Received By: George Zhi	Date/Time: 27/5/22 @ 3pm
Relinquished By:	Date/Time: 2:15pm	Received By: SP Eurofins	Date/Time: 31/05/22 11:48 am 14°C
Samples Intact: (Yes) / No	Temperature: 4 °C	Sample Security Sealed: Yes / No	Hazards: #893186

Comments / Subcontracting details:



AUSTRALIAN NATIVE LANDSCAPES PTY LTD

'Everything for your garden'.

Seven Hills

42 001 749 960

4-8 Tolla Place
SEVEN HILLS NSW 2147
Phone: (02) 9674 4899 Fax
accounts@anlscape.com.au

Date and time	24/05/2022 3:03:48 PM
Invoice No	04-1-00037442
Cashier	Chloe keech
Customer Code	WHOLELANDSCAPES
Customer Name	WHOLE LANDSCAPES PTY LTD
Customer Order	WENTWORTHVILLE
Phone	9999 2244
Address	20-100 FULLAGAR ROAD WENTWORTHVILLE JOSH - 0403 889 764

Description	Unit	Qty	Amount
FHYAB			
FREIGHT HYAB UNLOADING BBQSYS	Each	1	$13.20*
BULKA BAG SYDNEY SAND DD40	P/BA	1	$108.00
DELIVERY FEE	Each	1	$40.00*
Account			$161.20

Total	**$161.20**
*GST included	$14.66
Change	$0.00

Thank You

TAX INVOICE

04-1-00037442

Conditions

The Supplier's responsibility for delivery of materials will cease at the kerbside of the job address stated. If it is necessary for a vehicle to cross the footpath or to enter upon private property in the course of the effecting delivery, the purchaser will provide safe and adequate access and notwithstanding will pay for all damage to any public or private property and every injury or wrong.

For all products delivered on pallets, if an exchange of pallets does not occur and therefore pallets are owed, pallets not returned within 14 days will incur a $35.00 charge.

Australian Native Landscapes Pty Ltd

ABN. 42 001 749 980

Address all correspondence to: PO Box 113, TERREY HILLS NSW 2084

Email: ar@anlscape.com.au Web site: www.anlscape.com.au

HEAD OFFICE	NORTH RYDE	SEVEN HILLS	WESTERN DIVISION	WARNERVALE	CENTRAL COAST	ORANGE	BROWNS CREEK	BATHURST
317 Mona Vale Road TERREY HILLS 2084 Ph: (02) 9450 1444 Fx: (02) 9450 2428	Cnr Wicks & Waterloo Roads NORTH RYDE 2113 Ph: (02) 9887 2766 Fx: (02) 9888 2614	6 Tollis Place (off Station Road) SEVEN HILLS 2147 Ph: (02) 9674 4699 Fx: (02) 9674 5199	Martin Road BADGERYS CREEK 2555 Ph: (02) 4774 8484 Fx: (02) 4774 8537	221 Sparks Road Warnervale 2259 Ph: (02) 4392 5013	Hue Hue Road WYONG 2259 Ph: (02) 4353 8088 Fx: (02) 4353 7011	94 Paisley Street ORANGE 2800 Ph: (02) 6361 2224 Fx: (02) 6361 9164	755 Browns Creek Rd Blayney NSW 2799 Ph: (02) 6368 5205 Fx: (02) 6368 5282	9 Lambert St Bathurst NSW 2795 Ph: (02) 6331 7455 Fx: (02) 63329849

Tax Invoice

INVOICE TO: WHOLE LANDSCAPES PTY LTD PO BOX 1555 WARRIEWOOD NSW 2102 **Ph:** 9999 2244	**Invoice No:** 04-1-00037442 **Date:** 24/05/2022 **Account Number :** WHOLELANDSCAPES **Your Order Number:** WENTWORTHVILLE **Depot:** TERREY HILLS
DELIVERY INSTRUCTIONS: **DELIVER DATE:** 24/05/2022 **SALES PERSON:** CHLOE	**DELIVER TO:** 20-100 FULLAGAR ROAD WENTWORTHVILLE JOSH - 0403 689 794

RECEIVED - 6 JUN 2022

Code	Description	Qty	Unit Price Inc GST	GST	Gross Amount
FHYAB	FREIGHT HYAB UNLOADING	1 Each	[redacted]	[redacted]	[redacted]
BBQSYS	BULKA BAG SYDNEY SAND	1 P/BAG			
DD40	DELIVERY FEE	1 Each			

This is a payment claim made under the Building and Construction Industry Security of Payment Act 1999 NSW, Revised 2001.

*** PLEASE ENSURE YOUR LOAD IS SAFE & COVERED *** AUSTRALIAN STANDARD WARNING (Effective as of August 2001)
This product may affect your health. For your personal safety, please ensure you read the following warning note. If this product is made from organic material which may contain living micro-organisms, ng bateria, fungi and protozoa *** RISK: Direct contact with this material or its dust or moisture droplets may cause skin irritation and may irritate, inflame or sensitise the nose, throat and lungs ng in illnesses ranging from hay fever and asthma to pneumonia (legionella) or pneumonia-like illnesses. Wash hands thoroughly after handling. For further information, ask for our material safety data sheet.

Conditions

The supplier's responsibility for delivery of materials will cease at the kerbside of the job address stated, if it is necessary for a vehicle to cross the footpath or to enter upon private property in the course of effecting delivery, the purchaser will provide safe and adequate access and notwithstanding will pay for all damage to any public or private property and every injury or wrong

For all products delivered on pallets, if an exchange of pallets does not occur and therefore pallets are owed, pallets not returned within 14 days will incur a $35.00 charge.

Conditions signed and acknowledged by property owner or representation.

Print Name: _____

Signature: _____

Date: _____

Terms Payment is due by 30/06/2022

Total Ex GST	[redacted]
Total GST	
Total Amount Due:	

Please EFT Payments to:
BSB: 012-298
Account No. 8376 70217 - ANZ Belrose NSW
Please email remittance to
ar@anlscape.com.au or Fax to 02 9450 2428

	Out	Delivered	Returned	Owing
Loscam				
Chep				
Plain				
Blue				
SIGN				

Australian Native Landscapes Pty Ltd

ABN. 42 001 749 980

Address all correspondence to: PO Box 113, TERREY HILLS NSW 2084

Email: ar@anlscape.com.au Web site: www.anlscape.com.au

HEAD OFFICE	NORTH RYDE	SEVEN HILLS	WESTERN DIVISION	WARNERVALE	CENTRAL COAST	ORANGE	BROWNS CREEK	BATHURST
317 Mona Vale Road TERREY HILLS 2084 Ph: (02) 9450 1444 Fx: (02) 9450 2428	Cnr Wicks & Waterloo Roads NORTH RYDE 2113 Ph: (02) 9887 2788 Fx: (02) 9888 2614	6 Tollis Place (off Station Road) SEVEN HILLS 2147 Ph: (02) 9674 4899 Fx: (02) 9674 5199	Martin Road BADGERYS CREEK 2555 Ph: (02) 4774 8484 Fx: (02) 4774 8537	221 Sparks Road Warnervale 2259 Ph: (02) 4392 5013	Hue Hue Road WYONG 2259 Ph: (02) 4353 8088 Fx: (02) 4353 7011	94 Peisley Street ORANGE 2800 Ph: (02) 6361 2224 Fx: (02) 6361 9164	755 Browns Creek Rd Blayney NSW 2799 Ph: (02) 6368 5205 Fx: (02) 6368 5282	9 Lambert St Bathurst NSW 2795 Ph: (02) 6331 7455 Fx: (02) 63329849

Tax Invoice

INVOICE TO:	WHOLE LANDSCAPES PTY LTD PO BOX 1555 WARRIEWOOD NSW 2102 Ph: 9999 2244	Invoice No: Date: Account Number : Your Order Number: Depot:	04-1-00039019 19/07/2022 WHOLELANDSCAPES WENTY TERREY HILLS
DELIVERY INSTRUCTIONS: DELIVER DATE: 19/07/2022 SALES PERSON: CHLOE		DELIVER TO: WENTWORTHVILLE PUBLIC SCHOOL 70-100 FULLAGAR ROAD WENTWORTHVILLE 0403 689 794	

Code	Description	Qty	Unit Price Inc GST	GST	Gross Amount
	NO QUOTE				
FHYAB	FREIGHT HYAB UNLOADING	4 Each	[redacted]	[redacted]	[redacted]
BBQSYS	BULKA BAG SYDNEY SAND	4 P/BAG			
DD40	DELIVERY FEE	1 Each			

This is a payment claim made under the Building and Construction Industry Security of Payment Act 1999 NSW, Revised 2001.

*** PLEASE ENSURE YOUR LOAD IS SAFE & COVERED *** AUSTRALIAN STANDARD WARNING (Effective as of August 2001)
This product may affect your health. For your personal safety, please ensure you read the following warning note. If this product is made from organic material which may contain living micro-organisms, including bateria, fungi and protozoa *** RISK: Direct contact with this material or its dust or moisture droplets may cause skin irritation and may irritate, inflame or sensitise the nose, throat and lungs resulting in illnesses ranging from hay fever and asthma to pneumonia (legionella) or pneumonia-like illnesses. Wash hands thoroughly after handling. For further information, ask for our material safety data sheet.

Conditions

The supplier's responsibility for delivery of materials will cease at the kerbside of the job address stated, if it is necessary for a vehicle to cross the footpath or to enter upon private property in the course of effecting delivery, the purchaser will provide safe and adequate access and notwithstanding will pay for all damage to any public or private property and every injury or wrong

For all products delivered on pallets, if an exchange of pallets does not occur and therefore pallets are owed, pallets not returned within 14 days will incur a $35.00 charge.

Conditions signed and acknowledged by property owner or representation.

Print Name: _____

Signature: _____

Date: _____

Terms Payment is due by 31/08/2022

Total Ex GST	[redacted]
Total GST	
Total Amount Due:	

Please EFT Payments to:
BSB: 012-298
Account No. 8376 70217 - ANZ Belrose NSW
Please email remittance to
ar@anlscape.com.au or Fax to 02 9450 2428

	Out	Delivered	Returned	Owing
Loscam				
Chep				
Plain				
Blue				
SIGN				

Tax Invoice

Hi-Quality Building & Landscape Supplies Pty Ltd
ABN : 52 145 898 095
CNR ELIZABETH DR & MAMRE RD
KEMPS CREEK NSW
PO Box 40
Kemps Creek NSW 2178
PH : 02 8788 3806 FAX : 02 9826 1896

WHOLE LANDSCAPES PTY LTD
PO BOX 1555

WARRIEWOOD NSW 2102
69 137 812 287

Inv. no. : 40471
Inv. date : 24/05/2022
Reference : WHOLE 24.5.22

Customer No. 1001318

Item cd.	Description	Docket / Job / Order No.	Site	Qty.	Unit Price	Net amount
BBPGMSB	GARDEN MIX SLING BAG	GARDEN MIX SLING BAG DKT 774618 WENTWORTHVILLE PUBLIC SCHOOL	BRINGELLY	2.000	[redacted]	[redacted]

Total amount excluding GST : [redacted]

Total GST amount : [redacted]

Total Invoice Amount : [redacted]

BANK DETAILS
BSB : 082 343
ACCOUNT : 94541 3971

Tax Invoice

Hi-Quality Building & Landscape Supplies Pty Ltd
ABN : 52 145 898 095
CNR ELIZABETH DR & MAMRE RD
KEMPS CREEK NSW
PO Box 40
Kemps Creek NSW 2178
PH : 02 8788 3806 FAX : 02 9826 1896

WHOLE LANDSCAPES PTY LTD
PO BOX 1555

WARRIEWOOD NSW 2102
69 137 812 287

S27

Inv. no. : 40496
Inv. date : 27/05/2022
Reference : WHOLE 27.5.22

Customer No. 1001318

Item cd.	Description	Docket / Job / Order No.	Site	Qty.	Unit Price	Net amount
BBPGMSB	GARDEN MIX SLING BAG	GARDEN MIX SLING BAG DKT 774628 WENTWORTHVILLE PUBLIC SCHOOL	BRINGELLY	1.000	[redacted]	[redacted]

BANK DETAILS
BSB : 082 343
ACCOUNT : 94541 3971

Total amount excluding GST : [redacted]

Total GST amount : [redacted]

Total Invoice Amount : [redacted]

APPENDIX F

CLEARANCE CERTIFICATES

VISUAL CLEARANCE CERTIFICATE

Compliant with Part 3.10 of Safe Work Australia Document: How to Safely Remove Asbestos, Code of Practice 2016 as enforced by SafeWork NSW

General details

CLIENT DETAILS	
Name of client:	Grindley Constructions Pty Limited
Client contact details:	Cameron Powell 55 Grandview Street (PO Box 6246), Pymble NSW 2073
DESCRIPTION OF WORKS	
Site address where asbestos removal work is being carried out:	Stage 3 - Wentworth Public School – 70 Fullagar Road, Wentworthville NSW 2145
Date(s) asbestos removal work carried out:	29th March to 31st March 2022
Contractor:	Grindley Constructions Pty Limited
Scope of work (as advised by client/contractor):	WSP was engaged to undertake a visual clearance inspection to confirm the successful removal of asbestos containing topsoil and fill material from the northern portion of the "Stage 3" redevelopment area, at Wentworthville Public School. The asbestos was contained in topsoil and fill material, within an area of approximately 200m^2. As per WSP's waste classification report (ref: *PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001*, January 2022), the asbestos was identified to be friable in nature. Refer to **Appendix C** – Site Map for exact location. The scope of works involved the excavation and off-site disposal of fill materials identified to contain asbestos. Due to difficulty with excavation around sensitive site services, fill material surrounding services was covered with a high visibility geofabric marker layer and pinned securely to the soil surface. Each length of geofabric was overlapped by 0.2 m and extended approximately 0.5 m beyond the edge of the asbestos containing fill material. Following removal works, a Licenced Asbestos Assessor (LAA) inspected the exposed natural soil surface, as well as areas covered with the high visibility geofabric marker layer (excavation walls and in-situ fill surrounding services) within the above subject area. During the inspection carried out on 31st March 2022, the asbestos containing topsoil and fill material was successfully removed from site in areas where the natural soil surface was exposed, and the geofabric appropriately covered the fill remaining in-situ (excavation walls and surrounding services).
Details of the specific asbestos removal work area(s):	Please refer **Appendix C** – Site Map for exact location.
Type of asbestos containing material removed:	☒ Friable ☐ Non-Friable ☐ Asbestos containing dust/debris

Conclusion of inspection

Date of clearance inspection:	31st March 2022 (Cert. #: PS127030_Stage 3-Visual-Clearance-Inspection_310322)
Evidence of PVA/sealant application:	Yes ☐ No ☐ NA ☒
Limitation of Clearance:	This clearance certificate pertains only to the subject areas detailed within the above description.
Visual inspection satisfactory:	Yes ☒ No ☐
Clearance and/or Control air monitoring conducted:	Yes ☒ No ☐ NA ☐
Results of air monitoring satisfactory:	Yes ☒ No ☐ NA ☐ (refer to **Appendix B**)
Comments:	The areas detailed in the above description were free of the asbestos containing topsoil and fill material at the time of inspection. Photographs taken during the clearance inspection are provided in **Appendix A**.

Clearance declaration

I declare that:

On the basis of the verification methods required under the NSW Work Health and Safety Regulation 2017, Clause 473, the remediated area under current condition and use does not pose a risk to the health and safety of users from exposure to asbestos.

Asbestos containing fill material remains beneath a high-visibility orange geofabric material within the remediated area. This clearance certificate is void in the event that the geofabric is removed from fill surfaces or becomes damaged during redevelopment works.

As per WSP's Remediation Action Plan (RAP) for the site, 500mL soil samples for Asbestos Fines / Fibrous Asbestos (AF/FA) w/w% analysis are to be collected from exposed natural soil surfaces for validation purposes (where friable asbestos has been identified). This clearance report is based on the visual inspection component only, following removal of ACM fill from the clearance area. This visual clearance inspection report and Asbestos AF/FA w/w% Analytical validation results are to both be provided in the site validation report.

Assessor's signature

Prepared by:	James Green (LAA001470)	Date: 4th April 2022	Signature: 

Appendices

Appendix A - Photographs	Yes ☒ No ☐ NA ☐
Appendix B – Certificate of analysis	Yes ☒ No ☐ NA ☐
Appendix C – Site Map	Yes ☒ No ☐ NA ☐

STANDARD LIMITATION OF CLEARANCE INSPECTION (NSW)

In accordance with WHS regulation 2016, Chapter 8, Part 8.7, Clause 473: "A clearance inspection is an inspection of an asbestos removal area after asbestos removal work has been completed to verify that the area is safe for normal use, that: (a) includes a visual inspection, and (b) may include air monitoring".

The surface area and immediate vicinity has been visually determined to be clear of visible asbestos residue as specified for remediation. This clearance certificate is valid for areas which were visually accessible at the time of inspection as detailed in the scope of works.

Inspections are only carried out to the areas detailed to be removed and are conducted where access is available. Specifically no inspection has been carried out to areas that may require further remediation to verify the presence of asbestos. Please note that the visual clearance is limited to the surface of material(s) and/or soil(s) which were safely accessible at the time of inspection.

It should be noted that no inspection can be regarded as absolute and that additional asbestos may be encountered or uncovered upon further inspection, building works, or in particular excavations. The inspection was carried out at the time of the completion of the remediation works and was dependent upon site conditions at that time. WSP Australia accepts no responsibility or liability for the completeness of the removal. Comments above regarding the aspects of the inspection also form limitations. The contractor's responsibilities included:

- Ensuring that work methods and procedures comply with the relevant legislation, codes of practice and industry standards, and undertake work in accordance with technical specifications.
- Employing suitably trained, skilled and competent staff.
- Ensuring that contractors are inducted in safe work procedures for asbestos materials/products.
- Obtaining the necessary approvals from regulatory authorities prior to starting any asbestos removal or maintenance activities.
- Ensuring that all work is conducted in a safe and competent manner.

STATEMENT OF LIMITATIONS

This report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

In accordance with the scope of services, WSP has relied upon the data and has conducted field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report. On all sites, varying degrees of non-uniformity of conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of actual situations. The conclusions are based upon the data and the field monitoring and/or testing and are therefore merely indicative of the conditions of the site at the time of preparing the report.

It should also be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable Occupational Hygiene consultants under similar circumstances. No other warranty, expressed or implied, is made.

Appendix A - Photographs



Photo 1: In-situ asbestos containing fill material, prior to removal works (29.03.22).



Photo 2: Progressive scraping of asbestos containing fill material and exposure of natural soil surface (29.03.22).



Photo 3: Progressive scraping of asbestos containing fill material and exposure of natural soil surface (29.03.22).



Photo 4: Progressive scraping of asbestos containing fill material and exposure of natural soil surface (30.03.22).



Photo 5: Load-out of asbestos containing fill material (30.03.22).



Photo 6: Remaining in-situ fill surfaces and walls covered with high-visibility geofabric marker layer (31.03.22).

	
Photo 7: Excavator, following asbestos decontamination (31.03.22).	Photo 8: Excavator, right-side tracks, following asbestos decontamination (31.03.22).
	
Photo 9: Excavator, left-side tracks, following asbestos decontamination (31.03.22).	Photo 10: Excavator, front blade, following asbestos decontamination (31.03.22).

Appendix B - Certificate of analysis

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150822**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	29/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DL640101	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fencing	1.0 / 100	<0.01
002	DL640107	Stage 3 - South western corner of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01
003	DL640152	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fencing	Rejected: Dust overload	
004	DL640106	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Sneha Shakya



AUTHORISATION DATE

Friday, 1 April 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
This document may not be reproduced except in full.

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150820**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	30/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DC640216	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
002	DC640116	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DC640119	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DC640212	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

Approved Counter

Name: Melanie Reed

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Signatory

Name: Sneha Shakya

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
This document may not be reproduced except in full.

AUTHORISATION DATE

Friday, 1 April 2022

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150821**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	31/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP / Clearance:				
001	DL640114	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DL640103	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DL640135	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DL640130	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed

Approved Signatory

Name: Sneha Shakya

AUTHORISATION DATE

Friday, 1 April 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
This document may not be reproduced except in full.

Appendix C – Site Map



Legend

- School boundary
- Asbestos Clearance Boundary

Source: MetroMap

Client:	Grindley Constructions Pty Ltd	
Project:	Asbestos Clearance Inspection (31.03.2022)	
Title:	Site Location Plan	
Project no.:	PS127030	**Figure 1**



Legend

- Clearance Inspection Boundary
- Geofabric Application (Base)
- Geofabric Application (Walls)

Source: MetroMap

Client:	Grindley Constructions Pty Ltd	
Project:	Asbestos Clearance Inspection (31.03.2022	
Title:	Clearance Boundary & Geofabric Locations	
Project no.:	PS127030	**Figure 2**

VISUAL CLEARANCE CERTIFICATE

Compliant with Part 3.10 of Safe Work Australia Document: How to Safely Remove Asbestos, Code of Practice 2016 as enforced by SafeWork NSW

General details

CLIENT DETAILS	
Name of client:	Grindley Constructions Pty Limited
Client contact details:	Cameron Powell 55 Grandview Street (PO Box 6246), Pymble NSW 2073
DESCRIPTION OF WORKS	
Site address where asbestos removal work is being carried out:	Stage 3 - Wentworth Public School – 70 Fullagar Road, Wentworthville NSW 2145
Date(s) asbestos removal work carried out:	3rd May 2022
Contractor:	Grindley Constructions Pty Limited
Scope of work (as advised by client/contractor):	WSP was engaged to undertake a visual clearance inspection to confirm the successful removal of asbestos containing topsoil and fill material which was surrounding in-situ services within the northern portion of the "Stage 3" redevelopment area, at Wentworthville Public School. The asbestos was contained beneath the geofabric marker layer previously applied over in-situ fill material surrounding services on site, within an area approximately 50m^2. As per WSP's waste classification report (ref: *PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001*, January 2022), the asbestos was identified to be friable in nature. Refer to **Appendix C** – Site Map for exact location. The scope of works involved the excavation and off-site disposal of fill materials identified to contain asbestos. Due to a change in design plans, services required redirecting and additional fill material required excavation from around services which were previously covered with geofabric and subject to a clearance inspection on 31st March 2022 (ref: *PS127030_Stage 3-Visual-Clearance-Inspection_310322*). Fill material surrounding services was then removed to expose areas of natural soil, with remaining in-situ fill above a communications service an excavation walls were covered with a high visibility geofabric marker layer and pinned securely to the soil surface. Each length of geofabric was overlapped by 0.2 m and extended approximately 0.5 m beyond the edge of the asbestos containing fill material. Following removal works, a Licenced Asbestos Assessor (LAA) inspected the exposed natural soil surface, as well as areas covered with the high visibility geofabric marker layer (excavation walls and above in-situ fill surrounding services) within the above subject area. During the inspection carried out on 3rd May 2022, the asbestos containing topsoil and fill material was successfully removed from site in areas where the natural soil surface was exposed, and the geofabric appropriately covered the fill remaining in-situ (excavation walls and surrounding services).
Details of the specific asbestos removal work area(s):	Please refer **Appendix C** – Site Map for exact location.
Type of asbestos containing material removed:	☒ Friable ☐ Non-Friable ☐ Asbestos containing dust/debris

Conclusion of inspection

Date of clearance inspection:	3rd May 2022 (Cert. #: PS127030_Stage 3-Visual-Clearance-Inspection_030522)
Evidence of PVA/sealant application:	Yes ☐ No ☐ NA ☒
Limitation of Clearance:	This clearance certificate pertains only to the subject areas detailed within the above description.
Visual inspection satisfactory:	Yes ☒ No ☐
Clearance and/or Control air monitoring conducted:	Yes ☒ No ☐ NA ☐
Results of air monitoring satisfactory:	Yes ☒ No ☐ NA ☐ (refer to **Appendix B**)
Comments:	The areas detailed in the above description were free of the asbestos containing topsoil and fill material at the time of inspection. Photographs taken during the clearance inspection are provided in **Appendix A**.

Clearance declaration

I declare that:

On the basis of the verification methods required under the NSW Work Health and Safety Regulation 2017, Clause 473, the remediated area under current condition and use does not pose a risk to the health and safety of users from exposure to asbestos.

Asbestos containing fill material remains beneath a high-visibility orange geofabric material within the remediated area (refer to Appendix C for locations). This clearance certificate is void in the event that the geofabric is removed from fill surfaces or becomes damaged during redevelopment works.

As per WSP's Remediation Action Plan (RAP) for the site, 500mL soil samples for Asbestos Fines / Fibrous Asbestos (AF/FA) w/w% analysis are to be collected from exposed natural soil surfaces for validation purposes (where friable asbestos has been identified). This clearance report is based on the visual inspection component only, following removal of ACM fill from the clearance area. This visual clearance inspection report and Asbestos AF/FA w/w% Analytical validation results are to both be provided in the site validation report.

Assessor's signature

Prepared by:	James Green (LAA001470)	Date: 11th May 2022	Signature: 

Appendices

Appendix A - Photographs	Yes ☒ No ☐ NA ☐
Appendix B – Certificate of analysis	Yes ☒ No ☐ NA ☐
Appendix C – Site Map	Yes ☒ No ☐ NA ☐

STANDARD LIMITATION OF CLEARANCE INSPECTION (NSW)

In accordance with WHS regulation 2016, Chapter 8, Part 8.7, Clause 473: "A clearance inspection is an inspection of an asbestos removal area after asbestos removal work has been completed to verify that the area is safe for normal use, that: (a) includes a visual inspection, and (b) may include air monitoring".

The surface area and immediate vicinity has been visually determined to be clear of visible asbestos residue as specified for remediation. This clearance certificate is valid for areas which were visually accessible at the time of inspection as detailed in the scope of works.

Inspections are only carried out to the areas detailed to be removed and are conducted where access is available. Specifically no inspection has been carried out to areas that may require further remediation to verify the presence of asbestos. Please note that the visual clearance is limited to the surface of material(s) and/or soil(s) which were safely accessible at the time of inspection.

It should be noted that no inspection can be regarded as absolute and that additional asbestos may be encountered or uncovered upon further inspection, building works, or in particular excavations. The inspection was carried out at the time of the completion of the remediation works and was dependent upon site conditions at that time. WSP Australia accepts no responsibility or liability for the completeness of the removal. Comments above regarding the aspects of the inspection also form limitations. The contractor's responsibilities included:

- Ensuring that work methods and procedures comply with the relevant legislation, codes of practice and industry standards, and undertake work in accordance with technical specifications.
- Employing suitably trained, skilled and competent staff.
- Ensuring that contractors are inducted in safe work procedures for asbestos materials/products.
- Obtaining the necessary approvals from regulatory authorities prior to starting any asbestos removal or maintenance activities.
- Ensuring that all work is conducted in a safe and competent manner.

STATEMENT OF LIMITATIONS

This report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

In accordance with the scope of services, WSP has relied upon the data and has conducted field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report. On all sites, varying degrees of non-uniformity of conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of actual situations. The conclusions are based upon the data and the field monitoring and/or testing and are therefore merely indicative of the conditions of the site at the time of preparing the report.

It should also be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable Occupational Hygiene consultants under similar circumstances. No other warranty, expressed or implied, is made.

Appendix A - Photographs

	
Photo 1: Progressive scraping of asbestos containing fill material and exposure of services/natural soil surface (03.05.22).	Photo 2: Progressive scraping of asbestos containing fill material and exposure of services/natural soil surface (03.05.22).
	
Photo 3: Progressive scraping of asbestos containing fill material and exposure of natural soil surface (29.03.22).	Photo 4: Remaining in-situ fill surfaces and walls covered with high-visibility geofabric marker layer (03.05.22).

Appendix B - Certificate of analysis

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152104**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	3/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268359	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	2.0 / 100	<0.01
002	DE268325	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DE268820	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

Wednesday, 11 May 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
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Appendix C – Site Map



Legend

School boundary

Asbestos Clearance Boundary

Source: MetroMap

Client:	Grindley Constructions Pty Ltd	
Project:	Asbestos Clearance Inspection (03.05.2022)	
Title:	Site Location Plan	
Project no.:	PS127030	**Figure 1**



Legend

- Clearance Inspection Boundary
- Geofabric Application (Base)
- Geofabric Application (Walls)

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	Asbestos Clearance Inspection (03.05.2022)
Title:	Clearance Boundary & Geofabric Locations
Project no.:	PS127030

Figure 2

FINAL VISUAL CLEARANCE CERTIFICATE

Compliant with Part 3.10 of Safe Work Australia Document: How to Safely Remove Asbestos, Code of Practice 2016 as enforced by SafeWork NSW

General details

CLIENT DETAILS	
Name of client:	Grindley Constructions Pty Limited
Client contact details:	Cameron Powell 55 Grandview Street (PO Box 6246), Pymble NSW 2073
DESCRIPTION OF WORKS	
Site address where asbestos removal work is being carried out:	Stage 3 - Wentworth Public School – 70 Fullagar Road, Wentworthville NSW 2145
Date(s) asbestos removal work carried out:	11th May 2022
Contractor:	Grindley Constructions Pty Limited
Scope of work (as advised by client/contractor):	WSP was engaged to undertake a visual clearance inspection to confirm the successful removal of asbestos containing topsoil and fill material which was surrounding in-situ services within the northern portion of the "Stage 3" redevelopment area, at Wentworthville Public School. The clearance inspection also inspected the full extent of remediation area, to form the final clearance. The asbestos removed was contained beneath the geofabric marker layer that was previously applied over in-situ fill material surrounding services on site, within an area approximately 25m^2. As per WSP's waste classification report (ref: *PS127030-Wentworthville Public School_Stage 3 Perimeter_CLM-LTR-001*, January 2022), the asbestos was identified to be friable in nature. Refer to **Appendix C** – Site Map for exact location. The scope of works involved the excavation and off-site disposal of fill materials identified to contain asbestos. Due to an additional change in design plans, additional fill material required excavation to an approximate 0.2 m beneath existing levels into an area which was previously covered with geofabric and subject to a clearance inspection on 3rd May 2022 (ref: *PS127030_Stage 3-Visual-Clearance-Inspection_030522*). Fill material surrounding services was then removed to expose areas, exposing a communications service. The remaining fill in-situ was then covered with geofabric and pinned securely to the soil surface. Each length of geofabric was overlapped by 0.2 m and extended approximately 0.5 m beyond the edge of the asbestos containing fill material. Following removal works, a Licenced Asbestos Assessor (LAA) inspected the in-situ fill covered with the high visibility geofabric marker layer (fill surrounding in-situ services) within the above subject area. The clearance inspection also included the areas previously inspected on 31st March 2022 and 3rd May 2022 to form part of this final asbestos clearance. During the inspection carried out on 11th May 2022, the asbestos containing topsoil and fill material was successfully removed from the remediation area in areas where the natural soil surface was exposed. The geofabric appropriately covered the fill remaining in-situ (all required excavation walls and services).
Details of the specific asbestos removal work area(s):	Please refer **Appendix C** – Site Map for exact location.

Type of asbestos containing material removed:	☒ Friable ☐ Non-Friable ☐ Asbestos containing dust/debris

Conclusion of inspection

Date of clearance inspection:	11th May 2022 (Cert. #: PS127030_Stage 3-Visual-Clearance-Inspection_110522)
Evidence of PVA/sealant application:	Yes ☐ No ☐ NA ☒
Limitation of Clearance:	This clearance certificate pertains only to the subject areas detailed within the above description.
Visual inspection satisfactory:	Yes ☒ No ☐
Clearance and/or Control air monitoring conducted:	Yes ☒ No ☐ NA ☐
Results of air monitoring satisfactory:	Yes ☒ No ☐ NA ☐ (refer to **Appendix B**)
Comments:	The areas detailed in the above description were free of the asbestos containing topsoil and fill material at the time of inspection. Photographs taken during the clearance inspection are provided in **Appendix A**.

Clearance declaration

I declare that:

On the basis of the verification methods required under the NSW Work Health and Safety Regulation 2017, Clause 473, the remediated area under current condition and use does not pose a risk to the health and safety of users from exposure to asbestos.

Asbestos containing fill material remains beneath a high-visibility orange geofabric material within the remediated area (refer to Appendix C for locations). This clearance certificate is void in the event that the geofabric is removed from fill surfaces or becomes damaged during redevelopment works.

As per WSP's Remediation Action Plan (RAP) for the site, 500mL soil samples for Asbestos Fines / Fibrous Asbestos (AF/FA) w/w% analysis are to be collected from exposed natural soil surfaces for validation purposes (where friable asbestos has been identified). This clearance report is based on the visual inspection component only, following removal of ACM fill from the clearance area. This visual clearance inspection report and Asbestos AF/FA w/w% Analytical validation results are to both be provided in the site validation report.

Assessor's signature

Prepared by:	James Green (LAA001470)	Date: 16th May 2022	Signature: 

Appendices

Appendix A - Photographs	Yes ☒ No ☐ NA ☐
Appendix B – Certificate of analysis	Yes ☒ No ☐ NA ☐
Appendix C – Site Map	Yes ☒ No ☐ NA ☐

STANDARD LIMITATION OF CLEARANCE INSPECTION (NSW)

In accordance with WHS regulation 2016, Chapter 8, Part 8.7, Clause 473: "A clearance inspection is an inspection of an asbestos removal area after asbestos removal work has been completed to verify that the area is safe for normal use, that: (a) includes a visual inspection, and (b) may include air monitoring".

The surface area and immediate vicinity has been visually determined to be clear of visible asbestos residue as specified for remediation. This clearance certificate is valid for areas which were visually accessible at the time of inspection as detailed in the scope of works.

Inspections are only carried out to the areas detailed to be removed and are conducted where access is available. Specifically no inspection has been carried out to areas that may require further remediation to verify the presence of asbestos. Please note that the visual clearance is limited to the surface of material(s) and/or soil(s) which were safely accessible at the time of inspection.

It should be noted that no inspection can be regarded as absolute and that additional asbestos may be encountered or uncovered upon further inspection, building works, or in particular excavations. The inspection was carried out at the time of the completion of the remediation works and was dependent upon site conditions at that time. WSP Australia accepts no responsibility or liability for the completeness of the removal. Comments above regarding the aspects of the inspection also form limitations. The contractor's responsibilities included:

- Ensuring that work methods and procedures comply with the relevant legislation, codes of practice and industry standards, and undertake work in accordance with technical specifications.
- Employing suitably trained, skilled and competent staff.
- Ensuring that contractors are inducted in safe work procedures for asbestos materials/products.
- Obtaining the necessary approvals from regulatory authorities prior to starting any asbestos removal or maintenance activities.
- Ensuring that all work is conducted in a safe and competent manner.

STATEMENT OF LIMITATIONS

This report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

In accordance with the scope of services, WSP has relied upon the data and has conducted field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report. On all sites, varying degrees of non-uniformity of conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of actual situations. The conclusions are based upon the data and the field monitoring and/or testing and are therefore merely indicative of the conditions of the site at the time of preparing the report.

It should also be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable Occupational Hygiene consultants under similar circumstances. No other warranty, expressed or implied, is made.

Appendix A - Photographs



Photo 1: Progressive scraping of asbestos containing fill material and exposure of services (11.05.22).



Photo 2: Remaining in-situ fill surfaces and walls covered with high-visibility geofabric marker layer and exposed, validated natural soil surfaces (11.05.22).

Appendix B - Certificate of analysis

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152106**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	11/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268339	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DE268301	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
003	DE268756	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

Wednesday, 11 May 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
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Appendix C – Site Map



Legend

School boundary

Final Asbestos Clearance Boundary

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	Final Asbestos Clearance Inspection (11.05.2022)
Title:	Site Location Plan
Project no.: PS127030	**Figure 1**



Legend

- Final Clearance Inspection Boundary
- Geofabric Application (Base)
- Geofabric Application (Walls)

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	Final Asbestos Clearance Inspection (11.05.2022)
Title:	Clearance Boundary & Geofabric Locations
Project no.: PS127030	**Figure 2**

FINAL VISUAL CLEARANCE CERTIFICATE

Compliant with Part 3.10 of Safe Work Australia Document: How to Safely Remove Asbestos, Code of Practice 2016 as enforced by SafeWork NSW

General details

CLIENT DETAILS	
Name of client:	Grindley Constructions Pty Limited
Client contact details:	Damian McGrath 55 Grandview Street, Pymble NSW 2073
DESCRIPTION OF WORKS	
Site address where asbestos removal work is being carried out:	Stage 3 Remediation Area - Wentworth Public School – 70 Fullagar Road, Wentworthville NSW 2145
Date(s) asbestos removal work carried out:	Between 29th March and 17th June 2022
Contractor:	Grindley Constructions Pty Limited
Clearance Inspection Scope of work:	WSP was engaged to undertake visual clearance inspections to confirm the successful removal of asbestos containing topsoil and fill materials upon completion of each work area within Stage 3 of the redevelopment works at Wentworthville Public School. In total, three separate visual asbestos clearance inspections have been completed. These reports are detailed below: • PS127030_Stage 3-Visual-Clearance-Inspection_310322. • PS127030_Stage 3-Visual-Clearance-Inspection_030522. • PS127030_Stage 3-Visual-Clearance-Inspection_110522. The specific location of each clearance inspection is provided in Figure 2, **Appendix C**. On Friday 17th June 2022 James Green of WSP, Environmental Scientist and Licensed Asbestos Assessor (LAA) No. LAA001470 attended the site to complete a final visual clearance inspection of the Stage 3 and Stage 2 (bitumen demountable area) remediation/audit areas. This inspection involved the following scope: • Inspection of the previously cleared kiss and drop area within Stage 3, following asbestos fill removal works which occurred between the 29th March and 11th May 2022. This was completed to ensure compliance with the above-mentioned reports; • An inspection of fill materials identified by WSP to remain on site, to ensure consistency with the materials identified in areas to the east and south of Block F, • An inspection of the existing Block F building footprint within Stage 3 which is to remain in-situ on site, to assess the integrity of existing concrete hardstand capping over suspected asbestos containing soils; and • An inspection of the integrity of an existing bitumen layer present in the Stage 2 demountable area, which is now included in the Stage 3 validation. The full extent of the final clearance inspection and the above-mentioned locations are provided in Figure 2, Appendix C.
Details of the specific asbestos removal work area(s):	Please refer **Appendix C** – Site Map for exact location.
Type of asbestos containing material removed:	☒ Friable

	☐ Non-Friable ☐ Asbestos containing dust/debris

Conclusion of inspection

Date of final clearance inspection:	17th June 2022 (Cert. #: PS127030_Final Clearance-Visual-Clearance-Inspection_17062022)
Evidence of PVA/sealant application:	Yes ☐ No ☐ NA ☒
Limitation of Clearance:	This clearance certificate pertains only to the subject areas detailed within the above description.
Visual inspection satisfactory:	Yes ☒ No ☐
Clearance and/or Control air monitoring conducted:	Yes ☒ No ☐ NA ☐ (refer to individual clearance inspections for Asbestos Air Monitoring conducted during the removal works).
Results of air monitoring satisfactory:	Yes ☒ No ☐ NA ☐ (refer to **Appendix B** for asbestos air monitoring completed during asbestos removal works conducted between 29th March and 11th May 2022.
Comments:	During the inspection carried out on 18th January 2022, the following was noted: • Asbestos impacts associated with the kiss and drop area had been successfully removed (with the exception of the kiss and drop service area). • fill materials identified by WSP to remain on site were consistent with those reported and no potential ACM was encountered. • Geofabric was placed over in-situ contaminated fill materials within the kiss and drop service area. • Concrete capping across the footprint of the existing building on site to remain in-situ (Block F) was noted to be in good condition, with no contaminant pathways observed. Photographs taken during the clearance inspection are provided in **Appendix A**.

Clearance declaration

I declare that:

On the basis of the verification methods required under the NSW Work Health and Safety Regulation 2017, Clause 473, the remediated area under current condition and use does not pose a risk to the health and safety of users from exposure to asbestos.

Assessor's signature

Prepared by:	James Green (LAA001470)	Date: 4th July 2022	Signature: 

Appendices

Appendix A - Photographs	Yes ☒ No ☐ NA ☐
Appendix B – Certificate of analysis	Yes ☒ No ☐ NA ☐
Appendix C – Site Map	Yes ☒ No ☐ NA ☐

STANDARD LIMITATION OF CLEARANCE INSPECTION (NSW)

In accordance with WHS regulation 2016, Chapter 8, Part 8.7, Clause 473: "A clearance inspection is an inspection of an asbestos removal area after asbestos removal work has been completed to verify that the area is safe for normal use, that: (a) includes a visual inspection, and (b) may include air monitoring".

The surface area and immediate vicinity has been visually determined to be clear of visible asbestos residue as specified for remediation. This clearance certificate is valid for areas which were visually accessible at the time of inspection as detailed in the scope of works.

Inspections are only carried out to the areas detailed to be removed and are conducted where access is available. Specifically no inspection has been carried out to areas that may require further remediation to verify the presence of asbestos. Please note that the visual clearance is limited to the surface of material(s) and/or soil(s) which were safely accessible at the time of inspection.

It should be noted that no inspection can be regarded as absolute and that additional asbestos may be encountered or uncovered upon further inspection, building works, or in particular excavations. The inspection was carried out at the time of the completion of the remediation works and was dependent upon site conditions at that time. WSP Australia accepts no responsibility or liability for the completeness of the removal. Comments above regarding the aspects of the inspection also form limitations. The contractor's responsibilities included:

- Ensuring that work methods and procedures comply with the relevant legislation, codes of practice and industry standards, and undertake work in accordance with technical specifications.
- Employing suitably trained, skilled and competent staff.
- Ensuring that contractors are inducted in safe work procedures for asbestos materials/products.
- Obtaining the necessary approvals from regulatory authorities prior to starting any asbestos removal or maintenance activities.
- Ensuring that all work is conducted in a safe and competent manner.

STATEMENT OF LIMITATIONS

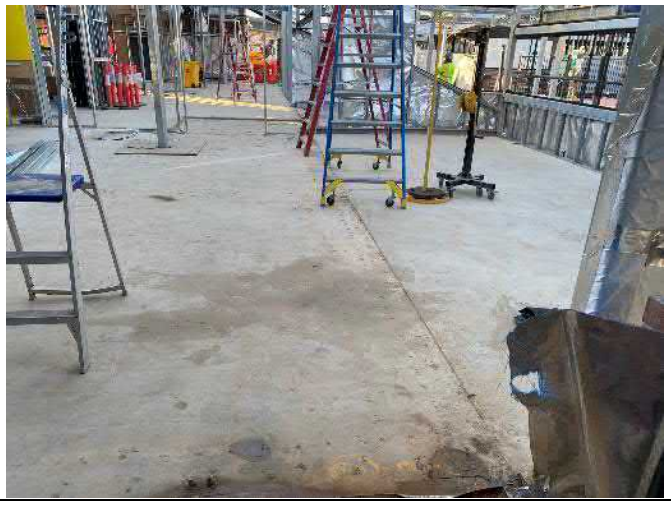
This report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

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It should also be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable Occupational Hygiene consultants under similar circumstances. No other warranty, expressed or implied, is made.

Appendix A - Photographs

	
Photo 1: Demountable area. Demountable building above bitumen hardstand, with footings extending into underlying potentially asbestos containing soil.	Photo 2: Bitumen hardstand in demountable area in good condition.
	
Photo 3: Kiss and drop roadway, following application of roadbase gravels and prior to bitumen application.	Photo 4: East of Block F. Soils suitable to remain on-site.
	
Photo 5: South of Block F. Soils suitable to remain on-site.	Photo 6: Block F existing building footprint. Concrete hardstand in good condition.

Appendix B – Asbestos Air Monitoring Results

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150822**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	29/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DL640101	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fencing	1.0 / 100	<0.01
002	DL640107	Stage 3 - South western corner of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01
003	DL640152	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fencing	Rejected: Dust overload	
004	DL640106	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Sneha Shakya



AUTHORISATION DATE

Friday, 1 April 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
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Certificate of Analysis

WSP Australia Pty Limited

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ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150820**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	30/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DC640216	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
002	DC640116	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DC640119	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DC640212	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

Approved Counter

Name: Melanie Reed

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Signatory

Name: Sneha Shakya

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AUTHORISATION DATE

Friday, 1 April 2022

Certificate of Analysis

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ABN 80 078 004 798

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NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150821**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	31/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP / Clearance:				
001	DL640114	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DL640103	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DL640135	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DL640130	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed

Approved Signatory

Name: Sneha Shakya

AUTHORISATION DATE

Friday, 1 April 2022

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NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152104**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	3/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268359	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	2.0 / 100	<0.01
002	DE268325	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DE268820	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

Wednesday, 11 May 2022

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LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152106**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	11/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268339	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DE268301	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
003	DE268756	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

Wednesday, 11 May 2022

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Appendix C – Site Map



Legend

- School boundary
- Final Asbestos Clearance Boundary

Source: MetroMap

Client:	Grindley Constructions Pty Ltd
Project:	Final Asbestos Clearance Inspection (17.06.2022)
Title:	Site Location Plan
Project no.: PS127030	**Figure 1**



Legend

- School Boundary
- Stage 3 Remediation Extent
- Visual Clearance Inspection (31.03.2022, 03.05.2022 & 11.05.2022)
- Final Visual Clearance Report (17.06.2022)

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	Final Asbestos Clearance Inspection (17.06.2022)
Title:	Clearance Inspection Locations
Project no.: PS127030	**Figure 2**

APPENDIX G

ANALYTICAL RESULTS

Wentworthville Public School - Stage 3
Table G1 - Soil Chemical Summary Table

	TRH				BTEX					PAH				Metals								OCP		OPP		PCB
	C6 - C10 Fraction minus BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total	Naphthalene (VOC)	Benzo(a)pyrene TEQ calc (Zero)	Benzo(a) pyrene	PAHs (Sum of total)	PAHs (Sum of positives)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	DDT	Endrin	o,p'-DDD	o,p'-DDE	PCBs (Sum of total)
	mg/kg	mg/kg	µg/L	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	TEQ (mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	20	25	90	100	0.1	0.1	0.1	0.3	0.1		0.1	0.5	0.8	1	0.3	0.5	0.5	1	0.05	0.5	2	0.1	0.2	0.1	0.1	1
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space									170					100		190	190	1,100		170	400	180				
NEPM 2013 Table 1A(1) HILs Res A Soil												300		100	20		6,000	300	40	400	7,400		10			1
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt																										
>=0m, <1m	40	230			0.6	390		95	4																	
>=1m, <2m	65				0.7			210	NL																	
>=2m, <4m	100				1				NL																	
>=4m	190				2				NL																	
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																										
>=0m, <2m	180	120	1,300	5,600	65	105	125	45			0.7															

Field ID	Material Type	Location Code	Date Sampled	Lab Report Number																						
TP1_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	6	<0.3	10	14	28	<0.05	5.7	68	-	-	-	-	-
TP2_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	8	<0.3	11	31	60	0.06	6.3	120	-	-	-	-	-
TP3_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.3	0.2	3.3	3.3	9	0.4	11	31	97	0.10	6.0	220	<0.1	<0.2	<0.1	<0.1	<1
TP3_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_0.4	Natural Clay	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	0.1	<0.8	<0.8	10	<0.3	11	22	77	0.08	5.1	160	-	-	-	-	-
TP4_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	5	<0.3	7.8	20	32	<0.05	5.8	59	-	-	-	-	-
TP5_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	5	<0.3	7.7	23	35	<0.05	4.8	71	-	-	-	-	-
TP5_0.5	Natural Clay	Stage 3 (Investigation)	18/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	7	<0.3	13	15	19	<0.05	3.7	21	-	-	-	-	-
TP6_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	160	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	0.1	1.0	1.0	5	0.5	10	41	140	0.10	13	280	<0.1	<0.2	<0.1	<0.1	<1
TP7_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	4	<0.3	11	18	24	<0.05	7.4	100	-	-	-	-	-
TP8_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	110	310	200	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.2	1.8	1.8	4	<0.3	6.0	25	33	0.06	8.6	120	<0.1	<0.2	<0.1	<0.1	<1
TP8_0.5	Natural Clay	Stage 3 (Investigation)	18/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	7	<0.3	11	9.2	12	<0.05	2.7	12	-	-	-	-	-
TP9_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	25	120	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.2	1.4	1.4	16	0.4	18	66	57	0.13	7.7	150	-	-	-	-	-
TP10_0.2	Fill	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	170	240	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	0.1	1.2	1.2	4	<0.3	9.8	53	26	0.06	7.7	81	<0.1	<0.2	<0.1	<0.1	<1
TP10_0.4	Natural Clay	Stage 3 (Investigation)	17/01/2022	SE227955	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	7	<0.3	11	11	14	<0.05	2.4	12	-	-	-	-	-
TP11_0.2	Fill	Stage 3 (Investigation)	18/01/2022	SE227955	<25	47	230	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.3	0.3	3.0	3.0	8	<0.3	11	12	18	<0.05	3.7	23	-	-	-	-	-
ST_01	Fill - Above Services	Stage 3 (Investigation)	31/03/2022	SE230522	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	9	0.4	12	30	75	0.12	6.6	160	<0.1	<0.2	<0.1	<0.1	<1
ST_02	Fill - Above Services	Stage 3 (Investigation)	31/03/2022	SE230522	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	0.2	0.2	1.5	1.5	4	<0.3	8.9	17	38	0.08	5.5	100	<0.1	<0.2	<0.1	<0.1	<1
BH6	Fill (0.1-0.2)	EIS 2017 (Investigation)	3/12/2017	181363	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	1.1	1.1	<1	<0.3	15	56	15	<0.05	14	62	<0.1	<0.2	<0.1	<0.1	<1
BH6	Fill (0.5-0.6)	EIS 2017 (Investigation)	3/12/2017	181363	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	11	<0.3	14	16	29	<0.05	5	88	<0.1	<0.2	<0.1	<0.1	<1
BH8	Fill	EIS 2017 (Investigation)	3/12/2017	181363	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.2	<0.1	<0.8	<0.8	<1	<0.3	2	140	4	<0.05	5	33	<0.1	<0.2	<0.1	<0.1	<1

= Sample subsequently covered with geofabric and removed as part of additional ACM fill removal works
= Sample subsequently removed as part of ACM fill removal works

Wentworthville Public School - Stage 3
Table G2 - Asbestos in Soil Summary Table

				Asbestos Classification and Quantification		Asbestos										
				Asbestos (Fines and Fibrous FA+AF)		ACM - Comment	AF - Comment	Asbestos Reported Result	FA- Comment	Mass ACM	Mass Asbestos in FA & AF	Mass Asbestos in ACM (15%)	Approximate Sample Mass	Asbestos from ACM in Soil	Comment / Horizon
				% (w/w)	%w/w	Comment	Comment	Comment	Comment	kg	g	g	g	%w/w	Comment
	EQL														
	FA and AF (friable asbestos)			0.001	0.001										
	HSLs Residential A													0.01	
	HSLs Residential B													0.04	
	HSLs Comm/Ind D Asbestos													0.05	
	Field ID	**Location Code**	**Date Sampled**	**Lab Report Number**											
Stage 3 Investigation	**TP1_0.2**	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	489	0.0000	Fill
	TP2_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	367	0.0000	Fill
	TP3_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.014		-	-	Amosite, chrysotile and crocidolite	-	-	-	-	409	<0.01	Fill
	TP3_0.4	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	-	-	Nil	Nil	None observed during visual screen	-	0	-	0.000	-	0.0000	Natural clay - Visual 10L field screen only
	TP4_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.011		-	-	Amosite and chrysotile	-	-	-	-	483	0.02	Fill
	TP5_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	534	0.0000	Fill
	TP5_0.5	**Stage 3 (Investigation)**	**18/01/2022**	**SE227955**	-	-	Nil	Nil	None observed during visual screen	-	0	-	0.000	-	0.0000	Natural clay - Visual 10L field screen only
	TP6_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	451	0.0000	Fill
	TP7_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	342	0.0000	Fill
	TP8_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	421	0.0000	Fill
	TP8_0.5	**Stage 3 (Investigation)**	**18/01/2022**	**SE227955**	-	-	Nil	Nil	None observed during visual screen	-	0	-	0.000	-	0.0000	Natural clay - Visual 10L field screen only
	TP9_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	451	0.0000	Fill
	TP10_0.2	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	208	0.0000	Fill
	TP10_0.4	**Stage 3 (Investigation)**	**17/01/2022**	**SE227955**	-	-	Nil	Nil	None observed during visual screen	-	0	-	0.000	-	0.0000	Natural clay - Visual 10L field screen only
	TP11_0.2	**Stage 3 (Investigation)**	**18/01/2022**	**SE227955**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	590	0.0000	Fill
	ST_01	**Kiss & Drop Fill (Investigation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	530	0.0000	Fill
	ST_02	**Kiss & Drop Fill (Investigation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	602	0.0000	Fill
Stage 3 Validation	**WV_01**	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	465	0.0000	Fill - Wall Sample
	WV_02	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	470	0.0000	Fill - Wall Sample
	WV_03	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	496	0.0000	Fill - Wall Sample
	WV_04	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	438	0.0000	Fill - Wall Sample
	BW_01	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	462	0.0000	Natural clay
	BW_02	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	515	0.0000	Natural clay
	BW_03	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	453	0.0000	Natural clay
	BW_04	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	508	0.0000	Natural clay
	BW_05	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	484	0.0000	Natural clay
	BW_06	**Stage 3 (Validation)**	**31/03/2022**	**SE230522**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	458	0.0000	Natural clay
	BV_07	**Stage 3 (Validation)**	**3/05/2022**	**SE231564**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	463	0.0000	Natural clay
	BV_08	**Stage 3 (Validation)**	**3/05/2022**	**SE231564**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	430	0.0000	Natural clay
	BV_09	**Stage 3 (Validation)**	**3/05/2022**	**SE231564**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	414	0.0000	Natural clay
	BV_10	**Stage 3 (Validation)**	**3/05/2022**	**SE231564**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	483	0.0000	Natural clay
Previous Investigation	**BH6 (0.1-0.2)**	**EIS 2017 Investigation**	**3/12/2017**	**181363**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	30	0.0000	Fill
	BH8 (0.1-0.2)	**EIS 2017 Investigation**	**3/12/2017**	**181363**	0.0000	-	Nil	Nil	NAD	Nil	0.0000	0.0000	0.000	50	0.0000	Fill

= Subsequently removed during additional remedial fill excavation works
= Subsequently removed as part of ACM fill removal works

APPENDIX H

QA/ QC RESULTS

				TRH							BTEXN								PAH																Metals							
				TPH C6 - C10 Fraction	TPH C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C10 - C40 Fraction (Sum)	C34 - C40 Fraction	Total BTEX_0	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	PAHs (Sum of total)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
				mg/kg	mg/kg	µg/L	mg/kg	µg/L	mg/kg	µg/L	µg/kg	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				20	20	25	25	90	100	100	600	0.1	0.1	0.1	200	100	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	1	0.3	0.5	0.5	1	0.05	0.5	2
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																																							
SE227955	TP9_0.2	Soil	17/01/2022	<25	<25	25	25	120	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.2	0.1	<0.1	0.2	<0.1	0.2	<0.1	0.1	<0.1	0.2	1.4	16	0.4	18	66	57	0.13	7.7	150
SE227955	QA01	Soil	18/01/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.2	0.1	<0.1	0.2	<0.1	0.2	<0.1	0.1	<0.1	0.2	1.4	41	0.6	37	82	55	0.11	8.3	180
RPD				0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	67	0	0	67	0	67	0	0	0	67	55	88	40	69	22	4	17	8	18
SE227955	TP9_0.2	Soil	17/01/2022	<25	<25	25	25	120	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.2	0.1	<0.1	0.2	<0.1	0.2	<0.1	0.1	<0.1	0.2	1.4	16	0.4	18	66	57	0.13	7.7	150
856569	QA01A	Soil	18/01/2022	<20	<20	<50	<50	<100	<100	<100	-	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.6	<0.4	16	14	14	<0.1	5.9	21
RPD				0	0	0	0	18	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	60	0	12	130	121	26	26	151
SE227955	TP11_0.2	Soil	18/01/2022	<25	<25	47	47	230	280	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.3	0.2	0.1	0.3	<0.1	0.5	<0.1	0.2	0.4	0.5	3.0	8	<0.3	11	12	18	<0.05	3.7	23
SE227955	QA02	Soil	18/01/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	8	<0.3	9.8	7.0	12	<0.05	3.4	13
RPD				0	0	61	61	88	29	0	0	0	0	0	0	0	0	0	0	0	67	100	100	67	0	100	0	133	0	67	120	133	116	0	0	12	53	40	0	8	56
SE227955	TP11_0.2	Soil	18/01/2022	<25	<25	47	47	230	280	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.3	0.2	0.1	0.3	<0.1	0.5	<0.1	0.2	0.4	0.5	3.0	8	<0.3	11	12	18	<0.05	3.7	23
856569	QA02A	Soil	18/01/2022	<20	<20	<50	<50	<100	<100	<100	-	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11	<0.4	16	15	13	<0.1	<5	22
RPD				0	0	0	0	79	95	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	143	32	0	37	22	32	0	0	4
SE230522	ST_02	Soil	31/03/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.2	0.1	<0.1	0.2	<0.1	0.2	<0.1	0.1	<0.1	0.2	1.5	4	<0.3	8.9	17	38	0.08	5.5	100
SE230522	QA01_310322	Soil	31/03/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.2	0.1	<0.1	0.2	<0.1	0.3	<0.1	0.1	0.1	0.3	1.8	4	<0.3	10	19	37	0.05	8.8	110
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	40	18	0	0	12	11	3	46	46	10
SE232521	ANL_SAND_01	Soil	27/05/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	4	<0.3	1.7	<0.5	<1	<0.05	<0.5	<2
SE232521	QA01_270522	Soil	27/05/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	4	<0.3	1.6	<0.5	<1	<0.05	<0.5	<2
RPD				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0
SE232521	ANL_SAND_01	Soil	27/05/2022	<25	<25	<25	<25	<90	<210	<120	<600	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	4	<0.3	1.7	<0.5	<1	<0.05	<0.5	<2
893186	QA01A-270522	Soil	27/05/2022	<20	<20	<50	<50	<100	<100	<100	-	<0.1	<0.1	<0.1	<200	<100	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.9	<0.4	<5	<5	<5	<0.1	<5	<5
RPD				0	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 100 (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

Wentworthville Public School - Stage 3
Table H2 - Trip Blank Trip Spike Summary Table

					TRH						BTEX					
					TPH C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	C10 - C16 Fraction	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total
					mg/kg	mg/kg	µg/L	mg/kg	µg/L	µg/L	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	mg/kg
EQL					25	25	25	25	90	120	0.1	0.1	0.1	200	100	0.3
Sample Type	**Lab Report Number**	**Field ID**	**Matrix Type**	**Date**												
Trip Blank	**SE227955A**	**TB170122**	**Soil**	**18/01/2022**	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<200	<100	<0.3
Trip Blank	**SE232521**	**TB01_270522**	**Soil**	**27/05/2022**	<25	<25	-	-	-	-	<0.1	<0.1	<0.1	<200	<100	<0.3
Trip Spike	**SE227955A**	**TS170122**	**Soil**	**18/01/2022**	-	-	-	-	-	-	74%	81%	79%	81%	81%	-
Trip Spike	**SE232521**	**TS01_270522**	**Soil**	**27/05/2022**	-	-	-	-	-	-	98%	99%	96%	96%	97%	-

Wentworthville Public School - Stage 3
Table H3 - Rinsate Summary Table

				TRH				BTEX				PAH										Metals							
				C6 - C10 Fraction minus BTEX (F1)	TRH >C10-C16 less Naphthalene (F2)	C16 - C34 Fraction	C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	Xylene Total	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) pyrene	Chrysene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	PAHs (Sum of total)	Arsenic (filtered)	Cadmium (filtered)	Chromium (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				50	60	500	500	0.5	0.5	0.5	1.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	0.1	1	1	1	0.1	1	5
Lab Report Number	**Field ID**	**Matrix Type**	**Date**																										
SE227955A	**RB170122**	**Water**	**18/01/2022**	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SE232521	**RB01_270522**	**Water**	**27/05/2022**	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<1	<0.1	<1	<1	<1	<0.1	<1	<5

APPENDIX I

LABORATORY CERTIFICATES

I1.1 CHEMICAL RESULTS

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18/1/2022
Date Reported	19/1/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 3 : Chrysotile,Amosite,Crocidolite asbestos found in approx 8x4x2mm cement sheet fragments x4.
Sample # 5 : Chrysotile,Amosite asbestos found in approx 30x10x5mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	**100**
TRH C15-C28	mg/kg	45	<45	<45	**92**	<45	**210**
TRH C29-C36	mg/kg	45	<45	<45	**110**	<45	**250**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	**110**
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	**110**
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	**160**	<90	**310**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	**200**
TRH C10-C36 Total	mg/kg	110	<110	<110	**200**	<110	**560**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210	<210	**630**

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
TRH C10-C14	mg/kg	20	<20	**23**	<20	<20	**39**
TRH C15-C28	mg/kg	45	<45	**65**	**60**	<45	**130**
TRH C29-C36	mg/kg	45	<45	**93**	**220**	<45	**170**
TRH C37-C40	mg/kg	100	<100	<100	**140**	<100	<100
TRH >C10-C16	mg/kg	25	<25	**25**	<25	<25	**47**
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	**25**	<25	<25	**47**
TRH >C16-C34 (F3)	mg/kg	90	<90	**120**	**170**	<90	**230**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	**240**	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**180**	**280**	<110	**350**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	**420**	<210	**280**

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.5**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.1**	<0.1	**0.6**	**0.1**	<0.1
Pyrene	mg/kg	0.1	**0.1**	<0.1	**0.5**	**0.1**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.3**	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.4**	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	**0.1**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.3**	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	**0.4**	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.4**	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**3.3**	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**3.3**	<0.8	<0.8

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Pyrene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	**0.2**	<0.1	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	**0.2**	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	**1.0**	<0.8	**1.8**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	**1.0**	<0.8	**1.8**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.4**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.5**
Pyrene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.5**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	**0.2**
Chrysene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.3**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1	**0.3**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1	**0.3**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.1**	**0.1**	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.2**	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.3**	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.3**	**0.2**	<0.2	**0.4**
Total PAH (18)	mg/kg	0.8	<0.8	**1.4**	**1.2**	<0.8	**3.0**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**1.4**	**1.2**	<0.8	**3.0**

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	-
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	-
Lindane	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor	mg/kg	0.1	-	-	<0.1	-	-
Aldrin	mg/kg	0.1	-	-	<0.1	-	-
Beta BHC	mg/kg	0.1	-	-	<0.1	-	-
Delta BHC	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Dieldrin	mg/kg	0.2	-	-	<0.2	-	-
Endrin	mg/kg	0.2	-	-	<0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	-
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	-
Isodrin	mg/kg	0.1	-	-	<0.1	-	-
Mirex	mg/kg	0.1	-	-	<0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	-
Total OC VIC EPA	mg/kg	1	-	-	<1	-	-

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Lindane	mg/kg	0.1	-	-	<0.1	-	<0.1
Heptachlor	mg/kg	0.1	-	-	<0.1	-	<0.1
Aldrin	mg/kg	0.1	-	-	<0.1	-	<0.1
Beta BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Delta BHC	mg/kg	0.1	-	-	<0.1	-	<0.1
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	<0.1
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	<0.2
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	<0.1
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	<0.1
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	<0.1
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	<0.1
Dieldrin	mg/kg	0.2	-	-	<0.2	-	<0.2
Endrin	mg/kg	0.2	-	-	<0.2	-	<0.2
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	<0.1
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	<0.1
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	<0.2
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	<0.1
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	<0.1
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	<0.1
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	<0.1
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	<0.1
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	<0.1
Isodrin	mg/kg	0.1	-	-	<0.1	-	<0.1
Mirex	mg/kg	0.1	-	-	<0.1	-	<0.1
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	<1
Total OC VIC EPA	mg/kg	1	-	-	<1	-	<1

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-	<0.1	-	-
Alpha BHC	mg/kg	0.1	-	-	<0.1	-	-
Lindane	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor	mg/kg	0.1	-	-	<0.1	-	-
Aldrin	mg/kg	0.1	-	-	<0.1	-	-
Beta BHC	mg/kg	0.1	-	-	<0.1	-	-
Delta BHC	mg/kg	0.1	-	-	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-	<0.1	-	-
Dieldrin	mg/kg	0.2	-	-	<0.2	-	-
Endrin	mg/kg	0.2	-	-	<0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-	<0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-	<0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-	<0.1	-	-
Methoxychlor	mg/kg	0.1	-	-	<0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-	<0.1	-	-
Isodrin	mg/kg	0.1	-	-	<0.1	-	-
Mirex	mg/kg	0.1	-	-	<0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-	<1	-	-
Total OC VIC EPA	mg/kg	1	-	-	<1	-	-

OC Pesticides in Soil [AN420] Tested: 18/1/2022 (continued)

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Hexachlorobenzene (HCB)	mg/kg	0.1	-	-
Alpha BHC	mg/kg	0.1	-	-
Lindane	mg/kg	0.1	-	-
Heptachlor	mg/kg	0.1	-	-
Aldrin	mg/kg	0.1	-	-
Beta BHC	mg/kg	0.1	-	-
Delta BHC	mg/kg	0.1	-	-
Heptachlor epoxide	mg/kg	0.1	-	-
o,p'-DDE	mg/kg	0.1	-	-
Alpha Endosulfan	mg/kg	0.2	-	-
Gamma Chlordane	mg/kg	0.1	-	-
Alpha Chlordane	mg/kg	0.1	-	-
trans-Nonachlor	mg/kg	0.1	-	-
p,p'-DDE	mg/kg	0.1	-	-
Dieldrin	mg/kg	0.2	-	-
Endrin	mg/kg	0.2	-	-
o,p'-DDD	mg/kg	0.1	-	-
o,p'-DDT	mg/kg	0.1	-	-
Beta Endosulfan	mg/kg	0.2	-	-
p,p'-DDD	mg/kg	0.1	-	-
p,p'-DDT	mg/kg	0.1	-	-
Endosulfan sulphate	mg/kg	0.1	-	-
Endrin Aldehyde	mg/kg	0.1	-	-
Methoxychlor	mg/kg	0.1	-	-
Endrin Ketone	mg/kg	0.1	-	-
Isodrin	mg/kg	0.1	-	-
Mirex	mg/kg	0.1	-	-
Total CLP OC Pesticides	mg/kg	1	-	-
Total OC VIC EPA	mg/kg	1	-	-

OP Pesticides in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Arochlor 1016	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1221	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1232	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1242	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1248	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1254	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1260	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1262	mg/kg	0.2	-	-	<0.2	-	-
Arochlor 1268	mg/kg	0.2	-	-	<0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	-	-	<1	-	-

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Arochlor 1016	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1221	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1232	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1242	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1248	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1254	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1260	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1262	mg/kg	0.2	-	-	<0.2	-	<0.2
Arochlor 1268	mg/kg	0.2	-	-	<0.2	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	-	-	<1	-	<1

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Arochlor 1016	mg/kg	0.2	-	-	<0.2
Arochlor 1221	mg/kg	0.2	-	-	<0.2
Arochlor 1232	mg/kg	0.2	-	-	<0.2
Arochlor 1242	mg/kg	0.2	-	-	<0.2
Arochlor 1248	mg/kg	0.2	-	-	<0.2
Arochlor 1254	mg/kg	0.2	-	-	<0.2
Arochlor 1260	mg/kg	0.2	-	-	<0.2
Arochlor 1262	mg/kg	0.2	-	-	<0.2
Arochlor 1268	mg/kg	0.2	-	-	<0.2
Total PCBs (Arochlors)	mg/kg	1	-	-	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Arsenic, As	mg/kg	1	6	8	9	10	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.4	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	10	11	11	11	7.8
Copper, Cu	mg/kg	0.5	14	31	31	22	20
Lead, Pb	mg/kg	1	28	60	97	77	32
Nickel, Ni	mg/kg	0.5	5.7	6.3	6.0	5.1	5.8
Zinc, Zn	mg/kg	2	68	120	220	160	59

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Arsenic, As	mg/kg	1	5	7	5	4	4
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.5	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	7.7	13	10	11	6.0
Copper, Cu	mg/kg	0.5	23	15	41	18	25
Lead, Pb	mg/kg	1	35	19	140	24	33
Nickel, Ni	mg/kg	0.5	4.8	3.7	13	7.4	8.6
Zinc, Zn	mg/kg	2	71	21	280	100	120

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Arsenic, As	mg/kg	1	7	16	4	7	8
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	11	18	9.8	11	11
Copper, Cu	mg/kg	0.5	9.2	66	53	11	12
Lead, Pb	mg/kg	1	12	57	26	14	18
Nickel, Ni	mg/kg	0.5	2.7	7.7	7.7	2.4	3.7
Zinc, Zn	mg/kg	2	12	150	81	12	23

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Arsenic, As	mg/kg	1	41	8
Cadmium, Cd	mg/kg	0.3	0.6	<0.3
Chromium, Cr	mg/kg	0.5	37	9.8
Copper, Cu	mg/kg	0.5	82	7.0
Lead, Pb	mg/kg	1	55	12
Nickel, Ni	mg/kg	0.5	8.3	3.4
Zinc, Zn	mg/kg	2	180	13

Mercury in Soil [AN312] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
Mercury	mg/kg	0.05	<0.05	0.06	0.10	0.08	<0.05

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
Mercury	mg/kg	0.05	<0.05	<0.05	0.10	<0.05	0.06

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Mercury	mg/kg	0.05	<0.05	0.13	0.06	<0.05	<0.05

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
Mercury	mg/kg	0.05	0.11	<0.05

Moisture Content [AN002] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP3_0.4 SOIL - 17/1/2022 SE227955.004	TP4_0.2 SOIL - 17/1/2022 SE227955.005
% Moisture	%w/w	1	14.6	20.6	19.1	23.3	13.2

PARAMETER	UOM	LOR	TP5_0.2 SOIL - 17/1/2022 SE227955.006	TP5_0.5 SOIL - 18/1/2022 SE227955.007	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010
% Moisture	%w/w	1	6.5	22.0	28.1	22.6	20.4

PARAMETER	UOM	LOR	TP8_0.5 SOIL - 18/1/2022 SE227955.011	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013	TP10_0.4 SOIL - 17/1/2022 SE227955.014	TP11_0.2 SOIL - 18/1/2022 SE227955.015
% Moisture	%w/w	1	22.7	22.2	20.4	24.6	16.7

PARAMETER	UOM	LOR	QA01 SOIL - 18/1/2022 SE227955.016	QA02 SOIL - 18/1/2022 SE227955.017
% Moisture	%w/w	1	25.1	13.2

Fibre Identification in soil [AN602] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Asbestos Detected	No unit	-	No	No	Yes	Yes	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	**>0.01**	**>0.01**	<0.01

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Asbestos Detected	No unit	-	No
Estimated Fibres*	%w/w	0.01	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Total Sample Weight*	g	1	**489**	**367**	**409**	**483**	**534**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	**0.777**	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	**0.0574**	**0.0530**	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	**0.02**	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Fibre Type*	No unit	-	NAD	NAD	AMO,CRY<CRO	AMO,CRY	NAD

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Total Sample Weight*	g	1	**451**	**342**	**421**	**451**	**208**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Total Sample Weight*	g	1	**590**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.

AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	20

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955A R0**
Date Received	18/1/2022
Date Reported	20/1/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TS170122 SOIL - 18/1/2022 SE227955A.019	TB170122 SOIL - 18/1/2022 SE227955A.020
Benzene	mg/kg	0.1	[74%]	<0.1
Toluene	mg/kg	0.1	[81%]	<0.1
Ethylbenzene	mg/kg	0.1	[79%]	<0.1
m/p-xylene	mg/kg	0.2	[81%]	<0.2
o-xylene	mg/kg	0.1	[81%]	<0.1
Total Xylenes	mg/kg	0.3	-	<0.3
Total BTEX	mg/kg	0.6	-	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	TB170122 SOIL - 18/1/2022 SE227955A.020
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 18/1/2022

PARAMETER	UOM	LOR	TB170122 SOIL - 18/1/2022 SE227955A.020
TRH C7-C9	mg/kg	20	<20
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120

Moisture Content [AN002] Tested: 18/1/2022

PARAMETER	UOM	LOR	TB170122 SOIL - 18/1/2022 SE227955A.020
% Moisture	%w/w	1	<1.0

VOCs in Water [AN433] Tested: 19/1/2022

PARAMETER	UOM	LOR	RB170122 WATER - 18/1/2022 SE227955A.018
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene (VOC)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 18/1/2022

PARAMETER	UOM	LOR	RB170122 WATER - 18/1/2022 SE227955A.018
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 19/1/2022

PARAMETER	UOM	LOR	RB170122 WATER - 18/1/2022 SE227955A.018
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C40	µg/L	320	<320

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

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		NVL	Not validated.	LOR	Limit of Reporting.
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		LNR	Sample listed, but not received.		
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ANALYTICAL REPORT

Accreditation No. 2562

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Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18 Jan 2022
Date Reported	19 Jan 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Sample # 3 : Chrysotile,Amosite,Crocidolite asbestos found in approx 8x4x2mm cement sheet fragments x4.
Sample # 5 : Chrysotile,Amosite asbestos found in approx 30x10x5mm cement sheet fragments.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE227955.001	TP1_0.2	Soil	489g Clay,Sand,Soil, Rocks,Plant Matter	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.002	TP2_0.2	Soil	367g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.003	TP3_0.2	Soil	409g Clay,Sand,Soil, Rocks	17 Jan 2022	Amosite, Chrysotile & Crocidolite Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	>0.01
SE227955.005	TP4_0.2	Soil	483g Clay,Sand,Soil, Rocks	17 Jan 2022	Amosite & Chrysotile Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	>0.01
SE227955.006	TP5_0.2	Soil	534g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.008	TP6_0.2	Soil	451g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.009	TP7_0.2	Soil	342g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.010	TP8_0.2	Soil	421g Clay,Sand,Soil, Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.012	TP9_0.2	Soil	451g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.013	TP10_0.2	Soil	208g Sand,Soil,Rocks	17 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE227955.015	TP11_0.2	Soil	590g Sand,Soil,Rocks	18 Jan 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 18/1/2022

PARAMETER	UOM	LOR	TP1_0.2 SOIL - 17/1/2022 SE227955.001	TP2_0.2 SOIL - 17/1/2022 SE227955.002	TP3_0.2 SOIL - 17/1/2022 SE227955.003	TP4_0.2 SOIL - 17/1/2022 SE227955.005	TP5_0.2 SOIL - 17/1/2022 SE227955.006
Total Sample Weight*	g	1	**489**	**367**	**409**	**483**	**534**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	**0.777**	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	**0.0574**	**0.0530**	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	**0.02**	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.014**	**0.011**	<0.001
Fibre Type*	No unit	-	NAD	NAD	AMO,CRY<CRO	AMO,CRY	NAD

PARAMETER	UOM	LOR	TP6_0.2 SOIL - 17/1/2022 SE227955.008	TP7_0.2 SOIL - 17/1/2022 SE227955.009	TP8_0.2 SOIL - 17/1/2022 SE227955.010	TP9_0.2 SOIL - 17/1/2022 SE227955.012	TP10_0.2 SOIL - 17/1/2022 SE227955.013
Total Sample Weight*	g	1	**451**	**342**	**421**	**451**	**208**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	TP11_0.2 SOIL - 18/1/2022 SE227955.015
Total Sample Weight*	g	1	**590**
Bonded ACM in >7mm Sample*	g	0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001
Fibre Type*	No unit	-	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE227955 R0

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955 R0**
Date Received	18 Jan 2022
Date Reported	19 Jan 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	17 Soil
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP2_0.2	SE227955.002	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP3_0.2	SE227955.003	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP4_0.2	SE227955.005	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP5_0.2	SE227955.006	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP6_0.2	SE227955.008	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP7_0.2	SE227955.009	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP8_0.2	SE227955.010	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP9_0.2	SE227955.012	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP10_0.2	SE227955.013	LB240763	17 Jan 2022	18 Jan 2022	17 Jan 2023	18 Jan 2022	17 Jan 2023	19 Jan 2022
TP11_0.2	SE227955.015	LB240763	18 Jan 2022	18 Jan 2022	18 Jan 2023	18 Jan 2022	18 Jan 2023	19 Jan 2022

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240762	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240762	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240782	17 Jan 2022	18 Jan 2022	14 Feb 2022	18 Jan 2022	14 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240782	18 Jan 2022	18 Jan 2022	15 Feb 2022	18 Jan 2022	15 Feb 2022	19 Jan 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP10_0.4	SE227955.014	LB240759	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
QA01	SE227955.016	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022
QA02	SE227955.017	LB240759	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	19 Jan 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240775	17 Jan 2022	18 Jan 2022	16 Jul 2022	18 Jan 2022	16 Jul 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
QA01	SE227955.016	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022
QA02	SE227955.017	LB240775	18 Jan 2022	18 Jan 2022	17 Jul 2022	18 Jan 2022	17 Jul 2022	19 Jan 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240757	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

HOLDING TIME SUMMARY

SE227955 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
QA01	SE227955.016	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240757	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	19 Jan 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1_0.2	SE227955.001	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP2_0.2	SE227955.002	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.2	SE227955.003	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP3_0.4	SE227955.004	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP4_0.2	SE227955.005	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.2	SE227955.006	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP5_0.5	SE227955.007	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP6_0.2	SE227955.008	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP7_0.2	SE227955.009	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.2	SE227955.010	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP8_0.5	SE227955.011	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
TP9_0.2	SE227955.012	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.2	SE227955.013	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP10_0.4	SE227955.014	LB240758	17 Jan 2022	18 Jan 2022	31 Jan 2022	18 Jan 2022	31 Jan 2022	19 Jan 2022
TP11_0.2	SE227955.015	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA01	SE227955.016	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022
QA02	SE227955.017	LB240758	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	105
	TP6_0.2	SE227955.008	%	60 - 130%	113
	TP8_0.2	SE227955.010	%	60 - 130%	119
	TP10_0.2	SE227955.013	%	60 - 130%	119

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	84
	TP6_0.2	SE227955.008	%	60 - 130%	91
	TP8_0.2	SE227955.010	%	60 - 130%	92
	TP10_0.2	SE227955.013	%	60 - 130%	87
d14-p-terphenyl (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	86
	TP6_0.2	SE227955.008	%	60 - 130%	90
	TP8_0.2	SE227955.010	%	60 - 130%	95
	TP10_0.2	SE227955.013	%	60 - 130%	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	84
	TP2_0.2	SE227955.002	%	70 - 130%	87
	TP3_0.2	SE227955.003	%	70 - 130%	84
	TP3_0.4	SE227955.004	%	70 - 130%	84
	TP4_0.2	SE227955.005	%	70 - 130%	87
	TP5_0.2	SE227955.006	%	70 - 130%	85
	TP5_0.5	SE227955.007	%	70 - 130%	86
	TP6_0.2	SE227955.008	%	70 - 130%	91
	TP7_0.2	SE227955.009	%	70 - 130%	86
	TP8_0.2	SE227955.010	%	70 - 130%	92
	TP8_0.5	SE227955.011	%	70 - 130%	83
	TP9_0.2	SE227955.012	%	70 - 130%	90
	TP10_0.2	SE227955.013	%	70 - 130%	87
	TP10_0.4	SE227955.014	%	70 - 130%	82
	TP11_0.2	SE227955.015	%	70 - 130%	91
	QA01	SE227955.016	%	70 - 130%	85
	QA02	SE227955.017	%	70 - 130%	80
d14-p-terphenyl (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	84
	TP2_0.2	SE227955.002	%	70 - 130%	85
	TP3_0.2	SE227955.003	%	70 - 130%	86
	TP3_0.4	SE227955.004	%	70 - 130%	85
	TP4_0.2	SE227955.005	%	70 - 130%	84
	TP5_0.2	SE227955.006	%	70 - 130%	86
	TP5_0.5	SE227955.007	%	70 - 130%	84
	TP6_0.2	SE227955.008	%	70 - 130%	90
	TP7_0.2	SE227955.009	%	70 - 130%	90
	TP8_0.2	SE227955.010	%	70 - 130%	95
	TP8_0.5	SE227955.011	%	70 - 130%	90
	TP9_0.2	SE227955.012	%	70 - 130%	95
	TP10_0.2	SE227955.013	%	70 - 130%	93
	TP10_0.4	SE227955.014	%	70 - 130%	89
	TP11_0.2	SE227955.015	%	70 - 130%	92
	QA01	SE227955.016	%	70 - 130%	91
	QA02	SE227955.017	%	70 - 130%	82
d5-nitrobenzene (Surrogate)	TP1_0.2	SE227955.001	%	70 - 130%	79
	TP2_0.2	SE227955.002	%	70 - 130%	79
	TP3_0.2	SE227955.003	%	70 - 130%	75
	TP3_0.4	SE227955.004	%	70 - 130%	78
	TP4_0.2	SE227955.005	%	70 - 130%	80
	TP5_0.2	SE227955.006	%	70 - 130%	84
	TP5_0.5	SE227955.007	%	70 - 130%	74
	TP6_0.2	SE227955.008	%	70 - 130%	74
	TP7_0.2	SE227955.009	%	70 - 130%	82
	TP8_0.2	SE227955.010	%	70 - 130%	78

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	TP8_0.5	SE227955.011	%	70 - 130%	76
	TP9_0.2	SE227955.012	%	70 - 130%	81
	TP10_0.2	SE227955.013	%	70 - 130%	82
	TP10_0.4	SE227955.014	%	70 - 130%	75
	TP11_0.2	SE227955.015	%	70 - 130%	80
	QA01	SE227955.016	%	70 - 130%	76
	QA02	SE227955.017	%	70 - 130%	79

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP3_0.2	SE227955.003	%	60 - 130%	105
	TP6_0.2	SE227955.008	%	60 - 130%	113
	TP8_0.2	SE227955.010	%	60 - 130%	119
	TP10_0.2	SE227955.013	%	60 - 130%	119

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	78
	TP2_0.2	SE227955.002	%	60 - 130%	78
	TP3_0.2	SE227955.003	%	60 - 130%	82
	TP3_0.4	SE227955.004	%	60 - 130%	84
	TP4_0.2	SE227955.005	%	60 - 130%	88
	TP5_0.2	SE227955.006	%	60 - 130%	80
	TP5_0.5	SE227955.007	%	60 - 130%	79
	TP6_0.2	SE227955.008	%	60 - 130%	74
	TP7_0.2	SE227955.009	%	60 - 130%	78
	TP8_0.2	SE227955.010	%	60 - 130%	76
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	73
	TP10_0.2	SE227955.013	%	60 - 130%	79
	TP10_0.4	SE227955.014	%	60 - 130%	75
	TP11_0.2	SE227955.015	%	60 - 130%	79
	QA01	SE227955.016	%	60 - 130%	74
	QA02	SE227955.017	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	75
	TP2_0.2	SE227955.002	%	60 - 130%	75
	TP3_0.2	SE227955.003	%	60 - 130%	78
	TP3_0.4	SE227955.004	%	60 - 130%	82
	TP4_0.2	SE227955.005	%	60 - 130%	85
	TP5_0.2	SE227955.006	%	60 - 130%	76
	TP5_0.5	SE227955.007	%	60 - 130%	76
	TP6_0.2	SE227955.008	%	60 - 130%	70
	TP7_0.2	SE227955.009	%	60 - 130%	76
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	71
	TP10_0.2	SE227955.013	%	60 - 130%	74
	TP10_0.4	SE227955.014	%	60 - 130%	76
	TP11_0.2	SE227955.015	%	60 - 130%	74
	QA01	SE227955.016	%	60 - 130%	71
	QA02	SE227955.017	%	60 - 130%	70
d8-toluene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	72
	TP2_0.2	SE227955.002	%	60 - 130%	71
	TP3_0.2	SE227955.003	%	60 - 130%	74
	TP3_0.4	SE227955.004	%	60 - 130%	77
	TP4_0.2	SE227955.005	%	60 - 130%	81
	TP5_0.2	SE227955.006	%	60 - 130%	73
	TP5_0.5	SE227955.007	%	60 - 130%	70
	TP6_0.2	SE227955.008	%	60 - 130%	68
	TP7_0.2	SE227955.009	%	60 - 130%	71
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	76

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d8-toluene (Surrogate)	TP9_0.2	SE227955.012	%	60 - 130%	72
	TP10_0.2	SE227955.013	%	60 - 130%	71
	TP10_0.4	SE227955.014	%	60 - 130%	73
	TP11_0.2	SE227955.015	%	60 - 130%	75
	QA01	SE227955.016	%	60 - 130%	76
	QA02	SE227955.017	%	60 - 130%	65

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	78
	TP2_0.2	SE227955.002	%	60 - 130%	78
	TP3_0.2	SE227955.003	%	60 - 130%	82
	TP3_0.4	SE227955.004	%	60 - 130%	84
	TP4_0.2	SE227955.005	%	60 - 130%	88
	TP5_0.2	SE227955.006	%	60 - 130%	80
	TP5_0.5	SE227955.007	%	60 - 130%	79
	TP6_0.2	SE227955.008	%	60 - 130%	74
	TP7_0.2	SE227955.009	%	60 - 130%	78
	TP8_0.2	SE227955.010	%	60 - 130%	76
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	73
	TP10_0.2	SE227955.013	%	60 - 130%	79
	TP10_0.4	SE227955.014	%	60 - 130%	75
	TP11_0.2	SE227955.015	%	60 - 130%	79
	QA01	SE227955.016	%	60 - 130%	74
	QA02	SE227955.017	%	60 - 130%	74
d4-1,2-dichloroethane (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	75
	TP2_0.2	SE227955.002	%	60 - 130%	75
	TP3_0.2	SE227955.003	%	60 - 130%	78
	TP3_0.4	SE227955.004	%	60 - 130%	82
	TP4_0.2	SE227955.005	%	60 - 130%	85
	TP5_0.2	SE227955.006	%	60 - 130%	76
	TP5_0.5	SE227955.007	%	60 - 130%	76
	TP6_0.2	SE227955.008	%	60 - 130%	70
	TP7_0.2	SE227955.009	%	60 - 130%	76
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	78
	TP9_0.2	SE227955.012	%	60 - 130%	71
	TP10_0.2	SE227955.013	%	60 - 130%	74
	TP10_0.4	SE227955.014	%	60 - 130%	76
	TP11_0.2	SE227955.015	%	60 - 130%	74
	QA01	SE227955.016	%	60 - 130%	71
	QA02	SE227955.017	%	60 - 130%	70
d8-toluene (Surrogate)	TP1_0.2	SE227955.001	%	60 - 130%	72
	TP2_0.2	SE227955.002	%	60 - 130%	71
	TP3_0.2	SE227955.003	%	60 - 130%	74
	TP3_0.4	SE227955.004	%	60 - 130%	77
	TP4_0.2	SE227955.005	%	60 - 130%	81
	TP5_0.2	SE227955.006	%	60 - 130%	73
	TP5_0.5	SE227955.007	%	60 - 130%	70
	TP6_0.2	SE227955.008	%	60 - 130%	68
	TP7_0.2	SE227955.009	%	60 - 130%	71
	TP8_0.2	SE227955.010	%	60 - 130%	75
	TP8_0.5	SE227955.011	%	60 - 130%	76
	TP9_0.2	SE227955.012	%	60 - 130%	72
	TP10_0.2	SE227955.013	%	60 - 130%	71
	TP10_0.4	SE227955.014	%	60 - 130%	73
	TP11_0.2	SE227955.015	%	60 - 130%	75
	QA01	SE227955.016	%	60 - 130%	76
	QA02	SE227955.017	%	60 - 130%	65

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB240782.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB240757.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	76
		2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	84

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB240757.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB240775.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB240757.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240758.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80
		d8-toluene (Surrogate)	%	-	75
		Bromofluorobenzene (Surrogate)	%	-	81
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240758.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	80

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.008	LB240782.014	Mercury	mg/kg	0.05	0.10	0.10	80	5
SE227955.017	LB240782.024	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240759.011	% Moisture	%w/w	1	20.4	20.5	35	1
SE227955.017	LB240759.019	% Moisture	%w/w	1	13.2	13.3	38	1

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.18	30	1

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.1	0.1	108	14
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.3	0.3	64	8
			Pyrene	mg/kg	0.1	0.3	0.3	65	5
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.2	91	3
			Chrysene	mg/kg	0.1	0.2	0.2	80	5
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.3	68	7
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	<0.1	132	3
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.2	90	6
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.1	120	14
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.2	104	25
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	0.2	0.2	96	5
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	0.3	0.3	100	3
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	0.3	0.3	81	4
			Total PAH (18)	mg/kg	0.8	1.8	1.9	74	3
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1
SE227955.017	LB240757.022		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	9
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.008	LB240775.014		Arsenic, As	mg/kg	1	5	4	52	13
			Cadmium, Cd	mg/kg	0.3	0.5	0.5	87	9
			Chromium, Cr	mg/kg	0.5	10	9.5	35	6
			Copper, Cu	mg/kg	0.5	41	42	31	4
			Nickel, Ni	mg/kg	0.5	13	14	34	3
			Lead, Pb	mg/kg	1	140	170	31	16
			Zinc, Zn	mg/kg	2	280	320	31	13
SE227955.017	LB240775.024		Arsenic, As	mg/kg	1	8	8	43	2
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	9.8	9.5	35	3
			Copper, Cu	mg/kg	0.5	7.0	8.4	37	19
			Nickel, Ni	mg/kg	0.5	3.4	2.4	47	33
			Lead, Pb	mg/kg	1	12	14	38	15
			Zinc, Zn	mg/kg	2	13	12	46	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240757.014		TRH C10-C14	mg/kg	20	100	71	53	34
			TRH C15-C28	mg/kg	45	210	180	53	12
			TRH C29-C36	mg/kg	45	250	260	48	6
			TRH C37-C40	mg/kg	100	<100	110	126	10
			TRH C10-C36 Total	mg/kg	110	560	520	51	7
			TRH >C10-C40 Total (F bands)	mg/kg	210	630	610	64	3
		TRH F Bands	TRH >C10-C16	mg/kg	25	110	79	56	34
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	110	79	56	34
			TRH >C16-C34 (F3)	mg/kg	90	310	310	59	1
			TRH >C34-C40 (F4)	mg/kg	120	200	220	87	8
SE227955.017	LB240757.022		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240758.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.3	50	2
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.2	50	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.6	50	1
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE227955.017	LB240758.022	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.017	LB240758.022	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.0	7.3	50	4
			d8-toluene (Surrogate)	mg/kg	-	6.5	7.1	50	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	7.4	50	0
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227955.010	LB240758.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.5	7.3	30	2
			d8-toluene (Surrogate)	mg/kg	-	7.5	7.2	30	3
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.6	7.6	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE227955.017	LB240758.022		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.0	7.3	30	4
			d8-toluene (Surrogate)	mg/kg	-	6.5	7.1	30	10
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.4	7.4	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240782.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	105

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	109
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	101
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	106
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	100
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	108
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	112
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	105

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Dichlorvos	mg/kg	0.5	1.3	2	60 - 140	66
		Diazinon (Dimpylate)	mg/kg	0.5	1.4	2	60 - 140	68
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.5	2	60 - 140	76
		Ethion	mg/kg	0.2	1.2	2	60 - 140	62
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	85
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	104
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.8	4	60 - 140	94
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	102
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	92
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	92
		Pyrene	mg/kg	0.1	3.9	4	60 - 140	98
		Benzo(a)pyrene	mg/kg	0.1	3.3	4	60 - 140	83
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	77
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	85
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	90

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240775.002	Arsenic, As	mg/kg	1	350	318.22	80 - 120	110
	Cadmium, Cd	mg/kg	0.3	4.9	4.81	70 - 130	101
	Chromium, Cr	mg/kg	0.5	41	38.31	80 - 120	108
	Copper, Cu	mg/kg	0.5	320	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	200	187	80 - 120	106
	Lead, Pb	mg/kg	1	96	89.9	80 - 120	106
	Zinc, Zn	mg/kg	2	280	273	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240757.002		TRH C10-C14	mg/kg	20	49	40	60 - 140	123
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	108
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	98
	TRH F Bands	TRH >C10-C16	mg/kg	25	45	40	60 - 140	113
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	100

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240758.002	Monocyclic	Benzene	mg/kg	0.1	4.2	5	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	4.1	5	60 - 140	83
		Ethylbenzene	mg/kg	0.1	4.0	5	60 - 140	79
		m/p-xylene	mg/kg	0.2	7.7	10	60 - 140	77
		o-xylene	mg/kg	0.1	3.8	5	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		d8-toluene (Surrogate)	mg/kg	-	9.3	10	70 - 130	93
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240758.002		TRH C6-C10	mg/kg	25	74	92.5	60 - 140	80
		TRH C6-C9	mg/kg	20	67	80	60 - 140	83
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	50	62.5	60 - 140	80

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227933.001	LB240782.004	Mercury	mg/kg	0.05	0.19	<0.05	0.2	94

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240757.004		Naphthalene	mg/kg	0.1	4.1	<0.1	4	101
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.7	<0.1	4	93
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	92
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.1	<0.1	4	101
			Anthracene	mg/kg	0.1	3.7	<0.1	4	92
			Fluoranthene	mg/kg	0.1	4.0	0.1	4	97
			Pyrene	mg/kg	0.1	4.2	0.1	4	103
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	<0.1	4	95
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.0	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	31	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	83
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	86
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	84

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227933.001	LB240775.004	Arsenic, As	mg/kg	1	49	2	50	94
		Cadmium, Cd	mg/kg	0.3	46	<0.3	50	93
		Chromium, Cr	mg/kg	0.5	51	1.9	50	97
		Copper, Cu	mg/kg	0.5	50	<0.5	50	99
		Nickel, Ni	mg/kg	0.5	49	<0.5	50	98
		Lead, Pb	mg/kg	1	51	1	50	99
		Zinc, Zn	mg/kg	2	83	17	50	132 ④

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240757.004		TRH C10-C14	mg/kg	20	49	<20	40	123
			TRH C15-C28	mg/kg	45	45	<45	40	113
			TRH C29-C36	mg/kg	45	67	<45	40	110
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	160	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	44	<25	40	110
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	113
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.0	<0.1	5	81
			Toluene	mg/kg	0.1	4.0	<0.1	5	80
			Ethylbenzene	mg/kg	0.1	3.8	<0.1	5	76
			m/p-xylene	mg/kg	0.2	7.3	<0.2	10	73
			o-xylene	mg/kg	0.1	3.7	<0.1	5	73

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004	Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	7.5	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.0	7.2	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	7.8	10	81
		Totals	Total Xylenes	mg/kg	0.3	11	<0.3	-	-
			Total BTEX	mg/kg	0.6	23	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE227955.001	LB240758.004		TRH C6-C10	mg/kg	25	67	<25	92.5	71
			TRH C6-C9	mg/kg	20	60	<20	80	74
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.7	7.5	10	87
			d8-toluene (Surrogate)	mg/kg	-	8.0	7.2	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	7.8	-	81
		VPH F	Benzene (F0)	mg/kg	0.1	4.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	44	<25	62.5	69

MATRIX SPIKE DUPLICATES

SE227955 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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STATEMENT OF QA/QC PERFORMANCE

SE227955A R0

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	20

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE227955A R0**
Date Received	18 Jan 2022
Date Reported	20 Jan 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Matrix Spike	TRH (Total Recoverable Hydrocarbons) in Soil	2 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil, 1 Water
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

HOLDING TIME SUMMARY

SE227955A R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB170122	SE227955A.020	LB240774	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	23 Jan 2022	20 Jan 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TB170122	SE227955A.020	LB240769	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	27 Feb 2022	20 Jan 2022

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB170122	SE227955A.018	LB240792	18 Jan 2022	18 Jan 2022	25 Jan 2022	19 Jan 2022	28 Feb 2022	20 Jan 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TS170122	SE227955A.019	LB240772	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	20 Jan 2022
TB170122	SE227955A.020	LB240772	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	20 Jan 2022

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB170122	SE227955A.018	LB240807	18 Jan 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022	01 Feb 2022	19 Jan 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TS170122	SE227955A.019	LB240772	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	20 Jan 2022
TB170122	SE227955A.020	LB240772	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	20 Jan 2022

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB170122	SE227955A.018	LB240768	18 Jan 2022	18 Jan 2022	01 Feb 2022	18 Jan 2022	01 Feb 2022	19 Jan 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TS170122	SE227955A.019	%	60 - 130%	71
	TB170122	SE227955A.020	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	TS170122	SE227955A.019	%	60 - 130%	81
	TB170122	SE227955A.020	%	60 - 130%	86
d8-toluene (Surrogate)	TS170122	SE227955A.019	%	60 - 130%	81
	TB170122	SE227955A.020	%	60 - 130%	86

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB170122	SE227955A.018	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	RB170122	SE227955A.018	%	40 - 130%	91
d8-toluene (Surrogate)	RB170122	SE227955A.018	%	40 - 130%	95

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TB170122	SE227955A.020	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	TB170122	SE227955A.020	%	60 - 130%	86
d8-toluene (Surrogate)	TB170122	SE227955A.020	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB170122	SE227955A.018	%	40 - 130%	103
d4-1,2-dichloroethane (Surrogate)	RB170122	SE227955A.018	%	60 - 130%	91
d8-toluene (Surrogate)	RB170122	SE227955A.018	%	40 - 130%	95

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB240769.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB240792.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240772.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	86
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	80
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240807.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene (VOC)	µg/L	0.5	<0.5
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	102

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240772.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	86

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB240768.001		TRH C6-C9	µg/L	40	<40
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	90
		d8-toluene (Surrogate)	%	-	95
		Bromofluorobenzene (Surrogate)	%	-	102

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227923.010	LB240774.011	% Moisture	%w/w	1	5.1	5.0	50	2
SE227955A.020	LB240774.019	% Moisture	%w/w	1	<1	<1	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE227901A.027	LB240769.023		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE227923.007	LB240769.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE227955A.020	LB240769.021		TRH C7-C9	mg/kg	20	<20	<20	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240769.002		TRH C10-C14	mg/kg	20	50	40	60 - 140	125
		TRH C15-C28	mg/kg	45	50	40	60 - 140	125
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	95
	TRH F Bands	TRH >C10-C16	mg/kg	25	49	40	60 - 140	123
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	113
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240792.002		TRH C10-C14	µg/L	50	1000	1200	60 - 140	84
		TRH C15-C28	µg/L	200	1400	1200	60 - 140	113
		TRH C29-C36	µg/L	200	1400	1200	60 - 140	116
	TRH F Bands	TRH >C10-C16	µg/L	60	1200	1200	60 - 140	97
		TRH >C16-C34 (F3)	µg/L	500	1500	1200	60 - 140	122
		TRH >C34-C40 (F4)	µg/L	500	690	600	60 - 140	115

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240772.002	Monocyclic	Benzene	mg/kg	0.1	4.2	5	60 - 140	85
	Aromatic	Toluene	mg/kg	0.1	4.1	5	60 - 140	83
		Ethylbenzene	mg/kg	0.1	4.3	5	60 - 140	86
		m/p-xylene	mg/kg	0.2	8.5	10	60 - 140	85
		o-xylene	mg/kg	0.1	4.7	5	60 - 140	95
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	10	70 - 130	88
		d8-toluene (Surrogate)	mg/kg	-	8.7	10	70 - 130	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	10	70 - 130	79

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240807.002	Monocyclic	Benzene	µg/L	0.5	49	45.45	60 - 140	108
	Aromatic	Toluene	µg/L	0.5	50	45.45	60 - 140	110
		Ethylbenzene	µg/L	0.5	49	45.45	60 - 140	108
		m/p-xylene	µg/L	1	99	90.9	60 - 140	108
		o-xylene	µg/L	0.5	49	45.45	60 - 140	108
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	11	10	60 - 140	110
		d8-toluene (Surrogate)	µg/L	-	10	10	70 - 130	103
		Bromofluorobenzene (Surrogate)	µg/L	-	10	10	70 - 130	103

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240772.002		TRH C6-C10	mg/kg	25	73	92.5	60 - 140	79
		TRH C6-C9	mg/kg	20	64	80	60 - 140	80
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	10	70 - 130	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	7.9	10	70 - 130	79
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	47	62.5	60 - 140	75

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB240768.002		TRH C6-C10	µg/L	50	850	946.63	60 - 140	90
		TRH C6-C9	µg/L	40	740	818.71	60 - 140	91
	Surrogates	d4-1,2-dichloroethane (Surrogate)	µg/L	-	11	10	60 - 140	110
		d8-toluene (Surrogate)	µg/L	-	10	10	70 - 130	103
		Bromofluorobenzene (Surrogate)	µg/L	-	10	10	70 - 130	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	560	639.67	60 - 140	87

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil — **Method: ME-(AU)-[ENV]AN403**

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE227923.002	LB240769.024		TRH C10-C14	mg/kg	20	0	40	125
			TRH C15-C28	mg/kg	45	617	40	78
			TRH C29-C36	mg/kg	45	369	40	248 Ⓢ
		TRH F Bands	TRH >C10-C16	mg/kg	25	25	40	93
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	885	40	160 Ⓢ
			TRH >C34-C40 (F4)	mg/kg	120	165	-	-

MATRIX SPIKE DUPLICATES

SE227955A R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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E-MAILED 18/1 @ 4.55

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:	WSP	Project Name/No:	PS127030 – Stage 3 Investigation		
Address:	Level 27, Ernst & Young Centre	Purchase Order No:	30073144		
	680 George Street	Results Required Date:	24 Hrs TAT		
	Sydney NSW 2000	Telephone:	D: 0404 786 197	478 051 688	
Contact Name:	Cleo Wu; James Green	Email Results to:	Cleo.wu@wsp.com; James.Green@wsp.com		
Quotation No:	SY141023-1-IS				

SGS ID	Client Sample ID	Sampling Date	Matrix (Tick as appropriate)			NO. OF CONTAINERS	ANALYSIS REQUESTED											Additional Report Formats	Notes/Guidelines/LOR/ Special instructions
			Soil Sample	Water Sample	___FRAGMENT__		TRH, BTEXN, PAH, 8 METALS, ASBESTOS W/W% (NEPM)	OCP/OPP, PCB	TRH, BTEXN, PAH, 8 METALS,	TRH, BTEXN	500ML W/W% ASBESTOS (NEPM)		Hold						
1	TP1_0.2	17.01.2022	X				X												
	TP1_0.4	17.01.2022	X										X						
2	TP2_0.2	17.01.2022	X				X												
	TP2_0.4	17.01.2022	X										X						
3	TP3_0.2	17.01.2022	X				X	X											
4	TP3_0.4	17.01.2022	X						X										
5	TP4_0.2	17.01.2022	X				X												
	TP4_0.4	17.01.2022	X										X						
6	TP5_0.2	17.01.2022	X				X												
	TP5_0.4	17.01.2022	X										X						
7	TP05_0.5	18.01.2022							X										
8	TP6_0.2	17.01.2022	X				X	X											
	TP06_0.5	18.01.2022											x						
9	TP7_0.2	17.01.2022	X				X												
	TP07_0.5	18.01.2022											x						
10	TP8_0.2	17.01.2022	X				X	X											
11	TP08_0.5	18.01.2022							X										
12	TP9_0.2	17.01.2022	X				X												

SGS Alexandria Environmental

SE227955A COC
Received: 18 – Jan – 2022

source: SE_Addresses.pdf page: 1 SGS Ref: SE227955A_COC

	TP09_0.5	18.01.2022												x					
13	TP10_0.2	17.01.2022	X					X	X										
14	TP10_0.4	17.01.2022	X							X									
15	TP11_0.2	18.01.2022						x											
	TP11_0.5	18.01.2022												x					
16	QA01	18.01.2022	X							X									
	QA01A	18.01.2022	X							X									Eurofins Please PO# 30073145
17	QA02	18.01.2022	X							X									
	QA02A	18.01.2022	X							X									Eurofins Please PO# 30073145
18	RB170122	18.01.2022		X							X								
19	TS170122	18.01.2022	X								X								
20	TB170122	18.01.2022	X								X								

Relinquished By: / WSP: Cleo Wu	Date/Time 18/01/2022 15:00	Received By: George Zhi	Date/Time: 18/1/22 @ ~~4:30~~ 6:15 pm
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: Yes / No	Temperature: 23 °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*
Comments / Subcontracting details:			

SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	17

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 18/1/2022
Report Due	Wed 19/1/2022
SGS Reference	**SE227955**

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Tuesday 18/1/2022. Results are expected to be ready by COB Wednesday 19/1/2022.
Please quote SGS reference SE227955 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	17 Soil
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

8 samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

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SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP1_0.2	-	-	26	-	7	10	11	7
002	TP2_0.2	-	-	26	-	7	10	11	7
003	TP3_0.2	30	14	26	11	7	10	11	7
004	TP3_0.4	-	-	26	-	7	10	11	7
005	TP4_0.2	-	-	26	-	7	10	11	7
006	TP5_0.2	-	-	26	-	7	10	11	7
007	TP5_0.5	-	-	26	-	7	10	11	7
008	TP6_0.2	30	14	26	11	7	10	11	7
009	TP7_0.2	-	-	26	-	7	10	11	7
010	TP8_0.2	30	14	26	11	7	10	11	7
011	TP8_0.5	-	-	26	-	7	10	11	7
012	TP9_0.2	-	-	26	-	7	10	11	7
013	TP10_0.2	30	14	26	11	7	10	11	7
014	TP10_0.4	-	-	26	-	7	10	11	7
015	TP11_0.2	-	-	26	-	7	10	11	7
016	QA01	-	-	26	-	7	10	11	7
017	QA02	-	-	26	-	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE227955

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
001	TP1_0.2	2	9	1	1
002	TP2_0.2	2	9	1	1
003	TP3_0.2	2	9	1	1
004	TP3_0.4	-	-	1	1
005	TP4_0.2	2	9	1	1
006	TP5_0.2	2	9	1	1
007	TP5_0.5	-	-	1	1
008	TP6_0.2	2	9	1	1
009	TP7_0.2	2	9	1	1
010	TP8_0.2	2	9	1	1
011	TP8_0.5	-	-	1	1
012	TP9_0.2	2	9	1	1
013	TP10_0.2	2	9	1	1
014	TP10_0.4	-	-	1	1
015	TP11_0.2	2	9	1	1
016	QA01	-	-	1	1
017	QA02	-	-	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE227955A

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Investigation**
Order Number	**30073144**
Samples	20

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 18/1/2022
Report Due	Thu 20/1/2022
SGS Reference	**SE227955A**

SUBMISSION DETAILS

This is to confirm that 20 samples were received on Tuesday 18/1/2022. Results are expected to be ready by COB Thursday 20/1/2022. Please quote SGS reference SE227955A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil, 1 Water
Date documentation received	18/1/2022@4:55pm	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	23°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

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SAMPLE RECEIPT ADVICE

SE227955A

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	VOCs in Water	Volatile Petroleum Hydrocarbons in Soil	Volatile Petroleum Hydrocarbons in Water
018	RB170122	-	-	-	11	-	7
019	TS170122	-	-	11	-	-	-
020	TB170122	1	8	11	-	7	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE227955A

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Investigation

SUMMARY OF ANALYSIS

No.	Sample ID	TRH (Total Recoverable Hydrocarbons) in Water
018	RB170122	9

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Validation (31.03.22)**
Order Number	**30073144**
Samples	13

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE230522 R0**
Date Received	31/3/2022
Date Reported	1/4/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin .

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.3**
Pyrene	mg/kg	0.1	<0.1	**0.2**	**0.3**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.1**	**0.2**
Chrysene	mg/kg	0.1	<0.1	**0.2**	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.2**	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.2**	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.1**	**0.1**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.1**	**0.1**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	**0.2**	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**0.3**	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**0.3**	**0.3**
Total PAH (18)	mg/kg	0.8	<0.8	**1.5**	**1.8**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	**1.5**	**1.8**

OC Pesticides in Soil [AN420] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

PCBs in Soil [AN420] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
Arsenic, As	mg/kg	1	9	4	4
Cadmium, Cd	mg/kg	0.3	0.4	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	12	8.9	10
Copper, Cu	mg/kg	0.5	30	17	19
Lead, Pb	mg/kg	1	75	38	37
Nickel, Ni	mg/kg	0.5	6.6	5.5	8.8
Zinc, Zn	mg/kg	2	160	100	110

Mercury in Soil [AN312] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
Mercury	mg/kg	0.05	**0.12**	**0.08**	**0.05**

Moisture Content [AN002] Tested: 31/3/2022

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012	QA01_310322 SOIL - 31/3/2022 SE230522.013
% Moisture	%w/w	1	**24.1**	**13.3**	**17.8**

Fibre Identification in soil [AN602] Tested: 31/3/2022

PARAMETER	UOM	LOR	WV_01 SOIL - 31/3/2022 SE230522.001	WV_02 SOIL - 31/3/2022 SE230522.002	WV_03 SOIL - 31/3/2022 SE230522.003	WV_04 SOIL - 31/3/2022 SE230522.004	BW_01 SOIL - 31/3/2022 SE230522.005
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	BW_02 SOIL - 31/3/2022 SE230522.006	BW_03 SOIL - 31/3/2022 SE230522.007	BW_04 SOIL - 31/3/2022 SE230522.008	BW_05 SOIL - 31/3/2022 SE230522.009	BW_06 SOIL - 31/3/2022 SE230522.010
Asbestos Detected	No unit	-	No	No	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Asbestos Detected	No unit	-	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 31/3/2022

PARAMETER	UOM	LOR	WV_01 SOIL - 31/3/2022 SE230522.001	WV_02 SOIL - 31/3/2022 SE230522.002	WV_03 SOIL - 31/3/2022 SE230522.003	WV_04 SOIL - 31/3/2022 SE230522.004	BW_01 SOIL - 31/3/2022 SE230522.005
Total Sample Weight*	g	1	**465**	**470**	**496**	**438**	**462**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	BW_02 SOIL - 31/3/2022 SE230522.006	BW_03 SOIL - 31/3/2022 SE230522.007	BW_04 SOIL - 31/3/2022 SE230522.008	BW_05 SOIL - 31/3/2022 SE230522.009	BW_06 SOIL - 31/3/2022 SE230522.010
Total Sample Weight*	g	1	**515**	**453**	**508**	**484**	**458**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Total Sample Weight*	g	1	**530**	**602**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.

AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**PS127030-Stage 3 Validation (31.03.22)**
Order Number	**30073144**
Samples	12

LABORATORY DETAILS

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SGS Reference	**SE230522 R0**
Date Received	31 Mar 2022
Date Reported	01 Apr 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE230522.001	WV_01	Soil	465g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.002	WV_02	Soil	470g Clay,Sand,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.003	WV_03	Soil	496g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.004	WV_04	Soil	438g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.005	BW_01	Soil	462g Clay,Sand,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.006	BW_02	Soil	515g Clay,Sand,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.007	BW_03	Soil	453g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.008	BW_04	Soil	508g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.009	BW_05	Soil	484g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.010	BW_06	Soil	458g Clay,Rocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE230522.011	ST_01	Soil	530g Clay,Sand,SoilRocks	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE230522.012	ST_02	Soil	602g Clay,Sand,Soil,Rocks,Cement Mixture	31 Mar 2022	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 31/3/2022

PARAMETER	UOM	LOR	WV_01 SOIL - 31/3/2022 SE230522.001	WV_02 SOIL - 31/3/2022 SE230522.002	WV_03 SOIL - 31/3/2022 SE230522.003	WV_04 SOIL - 31/3/2022 SE230522.004	BW_01 SOIL - 31/3/2022 SE230522.005
Total Sample Weight*	g	1	**465**	**470**	**496**	**438**	**462**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	BW_02 SOIL - 31/3/2022 SE230522.006	BW_03 SOIL - 31/3/2022 SE230522.007	BW_04 SOIL - 31/3/2022 SE230522.008	BW_05 SOIL - 31/3/2022 SE230522.009	BW_06 SOIL - 31/3/2022 SE230522.010
Total Sample Weight*	g	1	**515**	**453**	**508**	**484**	**458**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD	NAD

PARAMETER	UOM	LOR	ST_01 SOIL - 31/3/2022 SE230522.011	ST_02 SOIL - 31/3/2022 SE230522.012
Total Sample Weight*	g	1	**530**	**602**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE230522 R0

CLIENT DETAILS

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Project	**PS127030-Stage 3 Validation (31.03.22)**
Order Number	**30073144**
Samples	13

LABORATORY DETAILS

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SGS Reference	**SE230522 R0**
Date Received	31 Mar 2022
Date Reported	01 Apr 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	13 Soil
Date documentation received	31/3/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.3°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

HOLDING TIME SUMMARY

SE230522 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WV_01	SE230522.001	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
WV_02	SE230522.002	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
WV_03	SE230522.003	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
WV_04	SE230522.004	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_01	SE230522.005	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_02	SE230522.006	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_03	SE230522.007	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_04	SE230522.008	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_05	SE230522.009	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
BW_06	SE230522.010	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
ST_01	SE230522.011	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022
ST_02	SE230522.012	LB245727	31 Mar 2022	31 Mar 2022	31 Mar 2023	31 Mar 2022	31 Mar 2023	01 Apr 2022

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
WV_01	SE230522.001	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
WV_02	SE230522.002	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
WV_03	SE230522.003	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
WV_04	SE230522.004	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_01	SE230522.005	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_02	SE230522.006	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_03	SE230522.007	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_04	SE230522.008	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_05	SE230522.009	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
BW_06	SE230522.010	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
ST_01	SE230522.011	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
ST_02	SE230522.012	LB245727	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245749	31 Mar 2022	31 Mar 2022	28 Apr 2022	31 Mar 2022	28 Apr 2022	01 Apr 2022
ST_02	SE230522.012	LB245749	31 Mar 2022	31 Mar 2022	28 Apr 2022	31 Mar 2022	28 Apr 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245749	31 Mar 2022	31 Mar 2022	28 Apr 2022	31 Mar 2022	28 Apr 2022	01 Apr 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245732	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	05 Apr 2022	01 Apr 2022
ST_02	SE230522.012	LB245732	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	05 Apr 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245732	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	05 Apr 2022	01 Apr 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
ST_02	SE230522.012	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
ST_02	SE230522.012	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
ST_02	SE230522.012	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
ST_02	SE230522.012	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022

HOLDING TIME SUMMARY

SE230522 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES — Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245748	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
ST_02	SE230522.012	LB245748	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245748	31 Mar 2022	31 Mar 2022	27 Sep 2022	31 Mar 2022	27 Sep 2022	01 Apr 2022

TRH (Total Recoverable Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
ST_02	SE230522.012	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245733	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	10 May 2022	01 Apr 2022

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022
ST_02	SE230522.012	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
ST_01	SE230522.011	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022
ST_02	SE230522.012	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022
QA01_310322	SE230522.013	LB245734	31 Mar 2022	31 Mar 2022	14 Apr 2022	31 Mar 2022	14 Apr 2022	01 Apr 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	ST_01	SE230522.011	%	60 - 130%	109
	ST_02	SE230522.012	%	60 - 130%	107

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ST_01	SE230522.011	%	60 - 130%	85
	ST_02	SE230522.012	%	60 - 130%	86
d14-p-terphenyl (Surrogate)	ST_01	SE230522.011	%	60 - 130%	89
	ST_02	SE230522.012	%	60 - 130%	89

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	ST_01	SE230522.011	%	70 - 130%	85
	ST_02	SE230522.012	%	70 - 130%	86
	QA01_310322	SE230522.013	%	70 - 130%	85
d14-p-terphenyl (Surrogate)	ST_01	SE230522.011	%	70 - 130%	89
	ST_02	SE230522.012	%	70 - 130%	89
	QA01_310322	SE230522.013	%	70 - 130%	88
d5-nitrobenzene (Surrogate)	ST_01	SE230522.011	%	70 - 130%	85
	ST_02	SE230522.012	%	70 - 130%	85
	QA01_310322	SE230522.013	%	70 - 130%	83

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	ST_01	SE230522.011	%	60 - 130%	109
	ST_02	SE230522.012	%	60 - 130%	107

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	ST_01	SE230522.011	%	60 - 130%	87
	ST_02	SE230522.012	%	60 - 130%	91
	QA01_310322	SE230522.013	%	60 - 130%	89
d4-1,2-dichloroethane (Surrogate)	ST_01	SE230522.011	%	60 - 130%	97
	ST_02	SE230522.012	%	60 - 130%	101
	QA01_310322	SE230522.013	%	60 - 130%	98
d8-toluene (Surrogate)	ST_01	SE230522.011	%	60 - 130%	92
	ST_02	SE230522.012	%	60 - 130%	96
	QA01_310322	SE230522.013	%	60 - 130%	93

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	ST_01	SE230522.011	%	60 - 130%	87
	ST_02	SE230522.012	%	60 - 130%	91
	QA01_310322	SE230522.013	%	60 - 130%	89
d4-1,2-dichloroethane (Surrogate)	ST_01	SE230522.011	%	60 - 130%	97
	ST_02	SE230522.012	%	60 - 130%	101
	QA01_310322	SE230522.013	%	60 - 130%	98
d8-toluene (Surrogate)	ST_01	SE230522.011	%	60 - 130%	92
	ST_02	SE230522.012	%	60 - 130%	96
	QA01_310322	SE230522.013	%	60 - 130%	93

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB245749.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB245733.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB245733.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB245733.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB245733.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	84
		2-fluorobiphenyl (Surrogate)	%	-	89
		d14-p-terphenyl (Surrogate)	%	-	93

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB245733.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	81

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB245748.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB245733.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB245734.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	97
		Bromofluorobenzene (Surrogate)	%	-	98
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB245734.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	101

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230473.006	LB245749.014	Mercury	mg/kg	0.05	0.09	0.08	87	14

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245732.019	% Moisture	%w/w	1	26.8	27.5	34	3
SE230505.003	LB245732.011	% Moisture	%w/w	1	17.2	15.9	36	8

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245733.019		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	146	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.16	30	3

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245733.019		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE230527.001	LB245733.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230527.001	LB245733.014		Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245733.019		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	5
SE230527.001	LB245733.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230527.001	LB245733.014		Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	3

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245733.019		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	3

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230473.006	LB245748.014		Arsenic, As	mg/kg	1	6	8	45	23
			Cadmium, Cd	mg/kg	0.3	0.3	0.4	118	21
			Chromium, Cr	mg/kg	0.5	11	10	35	5
			Copper, Cu	mg/kg	0.5	19	20	33	7
			Nickel, Ni	mg/kg	0.5	6.1	5.9	38	3
			Lead, Pb	mg/kg	1	46	49	32	7
			Zinc, Zn	mg/kg	2	150	160	31	5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245733.019		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE230527.001	LB245733.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245734.019	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.2	9.1	50	11
			d8-toluene (Surrogate)	mg/kg	-	9.6	8.6	50	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.3	50	6

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245734.019	Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE230527.001	LB245734.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.0	9.5	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.4	8.9	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	8.6	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE230492.004	LB245734.019		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.2	9.1	30	11
			d8-toluene (Surrogate)	mg/kg	-	9.6	8.6	30	12
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	8.3	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE230527.001	LB245734.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.0	9.5	30	4
			d8-toluene (Surrogate)	mg/kg	-	9.4	8.9	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.8	8.6	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245749.002	Mercury	mg/kg	0.05	0.18	0.2	70 - 130	92

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245733.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	99
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	100
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	103
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	106
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	109
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	80

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245733.002		Dichlorvos	mg/kg	0.5	1.3	2	60 - 140	67
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	96
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	93
		Ethion	mg/kg	0.2	2.1	2	60 - 140	106
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245733.002		Naphthalene	mg/kg	0.1	4.4	4	60 - 140	110
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	106
		Acenaphthene	mg/kg	0.1	4.1	4	60 - 140	104
		Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	110
		Anthracene	mg/kg	0.1	4.1	4	60 - 140	101
		Fluoranthene	mg/kg	0.1	4.3	4	60 - 140	109
		Pyrene	mg/kg	0.1	4.3	4	60 - 140	108
		Benzo(a)pyrene	mg/kg	0.1	4.4	4	60 - 140	110
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	86
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245733.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	120

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245748.002	Arsenic, As	mg/kg	1	310	318.22	80 - 120	96
	Cadmium, Cd	mg/kg	0.3	4.2	4.81	70 - 130	88
	Chromium, Cr	mg/kg	0.5	32	38.31	80 - 120	85
	Copper, Cu	mg/kg	0.5	290	290	80 - 120	101
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	98
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	97
	Zinc, Zn	mg/kg	2	260	273	80 - 120	94

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245733.002		TRH C10-C14	mg/kg	20	39	40	60 - 140	98
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	100
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	83
	TRH F Bands	TRH >C10-C16	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	88
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245734.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	4.8	5	60 - 140	96
		Toluene	mg/kg	0.1	4.6	5	60 - 140	91
		Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	97
		m/p-xylene	mg/kg	0.2	9.4	10	60 - 140	94
		o-xylene	mg/kg	0.1	5.1	5	60 - 140	101
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
		d8-toluene (Surrogate)	mg/kg	-	10.6	10	70 - 130	106
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.3	10	70 - 130	103

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB245734.002		TRH C6-C10	mg/kg	25	69	92.5	60 - 140	74
		TRH C6-C9	mg/kg	20	62	80	60 - 140	77
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.3	10	70 - 130	113
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.3	10	70 - 130	103
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	40	62.5	60 - 140	64

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE230527.001	LB245733.021		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	<0.1	0.2	114
			Aldrin	mg/kg	0.1	<0.1	0.2	108
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	112
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	0.2	105
			Endrin	mg/kg	0.2	<0.2	0.2	114
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	<0.1	0.2	104
			Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	-	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230422A.003	LB245733.004		Naphthalene	mg/kg	0.1	4.3	0.01093326583	4	107
			2-methylnaphthalene	mg/kg	0.1	<0.1	0.00699955624	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0.00927658544	-	-
			Acenaphthylene	mg/kg	0.1	4.2	0.03413047391	4	104
			Acenaphthene	mg/kg	0.1	4.1	0.01897859439	4	101
			Fluorene	mg/kg	0.1	<0.1	0.01352743661	-	-
			Phenanthrene	mg/kg	0.1	4.4	0.18504524822	4	106
			Anthracene	mg/kg	0.1	4.0	0.06800921433	4	99
			Fluoranthene	mg/kg	0.1	4.8	0.71984618595	4	101
			Pyrene	mg/kg	0.1	4.6	0.62966670410	4	99
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.30315037178	-	-
			Chrysene	mg/kg	0.1	0.2	0.30608988085	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.29746152953	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.12839787861	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	0.25581921153	4	106
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.16200844301	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0.03389525141	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.14389047550	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	4.6	0.34942083739	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.7	0.44942083739	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.6	0.39942083739	-	-
			Total PAH (18)	mg/kg	0.8	36	3.13137592912	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.45	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.46	-	84
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.46	-	87

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE230527.001	LB245733.021		Arochlor 1016	mg/kg	0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	<0.2	0.4	110
			Arochlor 1262	mg/kg	0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	-	99

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230522.011	LB245748.004		Arsenic, As	mg/kg	1	51	9	50	86
			Cadmium, Cd	mg/kg	0.3	43	0.4	50	85
			Chromium, Cr	mg/kg	0.5	55	12	50	87
			Copper, Cu	mg/kg	0.5	77	30	50	94
			Nickel, Ni	mg/kg	0.5	56	6.6	50	100
			Lead, Pb	mg/kg	1	110	75	50	71
			Zinc, Zn	mg/kg	2	220	160	50	124

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230422A.003	LB245733.004		TRH C10-C14	mg/kg	20	39	0	40	98
			TRH C15-C28	mg/kg	45	<45	0	40	103
			TRH C29-C36	mg/kg	45	<45	0	40	80
			TRH C37-C40	mg/kg	100	<100	0	-	-
			TRH C10-C36 Total	mg/kg	110	<110	0	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	0	-	-
		TRH F	TRH >C10-C16	mg/kg	25	40	0	40	100
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	40	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	40	93
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230422A.003	LB245734.004	Monocyclic	Benzene	mg/kg	0.1	4.0	0.00832780632	5	80
		Aromatic	Toluene	mg/kg	0.1	4.0	0.02339036366	5	79
			Ethylbenzene	mg/kg	0.1	4.3	0.01477174425	5	86
			m/p-xylene	mg/kg	0.2	8.4	0.04443403601	10	83
			o-xylene	mg/kg	0.1	4.5	0.02497986879	5	90
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	0.00935787181	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	10.13059363197	10	88
			d8-toluene (Surrogate)	mg/kg	-	7.6	9.19927616112	10	76
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	9.29073871517	10	81
		Totals	Total Xylenes	mg/kg	0.3	13	0.06941390480	-	-
			Total BTEX	mg/kg	0.6	25	0	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE230422A.003	LB245734.004		TRH C6-C10	mg/kg	25	65	0.35016076827	92.5	69
			TRH C6-C9	mg/kg	20	59	0.15964321291	80	73
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	10.13059363197	10	88
			d8-toluene (Surrogate)	mg/kg	-	7.6	9.19927616112	10	76
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.1	9.29073871517	-	81
		VPH F	Benzene (F0)	mg/kg	0.1	4.0	0.00832780632	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	39	0.35016076827	62.5	62

MATRIX SPIKE DUPLICATES

SE230522 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

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SAMPLE RECEIPT ADVICE

SE230522

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030-Stage 3 Validation (31.03.22)**
Order Number	**30073144**
Samples	13

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 31/3/2022
Report Due	Fri 1/4/2022
SGS Reference	**SE230522**

SUBMISSION DETAILS

This is to confirm that 13 samples were received on Thursday 31/3/2022. Results are expected to be ready by COB Friday 1/4/2022. Please quote SGS reference SE230522 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	Ice
Samples received in correct containers	Yes	Sample counts by matrix	13 Soil
Date documentation received	31/3/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	4.3°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE230522

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Validation (31.03.22)

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
011	ST_01	30	14	26	11	7	10	11	7
012	ST_02	30	14	26	11	7	10	11	7
013	QA01_310322	-	-	26	-	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE230522

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030-Stage 3 Validation (31.03.22)

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
001	WV_01	2	9	-	-
002	WV_02	2	9	-	-
003	WV_03	2	9	-	-
004	WV_04	2	9	-	-
005	BW_01	2	9	-	-
006	BW_02	2	9	-	-
007	BW_03	2	9	-	-
008	BW_04	2	9	-	-
009	BW_05	2	9	-	-
010	BW_06	2	9	-	-
011	ST_01	2	9	1	1
012	ST_02	2	9	1	1
013	QA01_310322	-	-	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:	WSP	Project Name/No:	PS127030 – Stage 3 Validation (31.03.22)	
Address:	Level 27, Ernst & Young Centre	Purchase Order No:	30073144	
	680 George Street	Results Required Date:	24 Hrs TAT	
	Sydney NSW 2000	Telephone:	0478 051 688	
Contact Name:	James Green	Email Results to:	James.Green@wsp.com	
Quotation No:	SY141023-1-IS			

SGS ID	Client Sample ID	Sampling Date	Matrix (Tick as appropriate)			NO. OF CONTAINERS	ANALYSIS REQUESTED			
			Soil Sample	Water Sample	FRAGMENT		500ML W/W% ASBESTOS	TRH, BTEXN, PAH, 8 METALS	OCP/OPP, PCB	
1	WV_01	31.03.2022	X			1	X			
2	WV_02	31.03.2022	X			1	X			
3	WV_03	31.03.2022	X			1	X			
4	WV_04	31.03.2022	X			1	X			
5	BW_01	31.03.2022	X			1	X			
6	BW_02	31.03.2022	X			1	X			
7	BW_03	31.03.2022	X			1	X			
8	BW_04	31.03.2022	X			1	X			
9	BW_05	31.03.2022	X			1	X			
10	BW_06	31.03.2022	X			1	X			
11	ST_01	31.03.2022	X			2	X	X	X	
12	ST_02	31.03.2022	X			2	X	X	X	
13	QA01_310322	31.03.2022	X			1		X		
	QA01A_310322	31.03.2022	X			1		X		

Additional Report Formats

Notes/Guidelines/LOR/ Special instructions

SGS EHS Sydney COC
SE230522

Eurofins Please PO# 30073145

Relinquished By: / WSP: James Green	Date/Time 31/03/2022 16:00	Received By: George Zhi	Date/Time: 31/3/22 @ 3:05pm
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 4.3 °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*

Comments / Subcontracting details:

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**PS127030**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE231564 R0**
Date Received	04 May 2022
Date Reported	05 May 2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all soil samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil

Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE231564.001	BV_07	Soil	463g Clay,Rocks	03 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE231564.002	BV_08	Soil	430g Clay,Rocks	03 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE231564.003	BV_09	Soil	414g Clay,Rocks	03 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01
SE231564.004	BV_10	Soil	483g Clay,Rocks	03 May 2022	No Asbestos Found at RL of 0.1g/kg	<0.01

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 4/5/2022

PARAMETER	UOM	LOR	BV_07 SOIL - 3/5/2022 SE231564.001	BV_08 SOIL - 3/5/2022 SE231564.002	BV_09 SOIL - 3/5/2022 SE231564.003	BV_10 SOIL - 3/5/2022 SE231564.004
Total Sample Weight*	g	1	**463**	**430**	**414**	**483**
Bonded ACM in >7mm Sample*	g	0.001	<0.001	<0.001	<0.001	<0.001
AF/FA in >2mm to <7mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
AF/FA in <2mm Sample*	g	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	NAD	NAD	NAD	NAD

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.
AN605	This technique gravimetrically determines the mass of Bonded Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight. Any fibrous asbestos (FA) found in this fraction will be added to the 2-7mm fraction and its mass recorded there.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free/respirable fibres which are only observed by standard trace analysis as per AN602.
AN605	Bonded asbestos containing material (Bonded ACM) comprises asbestos-containing-material which is sound in condition. Fibrous asbestos (FA) comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. Asbestos fines (AF) includes free fibres, small fibre bundles and also small fragments of bonded ACM that passes through a 7mm sieve - which implies that the bonded ACM fragments have a substantial degree of damage which increases the potential for fibre release.
AN-605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009 and NEPM 1999 (2013) schedule B1 section 4..

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service.
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This test report shall not be reproduced, except in full.

SAMPLE RECEIPT ADVICE

SE231564

CLIENT DETAILS

Contact	James Green
Client	WSP AUSTRALIA PTY LIMITED
Address	GPO Box 5394 SYDNEY NSW 2001
Telephone	02 9272 5100
Facsimile	02 9272 5101
Email	James.Green@wsp.com
Project	**PS127030**
Order Number	**PS127030**
Samples	4

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 4/5/2022
Report Due	Thu 5/5/2022
SGS Reference	**SE231564**

SUBMISSION DETAILS

This is to confirm that 4 samples were received on Wednesday 4/5/2022. Results are expected to be ready by COB Thursday 5/5/2022. Please quote SGS reference SE231564 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Other Lab	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	4 Soil
Date documentation received	4/5/2022	Type of documentation received	COC
Number of eskies/boxes received	1	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	21.6°C
Sufficient sample for analysis	Yes	Turnaround time requested	Next Day

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

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SAMPLE RECEIPT ADVICE

SE231564

CLIENT DETAILS

Client WSP AUSTRALIA PTY LIMITED

Project PS127030

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Gravimetric Determination of Asbestos in Soil
001	BV_07	2	9
002	BV_08	2	9
003	BV_09	2	9
004	BV_10	2	9

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

SGS EHS Sydney COC

SE231564

CHAIN OF CUSTODY & ANALYSIS REQUEST

Company Name:	WSP	Project Name/No:	PS127030	
Address:	Level 27/680 George Street, Sydney NSW 2000	Purchase Order No:		
		Results Required Date:	1 Day TAT	
		Telephone:	D:	M: 0478 051 688
Contact Name:	James Green	Email Results to:	James.green@wsp.com	
Quotation No:				

SGS ID	Client Sample ID	Report ID	Matrix (Tick as appropriate): Soil Sample	Water Sample	FRAGMENT__	NO. OF CONTAINERS	ANALYSIS REQUESTED: WW, WW +, NEPM, AF/FA Asbestos	Additional Report Formats / Notes/Guidelines/LOR/ Special instructions
1	BV_07		✓			1	✓	
2	BV-08		↓			↓	↓	
3	BV_09							
4	BV_10							

Relinquished By: (WSP) 3/5/22	Date/Time:	Received By:	Date/Time: 4.5.22 9:15
Relinquished By: James Green	Date/Time:	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: 21.6 °C	Sample Security Sealed: (Yes) / No	Hazards:

Comments / Subcontracting details:

I1.2 AIR MONITORING RESULTS

Certificate of Analysis

WSP Australia Pty Limited

Level 27, 680 George Street Sydney
PO Box 20967, World Square
Telephone +61 2 9272 1407
Email ANZLab@wsp.com

ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150822**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	29/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DL640101	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fencing	1.0 / 100	<0.01
002	DL640107	Stage 3 - South western corner of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01
003	DL640152	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fencing	Rejected: Dust overload	
004	DL640106	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Sneha Shakya



AUTHORISATION DATE

Friday, 1 April 2022

The results contained within this report relate only to the sample(s) submitted for testing. Sample analysed on an 'As Received' bases. WSP accepts no responsibility for the initial collection, packaging or transportation of samples submitted by external persons, or data supplied by external persons.
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ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150820**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	30/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DC640216	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
002	DC640116	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DC640119	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DC640212	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed

Approved Signatory

Name: Sneha Shakya

AUTHORISATION DATE

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NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-150821**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	31/03/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	1/04/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	1/04/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP / Clearance:				
001	DL640114	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DL640103	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DL640135	Stage 3 - North western boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
004	DL640130	Stage 3 - North eastern boundary of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed

Approved Signatory

Name: Sneha Shakya

AUTHORISATION DATE

Friday, 1 April 2022

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NCSI Certified Quality System ISO 9001

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152104**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	3/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268359	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	2.0 / 100	<0.01
002	DE268325	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
003	DE268820	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

Wednesday, 11 May 2022

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ABN 80 078 004 798

Accredited for compliance with ISO/IEC: 17025 - Testing (No. 17199)
NCSI Certified Quality System ISO 9001

WORLD RECOGNISED ACCREDITATION

LOCATION:	**Stage 3 - Wentworthville Public School**	**CERTIFICATE NO:**	**SYD-PS127030-152106**
CLIENT:	Grindley Construction	DATE\S SAMPLED:	11/05/2022
CLIENT ADDRESS:	55 Grandview Street, Pymble NSW 2073	DATE RECEIVED:	11/05/2022
TELEPHONE:	0429 148 159	DATE ANALYSED:	11/05/2022
EMAIL:	jjackson@grindley.com.au	ORDER NUMBER:	N/A
CONTACT:	Jeff Jackson	SAMPLED BY:	James Green

TEST METHOD: Filters examined at WSP Corporate Laboratories in accordance with N.O.H.S.C (2005) Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres and WSP's Laboratory Procedure (LP4 - Counting of Asbestos and Synthetic Mineral Fibres).

Lab No	Sample ID	Location	Results (Fibres/Field)	Concentration (Fibres/mL)
WIP:				
001	DE268339	Stage 3 - South eastern corner of asbestos exclusion zone - on temporary fence	0.0 / 100	<0.01
002	DE268301	Stage 3 - South western corner of asbestos exclusion zone - on temporary fence	1.0 / 100	<0.01
003	DE268756	Stage 3 - Northern boundary of asbestos exclusion zone - on school fencing	0.0 / 100	<0.01

NB: If the fibre count is less than 10 fibres per 100 fields then the count is not significantly above that of background. Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust. [N.O.H.S.C.:3003 (2005)]

Approved Counter

Name: Melanie Reed



Approved Signatory

Name: Clare Brockbank



AUTHORISATION DATE

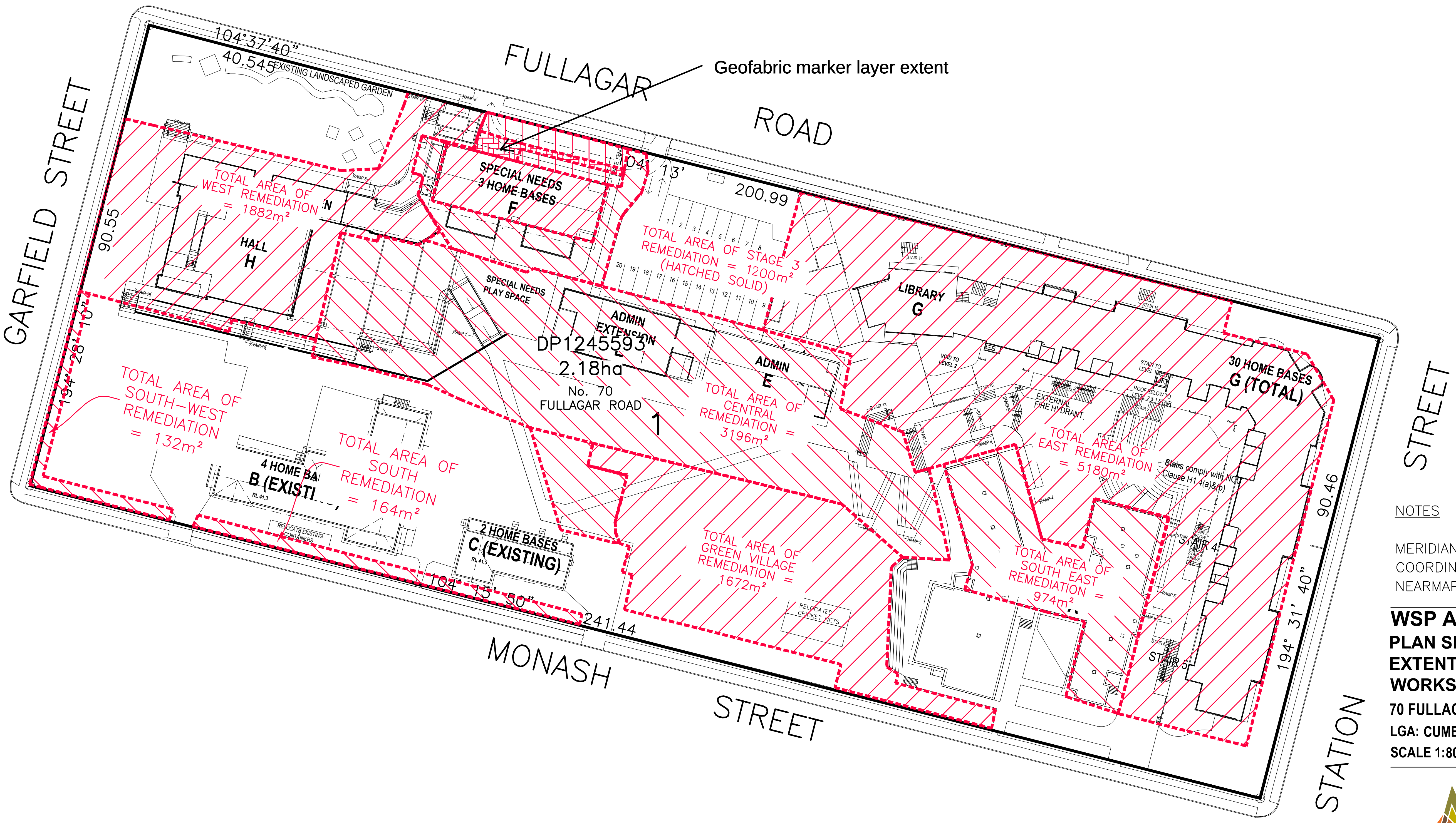
Wednesday, 11 May 2022

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APPENDIX J

SURVEY, DRAWINGS AND ENGINEER VERIFICATION

M.G.A



---------- DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: MAY 2021

WSP AUSTRALIA PTY LTD
PLAN SHOWING OVERALL EXTENT OF REMEDIATION WORKS ON LOT 1 IN DP1245593
70 FULLAGAR ROAD, WENTWORTHVILLE
LGA: CUMBERLAND
SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas
NSW 2117
t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **OE/GR/RJ** Date Surveyed: **10/20-06/22**
Drawn: **GR** Checked: **GR**

Dwg. No.
SY074981.000.7.5

©LandPartners Pty Ltd 2022

M.G.A



COORDINATES TABLE		
NAME	EASTING	NORTHING
1	311940.22	6256667.04
2	311970.53	6256659.10
3	311970.89	6256655.84
4	311969.38	6256651.28
5	311965.89	6256647.21
6	311962.05	6256634.01
7	311949.11	6256637.31
8	311947.76	6256636.58
9	311933.50	6256641.14
10	311927.07	6256651.37
11	311928.00	6256654.50
12	311927.33	6256655.20
13	311926.02	6256655.46
14	311927.87	6256662.58
15	311937.68	6256659.81
16	311948.43	6256607.02
17	311960.39	6256604.05
18	311959.40	6256599.81
19	311966.89	6256598.01
20	311964.61	6256588.99
21	311964.70	6256587.07
22	311965.46	6256585.12
23	311954.23	6256587.55

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: JANUARY 2022

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 3 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116

PO Box 1144
Dundas
NSW 2117

t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **RJ** Date Surveyed: **17/06/2022**
Drawn: **GR** Checked: **GR**

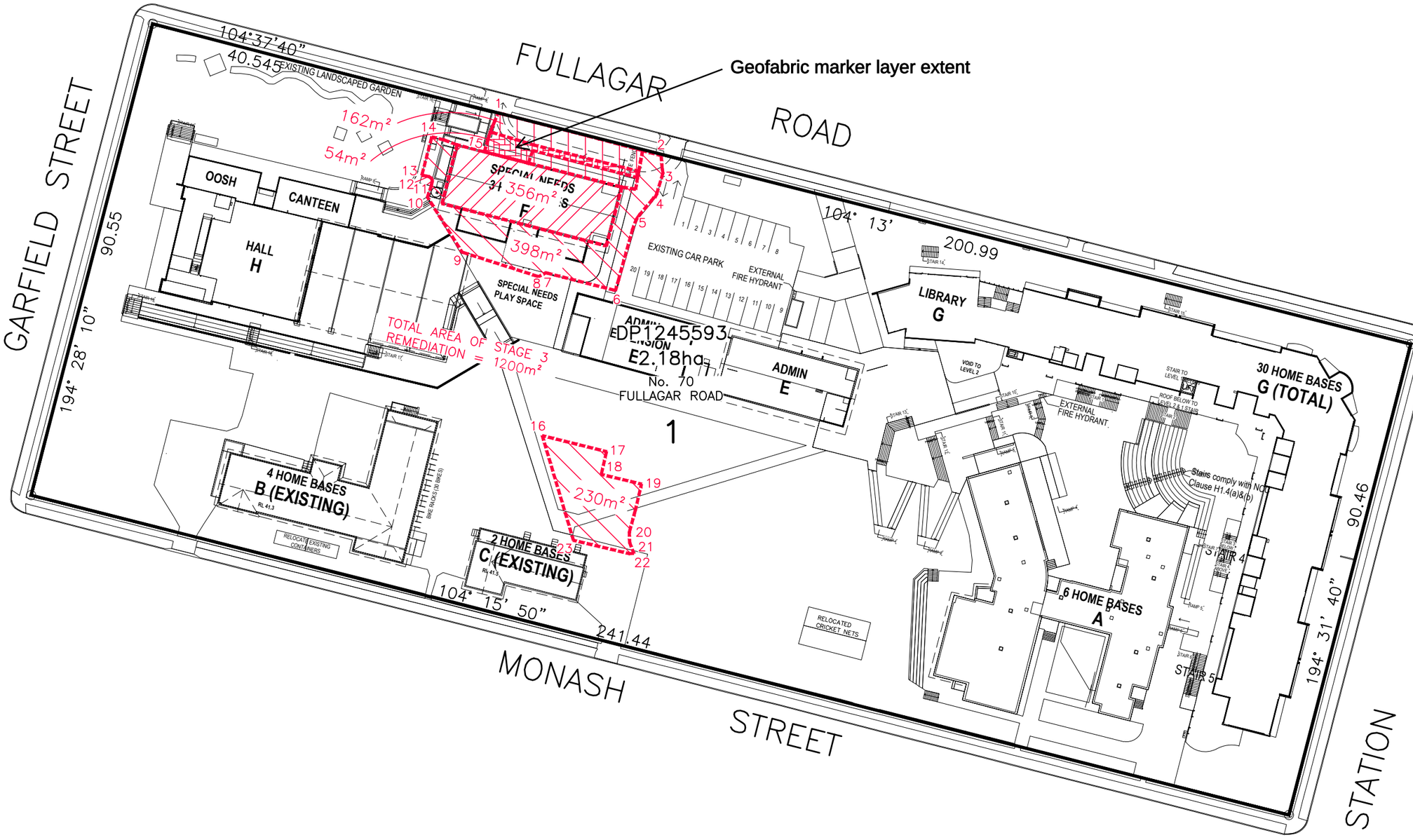
Dwg. No.
SY074981.000-STG3

---------- DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

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M.G.A

COORDINATES TABLE

NAME	EASTING	NORTHING
1	311940.22	6256667.04
2	311970.53	6256659.10
3	311970.89	6256655.84
4	311969.38	6256651.28
5	311965.89	6256647.21
6	311962.05	6256634.01
7	311949.11	6256637.31
8	311947.76	6256636.58
9	311933.50	6256641.14
10	311927.07	6256651.37
11	311928.00	6256654.50
12	311927.33	6256655.20
13	311926.02	6256655.46
14	311927.87	6256662.58
15	311937.68	6256659.81
16	311948.43	6256607.02
17	311960.39	6256604.05
18	311959.40	6256599.81
19	311966.89	6256598.01
20	311964.61	6256588.99
21	311964.70	6256587.07
22	311965.46	6256585.12
23	311954.23	6256587.55

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: MAY 2021

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 3 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

LANDPARTNERS
built environment consultants

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Rydalmere NSW 2116

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Dundas
NSW 2117

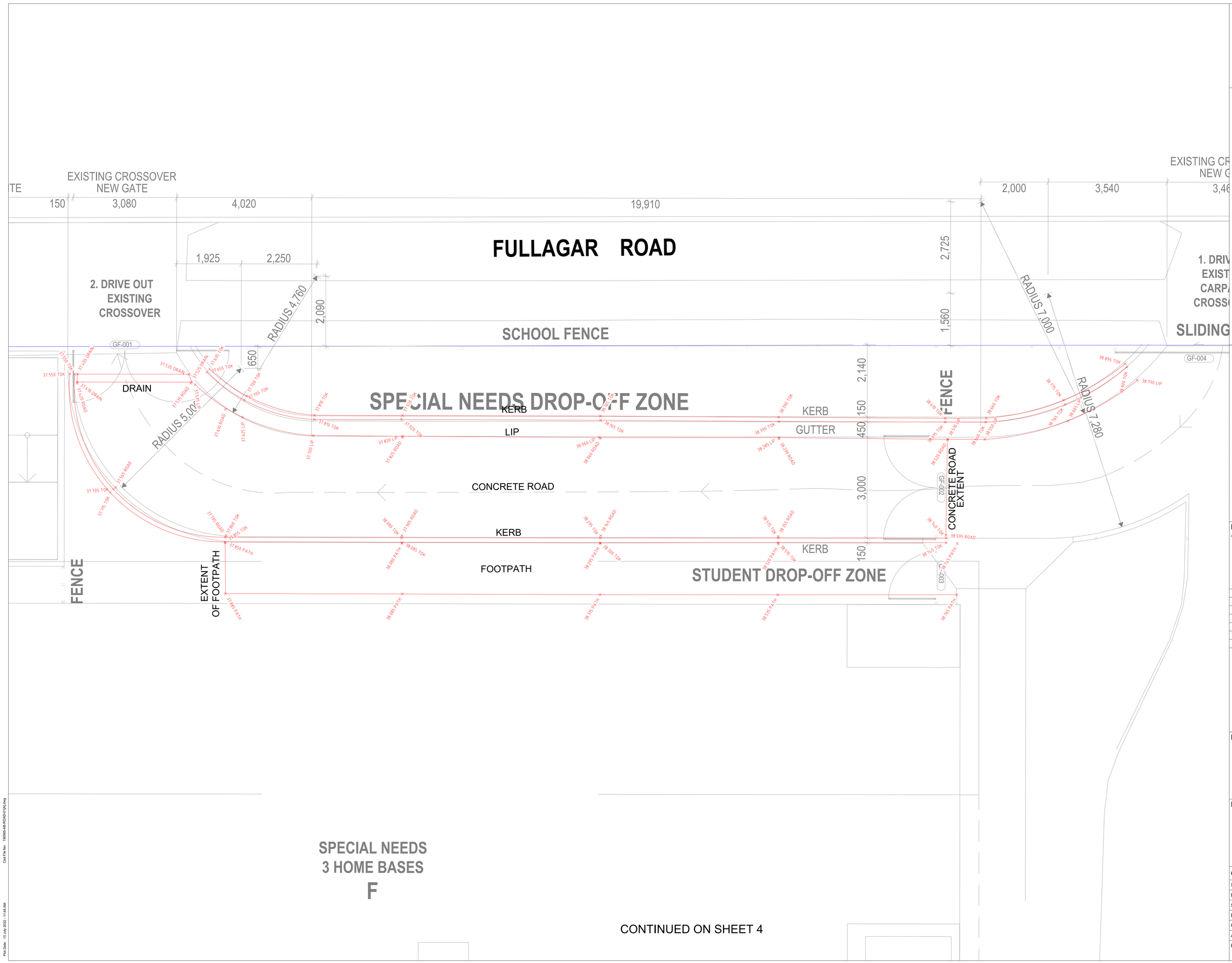
t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **RJ** Date Surveyed: **17/06/2022**
Drawn: **GR** Checked: **GR**

Dwg. No.

SY074981.000-STG3

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NORTH (APPROX)

LEGEND

	GRID LINES
× 0.010 XXX	AS-BUILT POINT & DESCRIPTION
	DESIGN
TOK	TOP OF KERB
PATH	PATH LEVEL
ROAD	CONCRETE ROAD LEVEL

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS PLAN.

4. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO MAINTAIN THE INTEGRITY OF MARKS TO BE USED BY CONTRACTORS PRIOR TO USE.

5. THIS SURVEY IS FOR SETOUT PURPOSES ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE

6. PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDERS REQUEST. FOR CLARITY OF THE OFFSET MARKS SHOWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED

PLANS USED:
--

REV.	DATE	AMENDMENTS	INT.
A	15.07.22	Issue for Client	GPAP
PRE	15.07.22	Preliminary Issue	GPAP

PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

ROAD DETAIL
GROUND FLOOR
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH, NSW

ORIGINAL SIZE:	A1		
SCALE:	1:50	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	CB	DATE:	14.07.22
DRAWN BY:	GPAP	DATE:	15.07.22
CHECKED BY:	CB	DATE:	15.07.22
APPROVED BY:	AA	DATE:	15.07.22

DRAWING #: 190965-AB-ROAD-01[A]

Cad File No: 190965-AB-ROAD-01[A].dwg
Plot Date: 15 July 2022 - 11:48 AM

NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. SAS163

This site audit is a:

☑ statutory audit

~~☐ non-statutory audit~~

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name	Rebeka Hall
Company	Geosyntec Consultants Pty Ltd
Address	Suite 1, Level 9, 189 Kent St SYDNEY NSW
	Postcode 2000
Phone	02 9251 8070
Email	rebeka.hall@geosyntec.com

Site details

Address	70-100 Fullagar Road, Wentworthville NSW
	Postcode 2145

Property description

(Attach a separate list if several properties are included in the site audit.)

Part Lot 1 in DP 1245593.

Local government area Cumberland Council

Area of site (include units, e.g. hectares) 14,400 m^2

Current zoning R2 – Low density residential land use (Cumberland LEP 2021)

Please note that the SAR/SAS apply only to the project development area within the school boundary. The project development area is depicted in the site survey provided in Appendix E4 of the LTEMP document. See attached survey plan.

Regulation and notification

To the best of my knowledge:

☐ ~~**the site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*, as follows: (provide the no. if applicable)~~

~~☐ Declaration no.~~

~~☐ Order no.~~

~~☐ Proposal no.~~

~~☐ Notice no.~~

☑ **the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

☐ ~~the site **has** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*~~

☑ the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.

Site audit commissioned by

Name Damian McGrath

Company Grindley Construction Pty Ltd

Address 55 Grandview Street, Pymble NSW

Postcode 2073

Phone 0448 936 127

Email DMcGrath@grindley.com.au

Contact details for contact person (if different from above)

Name	Jeff Jackson
Phone	0429 148 159
Email	JJackson@grindley.com.au

Nature of statutory requirements (not applicable for non-statutory audits)

☐ ~~Requirements under the *Contaminated Land Management Act* 1997 (e.g. management order; please specify, including date of issue)~~

☐ ~~Requirements imposed by an environmental planning instrument (please specify, including date of issue)~~

☑ Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

The Department of Planning and Environment State Significant Development Consent Conditions, Modification of Development Consent (SSD 9273), dated 28th of October 2020, specifically condition D26.

☐ ~~Requirements under other legislation (please specify, including date of issue)~~

Purpose of site audit

☐ ~~**A1** To determine land use suitability~~

OR

☑ **A2** To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land: Ongoing use as a primary school

~~OR~~

~~(Tick all that apply)~~

☐ ~~**B1** To determine the nature and extent of contamination~~

☐ ~~**B2** To determine the appropriateness of:~~

- ☐ ~~an investigation plan~~
- ☐ ~~a remediation plan~~
- ☐ ~~a management plan~~

☐ ~~**B3** To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

☐ ~~**B4** To determine the compliance with an approved:~~

- ☐ ~~**voluntary management proposal** or~~
- ☐ ~~**management order** under the *Contaminated Land Management Act 1997*~~

☐ ~~**B5** To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

EIS and WSP

Titles of reports reviewed:

Site Characterisation Reports:

1. Environmental Investigation Services (EIS) (22 December 2017) Preliminary Environmental Screening. Proposed School Additions, Wentworthville Public School, NSW (Ref: E31057Klet)
2. WSP (4 October 2018) Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI), Wentworthville Public School, 70-100 Fullagar Road, Wentworthville, NSW (Ref: PS110641-CLM-REP-WWS-RevB_Final)
3. WSP (6 July 2020) Environmental Site Assessment (Block G and H), Wentworthville Public School, 70-100 Fullagar Road, Wentworthville, NSW (Ref: PS119057-CLM-REP-001-Rev3)

4. AECOM (31 August 2020) Asbestos in Soil Investigation – Wentworthville Public School, 70-100 Fullagar Road, Wentworthville NSW 2145 (Ref: 60591760 _VAR10). Investigation for the 'Yandina' area (area to the north of the Western Stage 1 Development Area)
5. WSP (29 March 2021) Environmental Site Assessment (Southwest Landscaping Area and Village Green), Wentworthville Public School, 70-100 Fullagar Road, Wentworthville, NSW (Ref: PS119057-CLM-REP-001-Rev1 (HD_rev)5
6. WSP (11 March 2022) Re: Stage 3 Upcoming Works and Material Reuse Suitability Assessment (Ref: PS127030-CLM-LTR-Stage 3 Material_Rev1).

Remediation, Validation and Management Reports:

7. WSP (17 March 2020) Remediation Action Plan (RAP), Wentworthville Public School, 70-100 Fullagar Road, NSW (Ref: PS119057_Wentworthville Public School-RAP-CLM-REP-Rev4-FINAL)
8. WSP (11 August 2020) RAP Addendum 1 – Wentworthville Public School (Ref: PS119057-CLM-LTR-RAPAddendum1-RevB).
9. WSP (13 August 2020) Clearance Certificate – Asbestos Removal, for Department of Education NSW (no ref - Asbestos Clearance for the 'Yandina' area (area to the north of the Western Stage 1 Development Area).
10. WSP (4 December 2020) Validation Report, Western Stage 1, Wentworthville Public School. (Ref: PS119057-CLM-REP-06 RevB_Updated Draft mc)
11. WSP (28 June 2021) Interim Environmental Management Plan, Eastern Validation Area, Wentworthville Public School (Ref: PS119057-CLM-REP-EMP RevAHD4).
12. WSP (1 July 2021) Validation Report, Eastern Validation Area [Stage 1], Wentworthville Public School, 70-100 Fullagar Road, NSW (Ref: PS119057-CLM-REPWWPS_EasternVal_Final)
13. WSP (12 August 2021) Block E Extension – Excavation and Stockpiled Material Assessment (Ref: S119057-CLM-LTR-Stg2_BlkE_Extension).
14. WSP (16 February 2022) Validation Report Stage 2, Wentworthville Public School, 70-100 Fullagar Road, NSW (Ref: PS127030-CLM-REP-WWPS_Stage2_Rev2)
15. WSP (17 February 2022) Interim Environmental Management Plan (IEMP) Stage 1 & Stage 2 Validation Areas, Wentworthville Public School (Ref: PS127030-CLM-REP-EMP RevB1).
16. WSP (17 August 2022) Validation Report. Stage 3 Development Area – Wentworthville Public School, 70-100 Fullagar Road, Wentworthville NSW 2145 (Ref: PS127030-CLM-REP-WWPS_Stage3_Rev3).
17. WSP (17 August 2022) Long-Term Environmental Management Plan, Stage 1, Stage 2 and Stage 3 Validation Areas (Ref: PS127030-CLM-REP-LTEMP RevC).

~~Other information reviewed, including previous site audit reports and statements relating to the site:~~

Site audit report details

Title: Site Audit Report Wentworthville Primary School, 70-100 Fullagar Road, Wentworthville NSW 2145

Report no. 20019 SAR163 Date 24 August 2022

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
    - (B1) the nature and extent of contamination, and/or
    - (B2) the appropriateness of an investigation, remediation or management plan[1], and/or
    - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
    - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
    - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

[1] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

I certify that, in my opinion:

The **site is suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ ~~Residential, including substantial vegetable garden and poultry~~

☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

☐ ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

☐ ~~Day care centre, preschool, primary school~~

☐ ~~Residential with minimal opportunity for soil access, including units~~

☐ ~~Secondary school~~

☐ ~~Park, recreational open space, playing field~~

☐ ~~Commercial/industrial~~

☐ ~~Other (please specify):~~

_____

~~**OR**~~

☐ ~~I certify that, in my opinion, the **site is not suitable** for any use due to the risk of harm from contamination.~~

~~Overall comments:~~

_____

_____

_____

_____

_____

_____

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan[2] (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ ~~Residential, including substantial vegetable garden and poultry~~

☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

☐ ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

☑ Day care centre, preschool, primary school

☐ ~~Residential with minimal opportunity for soil access, including units~~

☐ ~~Secondary school~~

☐ ~~Park, recreational open space, playing field~~

☐ ~~Commercial/industrial~~

☐ ~~Other (please specify):~~

EMP details

Title	Long-Term Environmental Management Plan, Stage 1, Stage 2 and Stage 3 Validation Areas Wentworthville Public School
Author	WSP
Date	17 August 2022
No. of pages	56 pages

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

☐ ~~requires operation and/or maintenance of **active** control systems[3]~~

☑ requires maintenance of **passive** control systems only[3].

[2] Refer to Part IV for an explanation of an environmental management plan.
[3] Refer to Part IV for definitions of active and passive control systems.

Purpose of the EMP:

The LTEMP provides the management requirements to ensure the longevity of the cap and containment solution and to ensure any works that penetrate the cap are appropriately controlled. The LTEMP applies only to the areas depicted in Figure 4 of the LTEMP document. It should be noted that there are known asbestos impacts in other areas within the school boundary which are managed through an overarching management plan NSW Department of Education C/O – Public Works Advisory; Wentworthville public School, Asbestos in Grounds Management Plan, March 2020.

Description of the nature of the residual contamination:

The primary contaminant of concern that has been encapsulated on site includes soil containing non-friable and friable asbestos which exceed HSL-A. The secondary contaminant of concern that has been encapsulated in the centre of the 'Green Village' area includes lead, which exceed HIL A in two locations only.

Summary of the actions required by the EMP:

The LTEMP requires that the integrity of the cap is maintained. Monitoring of the cap is to be conducted on an annual basis, and in accordance with the cap inspection protocol which is outlined in the LTEMP. The LTEMP requires that any planned or unplanned breaches of the cap are to be managed in accordance with any associated risks.

How the EMP can reasonably be made to be legally enforceable:

The regulatory instrument for enforceability of the LTEMP is the NSW EP&A Act. Section D28 of Development Consent (SSD9273) allows the commencement of the LTEMP, and Section E17 requires ongoing implementation of the LTEMP, post-occupation. In addition the LTEMP is enforceable via the Work Health and Safety Regulation 2017 - asbestos management plan (Part 8.3, clause 429).

How there will be appropriate public notification:

The existence of the LTEMP will be publicly notified via inclusion on the Section 10.7 planning certificate for the site.

Overall comments:

The LTEMP must be added to the School's asbestos register. This is to comply with WHS regulations.

Section B

Purpose of the plan[4] which is the subject of this audit:

I certify that, in my opinion:

(B1)

☐ The nature and extent of the contamination **has** been appropriately determined

☐ The nature and extent of the contamination **has not** been appropriately determined

AND/OR (B2)

☐ The investigation, remediation or management plan **is** appropriate for the purpose stated above

☐ The investigation, remediation or management plan **is not** appropriate for the purpose stated above

AND/OR (B3)

☐ The site testing plan:

☐ **is** appropriate to determine

☐ **is not** appropriate to determine

if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*

AND/OR (B4)

☐ The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):

☐ **have** been complied with

☐ **have not** been complied with.

*voluntary management proposal no.

**management order no.

AND/OR (B5)

☐ The site **can be made suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

[4] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

~~☐ Residential, including substantial vegetable garden and poultry~~

~~☐ Residential, including substantial vegetable garden, excluding poultry~~

~~☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

~~☐ Day care centre, preschool, primary school~~

~~☐ Residential with minimal opportunity for soil access, including units~~

~~☐ Secondary school~~

~~☐ Park, recreational open space, playing field~~

~~☐ Commercial/industrial~~

~~☐ Other (please specify):~~

_____

~~IF the site is remediated/managed* in accordance with the following plan (**attached**):~~

~~*Strike out as appropriate~~

~~Plan title~~

~~Plan author~~

~~Plan date No. of pages~~

~~SUBJECT to compliance with the following condition(s):~~

~~Overall comments:~~

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997.*

Accreditation no. 0802

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997,* and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 24 August 2022

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of *the Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

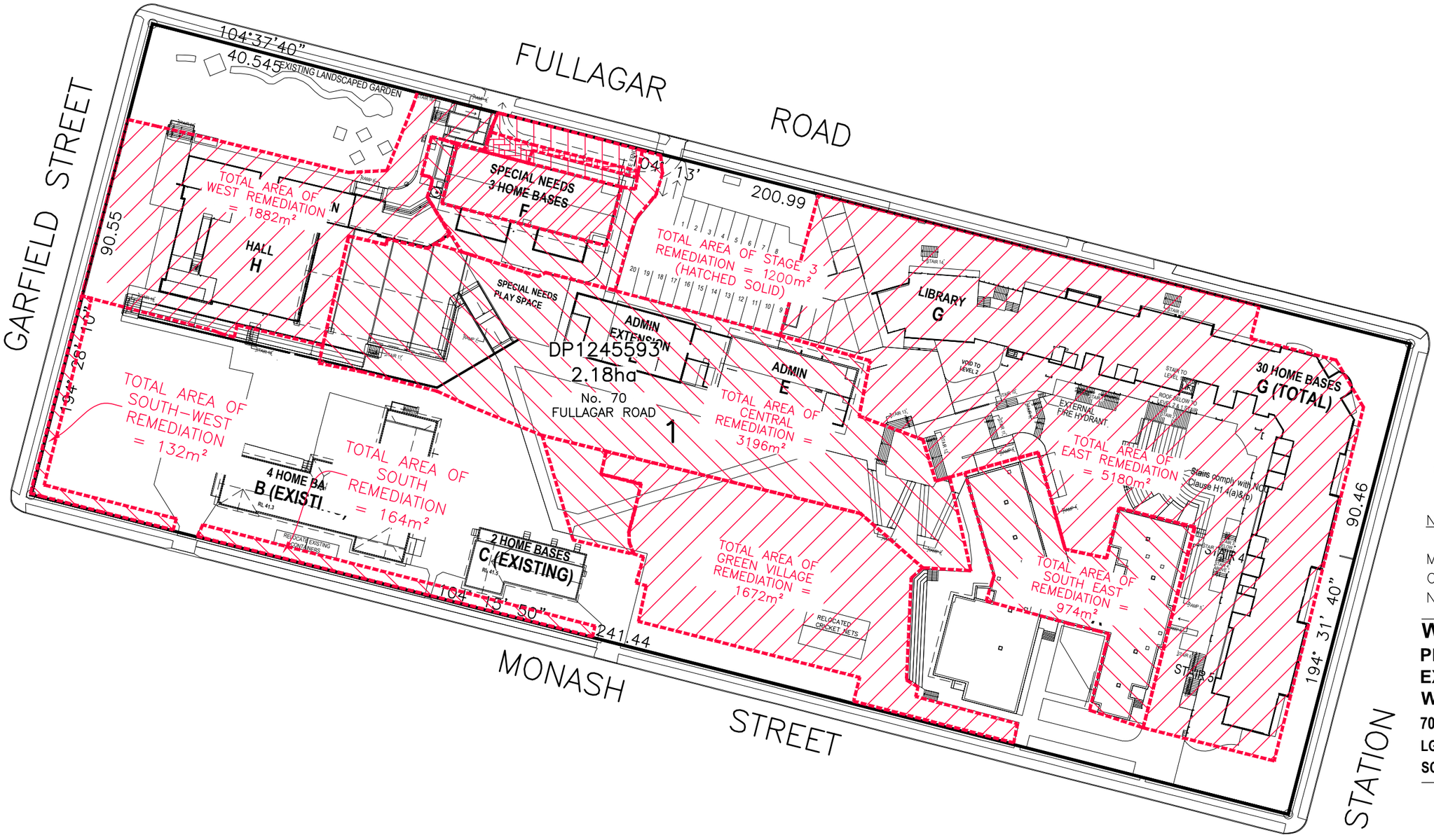
Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**:
  nswauditors@epa.nsw.gov.au or as specified by the EPA

  AND
- the **local council** for the land which is the subject of the audit.

M.G.A



DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: MAY 2021

WSP AUSTRALIA PTY LTD

PLAN SHOWING OVERALL EXTENT OF REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116

PO Box 1144
Dundas
NSW 2117

t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **OE/GR/RJ** Date Surveyed: **10/20-06/22**
Drawn: **GR** Checked: **GR**

Dwg. No.

SY074981.000.7.5

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Design
for a better
future /

GRINDLEY CONSTRUCTION PTY LTD

LONG-TERM ENVIRONMENTAL MANAGEMENT PLAN

STAGE 1, STAGE 2 AND STAGE 3 VALIDATION AREAS, WENTWORTHVILLE PUBLIC SCHOOL

AUGUST 2022

Question today
Imagine tomorrow
Create for the future

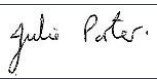
Long-Term Environmental Management Plan
Stage 1, Stage 2 and Stage 3 Validation Areas, Wentworthville Public School

Grindley Construction Pty LTD

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Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

REV	DATE	DETAILS
A	21/07/2022	Draft for auditor comment
B	9/08/2022	Updated draft addressing Auditor comments
C	17/08/2022	Final

	NAME	DATE	SIGNATURE
Prepared by:	James Green / Matt Vanderheyden	17/08/2022	
Reviewed by:	Julie Porter	17/08/2022	
Endorsed/ Approved by:	Amy Valentine CEnvP-SC No. SC40939	17/08/2022	

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Appendix E Survey and Areas Under Management

ABBREVIATIONS

ACM	Asbestos-containing materials
ASAP	Asbestos situation action plan
ESA	Environmental site assessment
LTEMP	Long-term environmental management plan
IEMP	Interim environmental management plan
mAHD	Metres Australian Height Datum
mBGL	Metres below ground level
NEPM	*National Environment Protection (Assessment of Site Contamination) Measure 1999*
NSW EPA	New South Wales Environment Protection Authority
POEO Act	*Protection of the Environment Operations Act 1997*
SWMS	Safe work method statement
UFP	Unexpected finds protocol
WHS	Work Health and Safety

1 INTRODUCTION

1.1 OVERVIEW AND PURPOSE

WSP Australia Pty Ltd (WSP) was commissioned by Grindley Construction Pty Ltd to prepare a long-term environmental management plan (LTEMP) for Wentworthville Public School, located at 70-100 Fullagar Road, Wentworthville NSW (the site). Refer to Figure 1, Appendix A for the school location. The site comprises three validation areas, referred to as Stage 1, Stage 2 and Stage 3, which are all within the school boundary and have been completed in a staged approach. The three stages of remediation are illustrated on Figure 2, Appendix A.

This LTEMP is required, following completion of all three stages of the redevelopment works, to manage residual risks. Two separate interim environmental management plans (IEMPs) have previously been prepared for Stage 1 and Stage 2, upon completion of each stage and this final LTEMP supersedes these documents.

All three stages (Stage 1, Stage 2 and Stage 3) have now been completed as part of the remediation/redevelopment works. At the completion of each stage, a survey of the remediation extent had been completed by WSP. Survey data, showing the remediation extent across the full site, has been provided in Appendix E4.

The specific areas this LTEMP relates to includes the following:

- Stage 1: Burial pit 1 (815 m^2) and burial pit 2 (void) (255 m^2) - Both within the footprint of the new 'Block G' building;
- Stage 2: Green village soil capping area (1,672 m^2);
- Stage 2: Block A (974 m^2) and Block E (394 m^2) existing building footprint concrete cap;
- Stage 3: 'kiss and drop' asphalt/concrete capping area (54 m^2);
- Stage 3: Block F (356 m^2) existing building footprint concrete cap; and
- Stage 3: Temporary demountable area (230 m^2) existing asphalt cap.

The above-mentioned areas are illustrated in Figure 3, Appendix A.

Asbestos contaminated soils were previously identified at the site and have subsequently been remediated through either off-site disposal, construction of on-site burial pits and capping via pavement hardstand, or construction of soil capping layers over asbestos contaminated soils. Four locations (Block A, Block E, Block F and the temporary demountable area) are to remain undisturbed, and in-situ materials in these areas have been suspected to contain asbestos and are included in this LTEMP.

This LTEMP provides the management requirements to ensure the longevity of the cap and containment solution and to ensure any works that penetrate the cap are appropriately controlled.

1.2 OBJECTIVES

The objectives of this LTEMP are to:

- define appropriate management and mitigation measures to be implemented to manage potential environmental and health and safety risks associated with contaminated soil within capped areas;
- ensure activities associated with any future site works are managed in a way that minimises the potential impact to the surrounding environment; and
- ensure all personnel involved are aware of potential risks associated with the capped contaminated soil.

The objectives are to be achieved through the application of administrative and inspection protocols, health and safety procedures as well as the application of controls during the maintenance of utilities, site planning/preparation work and potential future excavation works at the site.

1.3 LTEMP CONTEXT AND TIMING

The purpose of this LTEMP is to manage asbestos contaminated soil remaining on-site, which has been remediated by burial within constructed burial pits, contained void spaces, soil capping layers and existing building/asphalt footprints. As no active risks are presented to routine site users (e.g. students and school staff), this LTEMP is considered 'passive'.

This LTEMP will apply with immediate effect upon provision of an occupancy certificate (OC) for the site by the independent verifier (IV) as required by the development consent. This LTEMP shall apply indefinitely or until such a time that a site audit statement can be prepared by a NSW Environment Protection Authority (EPA) accredited site auditor stating that an environmental management plan (EMP) is not required for the site.

With regard to the context of this LTEMP, this report supersedes the two previous IEMP reports prepared to manage residual contamination within Stage 1 and Stage 2 of the school redevelopment, prior to completion of all three stages. The IEMPs have been finalised into this LTEMP, which incorporates all three stages, in accordance with the development consent.

WSP notes that NSW Department of Education (DoE) c/o Public Works Advisory commissioned the *Wentworthville Public School – Asbestos in Grounds Management Plan, March 2020* (DoE EMP), which is currently active for the school. The DoE EMP is a site-specific asbestos management plan (SSAMP), which establishes management or remediation responses should asbestos be identified within school grounds. This LTEMP is a stand-alone document which manages residual contamination following the completion of remediation works.

The residual asbestos contamination described in this LTEMP must be added to the existing asbestos register for the school.

1.4 CONSENT REQUIREMENTS

Under Section D28 of Development Consent – SSD9273 (Consent), a LTEMP is required to be prepared within one month of completion of remediation works. Figure 1.1 shows the modified LTEMP consent requirements issued on 28 October 2020.

Figure 1.1 Modified LTEMP consent requirements

(a) be prepared by a suitably qualified and experienced person whose appointment has been endorsed by the Planning Secretary in consultation with EPA;

(b) be submitted to **the Site Auditor for review and endorsement and submitted to** EPA, **Council and** ~~**for review prior to submission to the**~~ Planning Secretary **for information**; and

(c) include, but not be limited to:

- (i) a description of the nature and location of any contamination remaining on site;
- (ii) provisions to manage and monitor any remaining contamination, including details of any restrictions placed on the land to prevent development over the containment cell;
- (iii) triggers that would indicate if further remediation is required; and
- (iv) details of any contingency measures that the Applicant is to carry out to address any ongoing contamination.

(d) include any ongoing measures set out in the Asbestos Management Plan approved under condition B5.

With regards to item (a), the LTEMP is prepared by the project environmental consultant (WSP), and will be subject to review by a NSW EPA accredited site auditor. The NSW EPA has been consulted with regard to the appointment of WSP (email from Bonic Rajkumari, Mace dated 19 April 2022). The EPA made no objection in relation to the

appointment of WSP. As per the NSW EPA recommendation (letter reference DOC221/134987-3, dated 27 April 2022), the site LTEMP will be reviewed by a Certified Environmental Practitioner (CEnvP) employed by WSP (Amy Valentine, CEnvP-SC No: 40939).

With regards to:

- item (ci), refer to Section 2.3;
- item (cii), refer to Section 4. No land restrictions are proposed in this LTEMP;
- item (ciii), refer to Section 7, unexpected finds protocol, for triggers for further remediation;
- item (civ), as this LTEMP is 'passive' (i.e. requires no active management other than inspections), contingency management relates to scenarios where planned breaches of the cap are unavoidable. In these circumstances, contingency protocols and controls are provided in Section 4 for how to protect human health and the environment from exposure to contaminated soils; and
- item (d), no ongoing measures required.

1.5 RELEVANT REGULATIONS AND GUIDELINES

Key legislation relevant to the proposed works is listed below:

- *Environmental Planning and Assessment Act 1979* (NSW; EP&A Act).
- *Environmental Planning and Assessment Regulation 2021*.
- *Protection of the Environment Operations Act 1997* (NSW; POEO Act) and *Protection of the Environment Operations Regulation 1997* (NSW; POEO Regulation).
- *Contaminated Land Management Act 1997* (NSW).
- NSW EPA 2022; *Practice Note, Preparing Environmental Management Plans*.
- *Waste Avoidance and Resource Recovery Act 2001* (NSW).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM, as amended 2013).
- *Work Health and Safety Act 2011* (NSW).
- *Work Health and Safety Regulation 2017* (NSW).
- SafeWork NSW 2019, *Code of Practice - How to Manage Work Health and Safety Risks*.
- SafeWork NSW 2019, *Code of Practice - How to Manage and Control Asbestos in the Workplace*.
- SafeWork NSW 2019, *Code of Practice - How to Safely Remove Asbestos*.
- SafeWork NSW 2019, *Code of Practice - Construction Work*.
- SafeWork NSW 2020, *Code of Practice - Excavation Work*.

1.6 ENFORCEMENT

In order for the LTEMP to be effective, it must be practical and enforceable, for this LTEMP the regulatory instrument for enforcement will be NSW EP&A Act. Under the Development Consent (SSD9273), enforcement of the LTEMP is provided though Section D28 which enables the commencement of the LTEMP, and Section E17 which requires the LTEMP implementation on-going post-occupation.

1.7 PUBLIC NOTIFICATION OF THIS LTEMP

Remediation of the site has been undertaken under the Consent and, as required by the Consent, the site is subject to a site audit. When a site audit statement states that the site is suitable for a particular use if managed in accordance with an EMP, the plan must be attached to the site audit statement and included in the site audit report. The Planning Secretary and Cumberland Council (Council) are to be provided a copy of the site audit statement. Council must provide a notification of the existence of the audit on the section 10.7 planning certificate/s for the site in accordance with the *Environmental Planning and Assessment Regulation 2021*. Additionally, the residual asbestos contamination described in this LTEMP must be added to the existing asbestos register for the school, which is publicly available via NSW DoE schools asbestos register online portal.

2 SITE DESCRIPTION

2.1 SITE IDENTIFICATION

The general property identification information is provided in Table 2.1 below.

Table 2.1 Site details

Site address	The address of Wentworthville Public School, which contains the site, is 70-100 Fullagar Road, Wentworthville NSW.
Site identification	The site comprises part Lot 1 in Deposited Plan 1245593
Site owner	NSW DoE
Study area	Approximately 14,430 m^2
Local government area (LGA)	Cumberland Council (formerly Holroyd Council)
Zoning	R2 – low density residential land use under the *Cumberland Council Local Environment Plan 2021* (LEP) zoning maps (March 2021).
Current site use	Primary school
Current site condition	The site has been remediated and construction works for the library and 30 home bases are well progressed.
Surrounding land uses	Other surrounding land uses include the following: — To the north – Fullagar Road, residential properties and Wentworthville train station beyond — To the east – Station Street, residential properties and Parramatta beyond — To the south – Monash Street, the Western Motorway and residential properties beyond — To the west – Garfield Street, Cumberland Highway with Ringrose Park and residential properties beyond.

2.2 SITE HISTORY SUMMARY

Historical records indicate that the properties currently identified as the site are registered under the Minister of Education (previously identified as Her Most Gracious Majesty Queen Victoria) from 1880 to date, indicating that the land has been used as a school campus since then.

Aerial imagery shows that the site contained a small building in 1943, towards the south-eastern corner of the site. By 1961, the small building had been extended with the irregular shaped building and three new buildings had been constructed at the northern portion. One building had been removed from the northern portion in 1975. The northern car park appeared to have been constructed in 1986. Since the 1990s the site has remained largely unchanged to its current configuration with the exception of some demountables and shaded areas. The surrounding area north-west of site gradually developed between 1943 to its current configuration as a school campus.

2.3 PREVIOUS INVESTIGATIONS AND FINDINGS

The site has been subject to a number of historical geotechnical and environmental investigations since 2017. Most relevant investigation reports are listed here with summaries of select pertinent reports provided in the following subsections. An overall summary of the contamination status of the site is presented in Section 2.4.4.

- EIS 2017, *Preliminary Environmental Screening Proposed School Additions*. Reference: E31057Klet.
- WSP 2018b, *Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI)*. Reference: PS110641-CLM-REP-WWPS RevB_Final.
- JKE, formerly EIS 2019, *Preliminary Salinity Assessment*. Reference: E31057BTrpt2.
- P. Clifton and Associates Pty Ltd (PCA) 2020, *Waste Classification of In-situ Soils Containing Asbestos Cement Sheet Debris*. Reference: PCA6512-2020_WASTECLASSLET01_10Jan20.
- 4 Pillars 2020, *Waste Analysis and Classification Report* Reference: 20200107WAL_01.
- WSP 2020a, *Remediation Action Plan*. Reference: PS119057_Wentworthville Public School-RAP-CLM-REP-Rev5-FINAL.
- WSP 2020b, *Environmental Site Assessment (Block G and H)*. Reference: PS119057-CLM-REP-001-Rev3
- WSP 2020c, *Environmental Site Assessment (Southwest Landscaping Area and Green Village*). Reference: PS119057-CLM-REP-001-RevB.
- WSP 2021d, *Excavation and Stockpiled Material Assessment (Block E Extension*). Reference: PS119057-CLM-LTR-Rev0-Stg2_BlkE_Extension.
- WSP 2022, Material Suitability Memo (Stage 3). Reference: PS127030-CLM-LTR-Stage 3 Material_Rev1.

2.3.1 EIS (2017) PRELIMINARY ENVIRONMENTAL SCREENING

EIS undertook a limited combined geotechnical and environmental investigation across the school site to identify potential contamination. WSP notes that EIS had not been provided with development plans at the time of their investigation.

Eight soil bores were advanced at the property into natural soils and bedrock. Only lead exceeded the adopted health investigation level (HIL) at 0.1-0.2 m at one borehole located within the Green Village area (Stage 2 validation area; refer to Figure 3 of Appendix A) and four fragments of ACM were also encountered across the investigation area.

Ecological investigation levels (EILs) and/or ecological screening levels (ESLs) were exceeded in fill material at four locations. However, it is noted that site-specific soil parameters were not derived for the site and a ‘worst case’ scenario for aged heavy metal EILs were adopted.

2.3.2 WSP (2018b) PSI AND DSI

The investigation completed by WSP (2018b) identified a number of locations across the site impacted by asbestos contamination that were considered to present a potential risk to human health under certain conditions. Two surface fragments of asbestos were identified in the north-west and east of the property. An ACM fragment was also identified in fill material at approximately 0.3 m below ground level (BGL) in the north-east of the site, and loose asbestos fibre bundles at a depth of 0.5 mBGL in the central southern portion for the site.

A concentration of lead exceeding the HIL was reported at 0.5 mBGL at one borehole located within the Green Village area (Stage 2 validation area; refer to Figure 3 of Appendix A). Concentrations of zinc, benzo(a)pyrene and TRH C_{16}-C_{36} were also reported above the adopted ecological criteria, however, these concentrations were not considered to be significant due to the locations being within proposed building footprints, presenting negligible access for flora and fauna to underlying soils.

The results of the investigation indicated that the proposed design footprint was impacted with asbestos in soil and the identified asbestos will likely be disturbed during development works.

2.3.3 WSP (2020a) REMEDIATION ACTION PLAN

The objective of the remediation works outlined in the RAP was to mitigate potential contamination risks on site and render the site suitable for the proposed development. ACM was identified in soil on site requiring remediation and management during both redevelopment and ongoing use of the site as a primary school.

Validation acceptance criteria and procedures were established for different cap and containment scenarios, as well as re-use and suitability assessment of on-site soils (for both fill and natural soil profiles). For impacted materials which were surplus to the development levels, excavation and off-site disposal was adopted for remediation.

Validation protocols for the importation and disposal of soils were also detailed.

2.3.4 WSP 2020b, ENVIRONMENTAL SITE ASSESSMENT (BLOCK G AND H)

In April 2020, WSP conducted further investigation of Blocks G and H to further assess the extent of chemical and asbestos impacts. A summary of the findings is presented as follows:

- 34 test pits were advanced;
- ACM was identified at %w/w concentrations above the HSL A criterion in fill material at nine test pit locations;
- friable asbestos was detected in fill material at one test pit location within Block G;
- a selection of soil samples were analysed for TRH, BTEXN, PAHs and select heavy metals. The concentrations of these analytes did not exceed the adopted human health and ecological criteria, except for lead which exceeded the HIL A criterion at a depth of 0.2 mBGL at one test pit location within Block H[1]; and
- numerous fragments (approximately 10 to 15) were observed on the site surface sporadically throughout the Block H investigation area.

2.4 REMEDIATION ACTIVITIES AND STATUS

2.4.1 REMEDIATION SUMMARY (STAGE 1)

As part the Stage 1 redevelopment, the following remediation work was undertaken:

- Surficial fill material was scraped to natural surface and material was stockpiled in the western portion of the Stage 1 area.
- Natural soil was excavated beneath the footprint of the current Block G building for construction of an in-ground burial pit (burial pit 1). The burial pit was backfilled with stockpiled fill. The burial bit was dug approximately 1.5 m into natural soils with wall comprising dark red to brown, slightly mottled stiff clay.
- Upon completion of backfilling burial pit one, an aboveground burial pit was constructed, burial pit 2 (void). The void was backfilled with additional contaminated soils.
- Off-site disposal of remaining contaminated soils (approximately 3,852 tonnes).
- A capping layer was installed for burial pit one and the void comprising a layer of high visibility synthetic geotextile material (geotextile layer), approximately 180 mm of dense grade base and a conventionally reinforced concrete slab, minimum 150 mm thickness, with a combined minimum thickness of 320 mm.

[1] The lead exceedance was excavated and disposed off-site during the Stage 1 remediation.

- A stormwater trench was installed on the eastern edge of the burial pit, however this was placed wholly within certified imported fill material and is physically separated by geotextile and a retaining wall from contaminated backfill. No utility or service is installed within the contaminated fill.

Specific locations of the burial pits are illustrated in Figure 3, Appendix A. A topographic survey and 3D volumes of burial pit 1 and the void, as well as a general arrangement drawing, showing detail of the concrete slab construction and pavement profiles for Stage 1 are provided in Appendix E-1.

2.4.2 REMEDIATION SUMMARY (STAGE 2)

As part the Stage 2 redevelopment, the following remediation works were undertaken:

- Surficial fill material was scraped to natural surfaces and contaminated soils were disposed of off-site (approximately 987.37 tonnes).
- A soil capping layer was installed for Green Village, comprising a layer of high visibility synthetic geotextile material (geotextile layer) and minimum 300 mm soil material. Capping material was sourced from excavations of validated natural material on site and approved validated turf underlay and organic garden mix. Following completion of cap construction, a turf layer was applied to the surface across Green Village.
- Existing concrete hardstand was retained in building footprints for Block A and Block E for use as a capping layer for contaminated soils. On 18 January 2022, during the final clearance inspection completed a WSP Licensed Asbestos Assessor (LAA), accessible areas of the existing Block A and Block E concrete slabs were inspected. During inspection, the hardstand was noted to be in good condition with no cracking or integrity issues observed. The thickness of the existing slabs and subgrade materials are not known. However, it is likely these are fit for purpose.

A survey showing the perimeter of the Green Village capping area is provided in Appendix A and a topographic survey of the Green Village capping area is included in Appendix E-2. As-built survey drawings indicate that a minimum 300 mm soil cap has been constructed across the Green Village capping area. The survey drawings are considered to be an accurate representation of the as-built soil cap.

2.4.2.1 EXCAVATION WALLS (STAGE 2)

During remedial works, exposed fill walls resulting from excavation works were demarcated through the application of a high visibility geofabric marker layer to cover the exposed fill surface, or validated via the collection of asbestos soil validation samples where the wall was not clearly a natural surface.

The locations where excavation walls were validated via either being covered with a high visibility geofabric marker layer are detailed in Appendix A, Figure 3. One location (the northern boundary of the Block E extension) was not validated, as access to the excavation wall could not be granted. The area was subsequently covered with the present block E building extension concrete hardstand footprint and no exposure pathways are present in the sites current state. This location is shown in Appendix A, Figure 3.

2.4.3 REMEDIATION SUMMARY (STAGE 3)

As part the Stage 3 redevelopment, the following remediation works were undertaken:

- In the “Northern area” located to the north of block F, surficial fill material was scraped to natural surfaces and contaminated soil was disposed of off-site disposal (approximately 140 tonnes).
- Concrete capping was installed over existing in-situ services in the ‘kiss and drop’ roadway, comprising a layer of high visibility synthetic geotextile material (geotextile layer), minimum 100 mm soil material and concrete pavement.
- Existing concrete hardstand was retained in the building footprint for Block F for use as a capping layer for contaminated soils.

- Existing asphalt hardstand was retained beneath the temporary demountable area for use as a capping layer for contaminated soils.
- On 17 June 2022, during the final clearance a WSP LAA inspected accessible areas of the existing Block F and the temporary demountable area. During inspection, the hardstand was noted to be in good condition with no cracking or integrity issues observed. The thickness of the existing slabs and subgrade materials are not known. However, it is likely these are fit for purpose.

2.4.3.1 EXCAVATION WALLS (STAGE 3)

During remedial works, exposed fill walls resulting from excavation works were demarcated through the application of a high visibility geofabric marker layer to cover the exposed fill surface, or validated via the collection of asbestos soil validation samples where the wall was not clearly a natural surface.

The locations where excavation walls were covered with a high visibility geofabric marker layer are detailed in Appendix A, Figure 3.

2.4.4 NATURE OF CONTAMINATION IN BURIED SOIL

Previous investigation findings from reports listed in Section 2.3 provide a broad summary of the nature of the contamination in soils buried within the two burial pits, as well as beneath the Green Village and kiss & drop capping area. Previous investigation findings also provided an indication of fill materials remaining in-situ beneath the Block A, Block E and Block F concrete building slabs and beneath the asphalt hardstand in the temporary demountable area.

Identified contaminants of concern were TRH, BTEXN, PAHs, heavy metals and asbestos. With exception of asbestos, other chemical analytes were found to be at concentrations below the laboratory detection limits (LORs) or had low level detections which were compliant with the following site criteria, as defined in the NEPM (2013):

- health investigation level (HIL) A: Low density residential;
- health screening level (HSL) A: Residential; and
- ecological investigation and screening levels for urban residential/public open space.

Asbestos was the primary contaminant of concern with non-friable and friable forms identified in soil exceeding HSL-A and HSL-D (commercial/industrial) criteria. Additionally, as noted in Section 2.3, historical investigations also identified lead in fill material at concentrations above the HIL A criterion at two locations in the centre of the Green Village area (refer to Figure 3 of Appendix A for Green Village location). Concentrations of lead at these locations were 360 and 600 mg/kg.

3 MANAGEMENT ACTIVITIES

3.1 RESPONSIBILITIES

Table 3.1 provides a summary of the responsibilities for the implementation and management of the LTEMP. The list of responsibilities does not replace any regulatory, planning or licensing responsibilities of the parties in undertaking works at the property. In any instance where an inconsistency arises between this LTEMP and environmental law, the environmental law will take precedence over the LTEMP.

Table 3.1 Responsibilities

PARTY	RESPONSIBILITIES
Site Owner — Department of Education / Schools Infrastructure NSW	Provide the LTEMP to the Site Controller, and workers who are engaged directly by the Site Owner, have them sign the notification register and outline emergency response plan (*This function may be performed again by the Site Controller once workers are site*). Attach a copy of the LTEMP to any lease or contract for sale of the site. Incorporate the LTEMP into any other management plans implemented at the site. Providing final clearance, in consultation with the Site Controller, for major works, which are expected to disturb or breach the cap. Liaise with Council to include the LTEMP on any Section 10.7 planning certificate (i.e. zoning certificate) applicable to the site. Maintain the school asbestos register. Minimum 12 monthly reviews of the LTEMP. Risk assessment and options appraisals for proposal to breach the cap and review of contractor emergency protocols for planned cap breaches.
Site Controller — School Principal or nominated delegate	Provide the LTEMP to school staff and workers at the site (whether engaged by the Site Owner or Site Controller), provide site inductions, have them sign the notification register and outline emergency response plan. Comply with the LTEMP during occupation of the property. Conduct integrity inspections of the cap and inform the property owner if any deterioration of the cap is observed. Providing final clearance for routine school maintenance works (or similar), which will not disturb or breach the cap. Review the existing school emergency response protocol and update (if required) if there was an unplanned disturbance or breach of cap (e.g. review or contingency emergency assembly points if they coincide with burial pit or void). Maintain the LTEMP notification register. Refer to Appendix B. Minimum 12 monthly reviews of the LTEMP. Review of contractor emergency protocols for planned cap breaches for alignment/conflict with existing emergency protocols at the school.

PARTY	RESPONSIBILITIES
School staff and workers — School staff or workers undertaking normal functions of the school — Workers / contractors undertaking intrusive works below the cap	Comply with the LTEMP, including relevant legislation and guidance (including the *Work Health and Safety Act 2011* and *Work Health and Safety Regulation 2017* or relevant legislation current at the time of the works) when conducting works at the property. Understand the requirements of the LTEMP and have signed the notification register. Inform the Site Owner and Site Controller if after reading this LTEMP, anticipate their works will disturb or breach the cap, and if so, do not proceed with works until formal clearance by the Site Owner and Site Controller has been provided to commence. A site-specific emergency response plan must also be prepared.

This LTEMP is prepared with the assumption that any future works on the site shall be undertaken in accordance with relevant regulations, guidelines and laws current at the date works in NSW including but not limited to those referred to in Section 1.3.

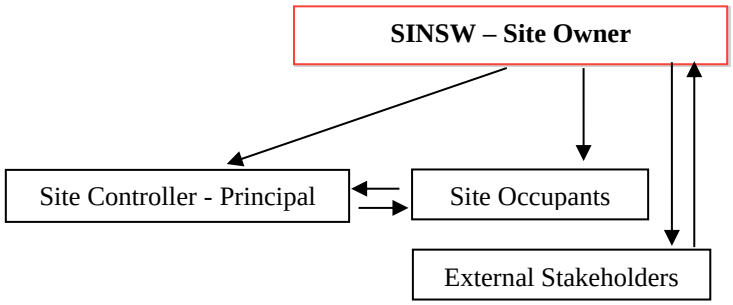
3.2 COMMUNICATIONS PROTOCOL

3.2.1 PLANNED MAJOR WORKS – CAP BREACHES

For all major works which may breach the capping layer, Schools Infrastructure NSW (SINSW) are to drive and co-ordinate formal communications to the Site Owner, Site Occupants and relevant key external stakeholders. The Site Owner may request the Site Controller provide any additional briefings to Site Occupants and field and queries specific to the school's normal function.

Refer to Figure 3.1 for flow chart of major works communication protocol.

Figure 3.1 - Major works communication protocol

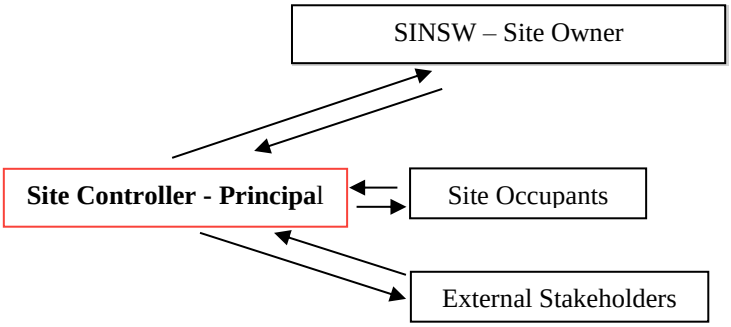


3.2.2 ROUTINE MINOR WORKS – NO DISTURBANCE OR BREACHES TO CAP

For all minor works which are not expected to disturb or breach the capping layer, and the worker/contractor is engaged by the Site Controller, the Site Controller is to drive and co-ordinate formal communications to the Site Occupants, External Stakeholders and SINSW if required. If workers/contractors are engaged by SINSW directly, SINSW and the Site Controller are to communicate as required and as per existing communication protocols.

Refer to Figure 3.2 for flow chart of minor works communication protocol.

Figure 3.2 - Minor works communication protocol



3.2.3 CHANGES TO THE LTEMP

For changes to the LTEMP led by SINSW, the following must be undertaken:

1. SINSW must communicate any updates or changes in responsibilities by formal letter or email correspondence to the Site Controller, school staff and workers.
2. SINSW must allow an opportunity for review and consultation.
3. Once agreed and finalised, SINSW will provide the updated LTEMP to the Site Controller, who can then communicate to school staff and workers and external stakeholders, (as required).

For changes to the LTEMP led by the Site Controller, staff or workers, the following must be undertaken:

1. Site Controller must first communicate the desired updates or changes in responsibilities by formal letter or email correspondence to the Site Controller.
2. SINSW must be allowed an opportunity for review and consultation, which includes the Site Controller and school staff and workers as required.
3. Once agreed and finalised, SINSW will provide the updated LTEMP to the Site Controller, who can then communicate to school staff and workers and external stakeholders, (as required).

3.3 EXISITING ENVIRONMENTAL SYSTEMS

This LTEMP is prepared only for the areas as described in Section 1.1 within the remediated area of the site. This LTEMP does not apply to the broader school. There are known asbestos impacts in other areas of the school which are managed through an overarching management plan *NSW Department of Education C/O – Public Works Advisory; Wentworthville public School, Asbestos in Grounds Management Plan, March 2020*.

3.4 ENVIRONMENTAL AWARENESS AND TRAINING

The Site Owner and Site Controller have joint responsibility in ensuring the existence and requirements of this LTEMP are made aware to site occupants and workers (e.g. school staff and general contractors whose works do not disturb or breach the cap). This is documented by signing the LTEMP notification register in Appendix B. For routine works as part of normal school operation which will not disturb or breach the cap, no emergency response training in the context of this LTEMP is provided. Existing emergency response and training protocols in place at the school should be followed.

For any works which intend to disturb or breach the capping layer, a specific emergency response plan must be generated (as per Table 3.1) by the contractor in consultation with the Site Owner and Site Controller.

3.5 LTEMP REVIEW

Review of this LTEMP by the Site Owner and Site Controller (collectively or independently), should be conducted every 12 months, and would include but not be limited to the following aspects:

- review non-compliances and corrective actions during the period;
- ensure inspections have been undertaken;
- ensure maintenance recommended (if any) during inspections and/or intrusive works has been completed;
- review whether any proposed changes to land use or site layout may conflict with the LTEMP;
- updates to legislation or codes of practice which may affect management protocols;
- changes to site ownership or updates to responsible parties and roles; and
- any proposals for works which may disturb or breach the cap.

Reviews and updates to this LTEMP can be undertaken by the Site Owner and Site Controller for administrative changes such as delegations of authority or outcomes of inspections and associated maintenance. However, a suitability qualified environmental specialist should be engaged to update the LTEMP in the following circumstances (non-exhaustive list):

- updates of the asbestos register (outside this LTEMP); or
- updates to the LTEMP from a planned or unplanned breach of the capping layer. For example, the LTEMP may be updated with clearance certificates, air monitoring results, validation samples and confirmation of correct cap re-instatement/repair.

An inspection register is presented in Appendix D-1. An LTEMP review register is presented in Appendix D-2.

3.6 CAP INSPECTION PROTOCOL

On an annual basis, the capped areas should be inspected by the site owner or the site occupant (as directed by the site owner) to verify the caps are maintaining their function as a barrier between contaminated soils and site users.

For the concrete or asphalt capped areas with underlying geotextile (Block G and kiss and drop), the inspection should look for evidence of deterioration such as:

- deep cracks or breaks in the concrete or asphalt surface which exposes geotextile; or
- separation of grout between Besser brick walls which exposes geotextile.

For the soil capping area (Green Village), the inspection should look for evidence of integrity damage such as:

- grass stress, where die-off of grass may expose the soil capping layer;
- exposed soil, where the soil capping layer may be worn down;
- erosion and/or cracking of soil capping layer, where severe weather events (i.e. intense rainfall or drought) damage the cap integrity;
- damage of sandstone blocks around the perimeter of the Green Village capping area, which may expose the geotextile; or
- exposed high-visibility synthetic geotextile material.

Following periods of extreme rainfall and/or flooding (or other significant erosional events), additional inspections of the soil cap should be completed.

For excavation walls which have been lined with a high visibility geotextile marker layer, the inspection should look for evidence of damage/deterioration such as:

- exposed high-visibility synthetic geotextile material; or
- erosion of capping material used on the "clean" side of the wall.

For areas of concrete or asphalt hardstand which are not underlain with geotextile (Block A, Block E, Block F, the temporary demountable area and the excavation wall beneath concrete hardstand along the northern boundary of Block E extension), the inspection should look for evidence of damage/deterioration such as:

- cracking in the concrete or asphalt, which exposes the underling contaminated soils; or
- subsistence and movement of building foundations, which subsequently exposes the underlying contaminated soils through gaps in the concrete.

Specific locations of the above are provided in Appendix A, Figure 3.

3.7 CAP REPAIR

3.7.1 VOID AND BURIAL PIT

Where deep cracks, breaks or separation between Besser brick wall are observed, (i.e. not superficial), these should be repaired with an appropriate filler to prevent exacerbation of the crack/break. If the crack/break continues to present after filling work, an engineer should be consulted to conduct an integrity assessment.

3.7.2 GREEN VILLAGE CAPPING AREA

Where grass stress is observed, the cause of the stress should be investigated (i.e. high traffic area, water stress or application of herbicides). Mitigation measures including the erection of temporary fencing around the impacted areas and grass seeding/regrowth should then be implemented to return grass to a suitable condition and minimise the potential of the soil capping layer being exposed and damaged.

If deep cracks, exposed soil and/or erosion of the soil capping layer are observed, these areas must be repaired with quarried products or certified virgin excavated natural material (VENM) or or excavated natural material (ENM). An environmental consultant should be engaged to confirm approval of the material.

3.7.3 NEW AND EXISTING HARDSTAND CAPPING

Where cracks, subsidence or damage to the existing concrete hardstand or asphalt capping layers of the kiss and drop, temporary demountable area, Block A, Block E or Block F is observed, these should be repaired with appropriate filler to prevent exposure to the underlying soils.

3.8 RISK ASSESSMENT FOR CAP BREACHES

Prior to any planned intrusive works where a breach of the capping layer is proposed, the work must undergo a risk assessment to verify the absolute need for the breach and exposure of contaminated soils. An options appraisal must be undertaken by the Site Owner to consider alternatives to breaching the cap and involve the Site Controller and any relevant key stakeholders.

Procurement of works to breach the capping layer may only commence after the risk assessment process and verification of no alternative to breaching the cap has been undertaken.

4 CONTINGENCY PLAN

If after risk assessment and options appraisal it is determined unavoidable to breach the cap, the following sub-sections outline the minimum controls.

4.1 CLOSURE AND PERMISSIONS

For planned breaches of the capping layer, the corresponding area of the school should be shut down and access restricted to workers specifically engaged by the Site Owner or Site Controller to undertake the works. The control of entry to the work area, in-particular when the planned breach has occurred and asbestos contaminated soils are exposed, must always be maintained by the contractor.

Prior to any planned capping breaches, the contractor undertaking the works must acquire necessary permissions from the school and from SINSW.

4.2 GENERAL REQUIREMENTS

To ensure that any asbestos encountered at the site is managed is accordance with the legislative requirements and current best practice, excavation works involving ACM and soils potentially impacted by asbestos will be conducted in accordance with the following guidelines:

- WA Department of Health (DoH) 2009, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*.
- *Work Health and Safety Act 2011* (NSW).
- *Work Health and Safety Regulation 2017* (NSW).
- SafeWork NSW 2019, *Code of Practice - How to Manage Work Health and Safety Risks*.
- SafeWork NSW 2019, *Code of Practice - How to Manage and Control Asbestos in the Workplace*.
- SafeWork NSW 2019, *Code of Practice - How to Safely Remove Asbestos*.
- SafeWork NSW 2019, *Code of Practice - Construction Work*.
- SafeWork NSW 2020, *Code of Practice - Excavation Work*.

It is noted that Clause 458 of the *Work Health and Safety Regulation 2017*, requires a person conducting a business or undertaking that commissions the removal of asbestos must ensure that the asbestos removal work is carried out by a licensed asbestos removal Contractor unless the asbestos to be removed is:

a) 10 square metres or less of non-friable asbestos or asbestos contaminated dust or debris associated with the removal of that amount of non-friable asbestos, or

b) Asbestos containing debris that is not associated with the removal of friable or non-friable asbestos and is only a minor contamination.

As the nature of contamination within the burial pit, Green Village and kiss and drop capping areas contains friable asbestos, a Class A Licenced asbestos removalist should undertake/supervise the works, and workers involved trained in asbestos removal.

Due to the presence of friable asbestos identified in fill material on-site, it is suspected that materials beneath the existing Block A, Block E and Block F building footprints, as well as beneath the temporary demountable asphalt footprint, contain friable asbestos. A Class A Licenced asbestos removalist should be engaged in the event that works penetrate the concrete footprint of these buildings or the asphalt hardstand layer.

4.3 ASBESTOS FIBRE AIR MONITORING

Asbestos fibre air monitoring should be undertaken when asbestos contaminated soils are exposed. The following presents an overview of the recommended air monitoring and analysis requirements:

- Asbestos fibre air monitoring will be conducted along the perimeter of the asbestos work area. The number of monitoring locations will be dependent on the size of the asbestos work area but will be at a minimum of four locations.
- Sample collection and analysis should be conducted in accordance with the National Occupational Health and Safety Commission (NOHSC) *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust* (NOHSC: 3003 (2005)), referred to as the membrane filter method (MFM).
- Sampling should be done with portable asbestos air monitoring pumps fitted with a sampling cartridge housing the asbestos sampling filter.
- The samples will be analysed by a laboratory accredited by the National Association of Testing Authorities (NATA) and the results reported on NATA-endorsed certificates of analysis.
- The samples will be analysed by phase contrast microscopy in accordance with the MFM.
- The sampling parameters will be set such that the detection limit of <0.01 fibres/mL is achieved.

4.4 CONTROL OF EARTHWORKS ACTIVITIES AND DUST MANAGEMENT

The following information is provided as a guide to control dust during earthworks in areas of known or suspected asbestos impacted soil:

- An asbestos work area (restricted area) is to be established.
- The restricted asbestos work area (proposed excavation/stockpile zone) should be demarcated with appropriate warning signs to prevent unauthorised access.
- Prior to the first removal of the sub surface soil, builders' plastic should be placed on an adjacent surface to contain excavated spoil.
- Prior to movement of stockpiled soils, dampen with water across the stockpile surface.
- During soil movement the materials should be kept sufficiently damp to minimise the emission of dust.

The excavation surface should be continually monitored and the surface wet down as drying occurs. This process should continue until the ACM or asbestos impacted soils excavation works in the asbestos work area are completed.

The above method relies on the following factors:

- use of water fogging nozzle (not high-pressure hoses); and
- constant vigilance of trained operators/contractor.

4.5 PERSON PROTECTIVE EQUIPMENT AND DECONTAMINATION

Where personnel are required to work on the ground within the designated asbestos work areas and are required to handle, or are likely to come into direct contact with asbestos material, the following personal protective equipment (PPE) is specified as a minimum requirement:

- safety boots with rubber soles (to permit easy cleaning);
- disposable Type 5/6 Tyvek® coveralls, or equivalent. Orange disposable overalls are recommended when working in close proximity to excavators;
- suitable respiratory protection, i.e. minimum P2 half face respirators; and.
- disposable gloves.

A decontamination area for personnel will be established at the entrance/exit to each asbestos work area for the use of the personnel conducting the asbestos related works. The decontamination area will comprise a segregated area where the contaminated work clothing and respirators are removed and discarded. Contaminated PPE is to be disposed of in appropriately labelled waste bins or bags.

The decontamination area must not be used for purposes other than decontamination (e.g. as a materials storage area).

4.6 CAP REINSTATEMENT AND CLEARANCE

At the completion of works, the cap is to be re-instated to equal standard prior to breaching. Each of the cap reinstatement types are described below.

4.6.1 ASPHALT/CONCRETE SLAB REINSTATEMENT

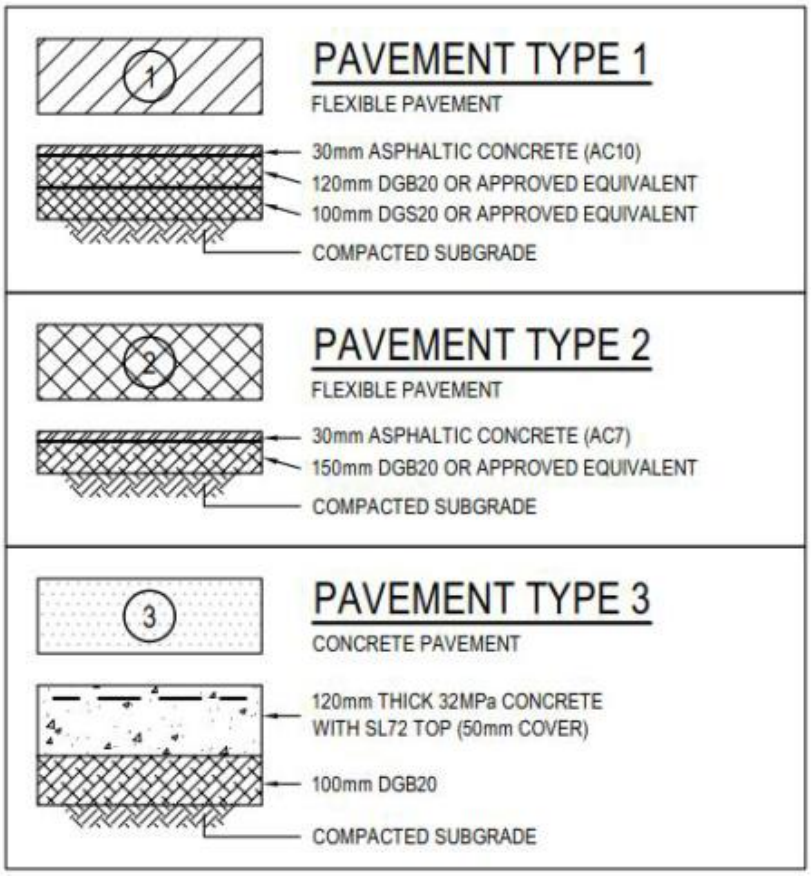
A geotextile layer should be placed over the footprint of the excavation, with any voids or depressions backfilled. Backfill material for excavation voids must use quarried products or certified VENM or ENM of an appropriate sizing and compaction to support the eventual concrete slab reinstatement.

The geotextile should be pinned in-place (steel ‘U’ pins or similar) to the edges of the concrete excavation/hole such that no contaminated soil is visible.

Geotechnical advice may be required prior to reinstatement of the asphalt / concrete surface. Once the geotextile is placed, the pavement cap should be formed in accordance with the appropriate Pavement Type (or equivalent), as detailed in Figure 4.1 (following page).

For the purposes of the cap, Pavement Type 3 as shown below applies to the capping within Burial Pit 1, the void and concrete hardstand areas of the kiss and drop area. Pavement Type 1 or 2 applies to the kiss and drop/temporary demountable asphalt areas.

Figure 4.1 Concept pavement cap reinstatement profile



An independent environmental consultant or occupational hygienist should inspect the work area at completion of reinstatement to verify no residual soil, PPE or asbestos contaminated material remains, and issue a clearance certificate for the work area.

4.6.2 SOIL CAP REINSTATEMENT

A geotextile layer should be replaced over the impacted soil prior to replacement of the capping layer. The geotextile should be pinned in-place (steel 'U' pins or similar) to the edges of the concrete excavation/hole such that no contaminated soil is visible.

Any backfill material used to reinstate the capping layer is to comprise either clean, previously validated capping layer material, site sourced clay or geotechnically suitable VENM (validated and compacted). Any excavations are to be finished flush with the surrounding surfaces of the capping layer to the satisfaction of the supervising hygienist or environmental consultant. For the purposes of the Green Village capping area, the unpaved capping design presented in Figure 4.2 applies.

Figure 4.2 Concept soil cap reinstatement profile



An independent environmental consultant or occupational hygienist should inspect the work area at completion of reinstatement to verify no residual soil, PPE or asbestos contaminated material remains, and issue a clearance certificate for the work area.

5 INCIDENT AND EMERGENCY PROCEDURES

5.1 PLANNED CAP BREACH

As the contractor is responsible for controlling access to the work area where a cap breach is planned, it is also the Contractor's responsibility to present the emergency procedures to the work crew.

The contractor will detail and explain the emergency procedures at the start up induction or toolbox talk prior to the commencement of works. This will include at a minimum:

- the name(s) of the first aider/s on site;
- the location of first aid kits and fire extinguishers;
- emergency procedure details for the site, including contact details for emergency services and the nearest hospital;
- site addresses details and map with route to nearest hospital highlighted; and
- location of the emergency assembly area.

The emergency protocols may leverage an existing emergency response protocol for the school and prepared in conjunction/review of the Site Owner and Site Controller, but must be made specific to the planned works.

It is noted that any failure in asbestos controls during planned cap breaches where site occupants may have been exposed must be managed in accordance with the emergency response outlined in Section 5.2.

5.2 UNPLANNED CAP BREACH - EMERGENCY RESPONSE

All unplanned events, irrespective how minor, shall be reported at the first opportunity to the Site Controller and Site Owner (and other parties where delegated by the Site Owner). An emergency in the context of this LTEMP is any unplanned breach of the capping layer, or unplanned exposure of contaminated soil (even if during planned work, as noted in Section 5.1 above), where there is the potential for exposure to contaminated soil. An emergency may be triggered by one of the following scenarios:

- uncontrolled excavation that breaches the cap without appropriate controls in place;
- significant erosion that exposes or breaches the cap, such as from flooding; or
- a failure or in the integrity of the wall or slab e.g. building collapse or fire.

Any potential exposure event should be immediately managed and contained. The following steps should be undertaken when an unplanned breach of the cap, or exposure event has occurred.

1. The worker/contractor undertaking the work should immediately isolate the area and restrict access to all personnel. If the breach of cap, or exposure to soil occurs during unplanned work (e.g. building failure or fire), the Site Controller is to isolate the area. Isolation should be performed with barriers to physically separate the area from personnel.
2. Notify the Site Controller (if not already part of the isolation process) and Site Owner.
3. Engage a required specialists (e.g. engineers to investigate and assess the area).
4. Alert appropriate regulatory authorities, such as the NSW EPA, SafeWork NSW, Council etc. as required.

Emergency contacts are listed in Table 5.1.

Table 5.1 Emergency contacts

PERSON/AGENCY	PHONE NUMBER
Department of Education – Schools Infrastructure NSW	1300 482 651 Or Richard Robertson 0460 011 272
Site contact (Principal - Wentworthville Public School)	02 9631 8529
Emergency services	
Emergency	000
Police – non-emergency (Granville Police Station)	+61 298 974 199
Ambulance – non-emergency (NSW Ambulance)	+61 293 207 777
NSW Fire and Rescue – non-emergency (Wentworthville Fire Station)	+61 296 310 908
Other	
Cumberland City Council	02 8757 9000
SafeWork NSW	13 10 50

5.3 COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

The receipt of complaints will be handled and responded to according to Wentworthville Public School's policy.

The purpose of the Complaints and Environmental Incident Register is to maintain a register of complaints from local residents or concerned parties, which will include a record of any action taken with respect to the complaints.

The complaints and environmental incident register is required to be completed immediately following the receipt of any complaints associated with works undertaken at the site. Written complaints should be addressed or acknowledged within five days of the complaint being received. Complaints made by telephone or in person should be addressed or acknowledged within two days of receipt. Complaints and incidents will be forwarded to Wentworthville Public School.

A copy of the complaints and environmental incident register is included in Appendix C.

6 LIMITATIONS

SCOPE OF SERVICES

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

ENVIRONMENTAL CONCLUSIONS

In accordance with the scope of services, WSP has relied upon the data and has not conducted any environmental field monitoring or testing in the preparation of the report. The conclusions are based upon the data and visual observations and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Within the limitations imposed by the scope of services, the assessment of the site and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party in relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

WSP will not be liable to update or revise the report to take into account any events, emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

APPENDIX A

FIGURES



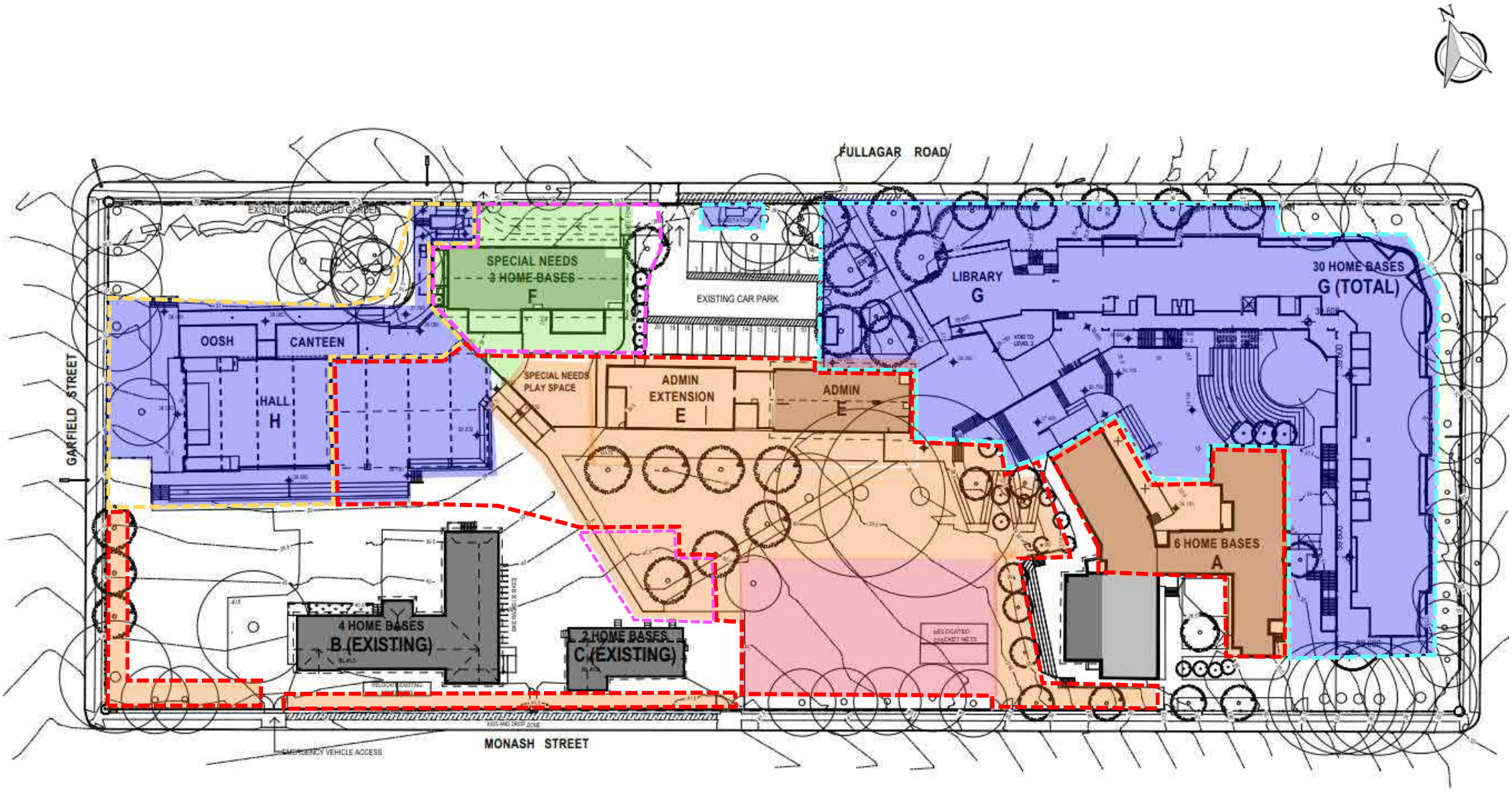
Legend

- School Location
- School Boundary

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Site Location Plan
Project no.:	PS127030

Figure 1



Legend

- Stage 1 Remediation Extent "Western Validation Area" (January 2021)
- Stage 1 Remediation Extent "Eastern Validation Area" (July 2021)
- Stage 2 Remediation Extent (March 2022)
- Stage 3 Remediation Extent (July 2022)

- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 1
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 2
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 3

Source: Grindley Construction Pty Ltd (2020)

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Auditable Areas and Stages
Project no.:	PS127030

Figure 2



Legend

- School Boundary
- Stage 1, 2 and 3 Remediation Extent
- Burial Pit 1 Asbestos Capping Area
- Burial Pit 2 ("Void") Asbestos Capping Area
- "Green Village" Asbestos Capping Area
- "Kiss and Drop" Asbestos Capping Area
- "Block A", "Block E" and "Block F" Existing Asbestos Concrete Capping Area
- "Temporary Demountable Area" Existing Asbestos Asphalt Capping Area

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Remediation Extent and Capping Areas
Project no.:	PS127030

Figure 3



Legend

- School Boundary
- Stage 1, 2 and 3 Remediation Extent
- Extent of High-visibility Geofabric Marker Layer
- Geofabric Marker Excavation Walls

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Geofabric Marker Layer Extents
Project no.:	PS127030

Figure 4

APPENDIX B

LTEMP NOTIFICATION REGISTER

B1 LTEMP NOTIFICATION REGISTER

The purpose of the notification register is to acknowledge acceptance and compliance with the procedures outlined within this LTEMP by signing the attached log. Copies of this document must be made available for review and be readily available at the job site.

The register is required to be completed by each person notified of the LTEMP undertaking minor or major works at the site.

DATE	PERSON	COMPANY	TASK/JOB	SIGNATURE/ POSITION

APPENDIX C

COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

C1 COMPLAINTS AND ENVIRONMENTAL INCIDENTS REGISTER

DATE	TIME	TYPE OF COMMUNICATION	NAME, ADDRESS CONTACT NUMBER OF COMPLAINANT	NATURE OF COMPLAINT	RESPONSE/ CORRECTIVE ACTION	DATE OF RESPONSE	DATE COMPLAINANT NOTIFIED OF RESPONSE TAKEN	SIGNATURE/ POSITION

APPENDIX D

INSPECTION AND REVIEW CHECKLISTS

D1 INSPECTION CHECKLIST

WENTWORTHVILLE PUBLIC SCHOOL (WWPS), WENTWORTHVILLE NSW	
Date & Time of Inspection	
Name and Position of person(s) conducting the inspection	
GENERAL SITE INFORMATION	
Current Site Occupier	
Current Site Use	
SITE INSPECTION	
Are there any areas where the capping surfacing appears damaged / surfacing is not intact and geotextile is exposed??	☐ No ☐ Yes – *provide details*
Are there any areas where the capping walls appears damaged or are separating and geotextile is exposed?	☐ No ☐ Yes – *provide details*

SIGNATURE (INSPECTOR)		**DATE**	
SIGNATURE (YPS REPRESENTATIVE)		**DATE**	

APPENDIX E

SURVEY AND AREAS UNDER MANAGEMENT

E1 STAGE 1

Copyright

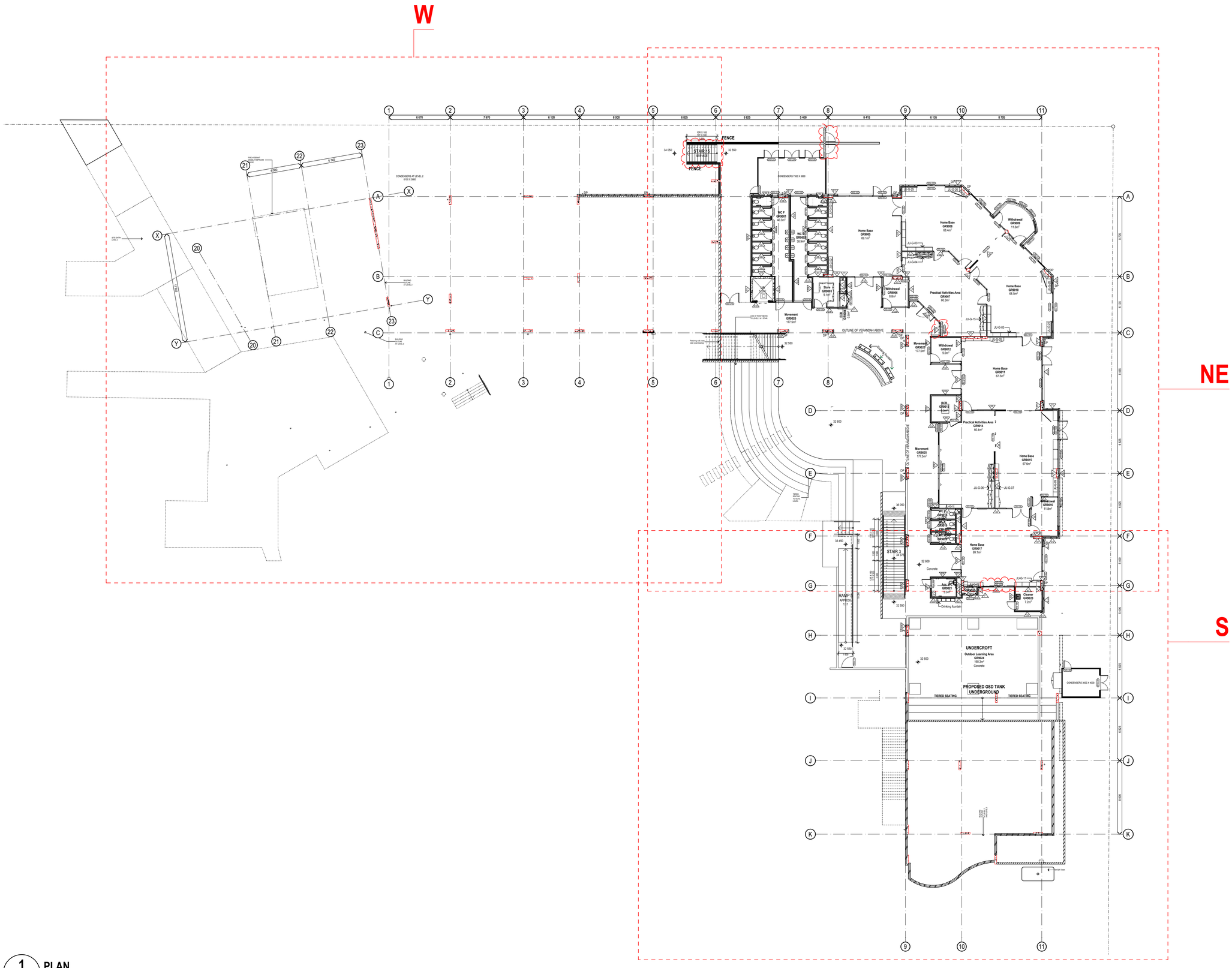
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LEGEND

W - WEST

NE- NORTH EAST

S - SOUTH



A	For Information	16/10/2019	JFK
B	For Information - Door Hardware Selection	06/11/2019	LW
C	For Information - Wall Types	19/11/2019	LW
D	For Information - Corner Facade	3/12/2019	JFK
E	For EFSG Review	11/12/2019	AK
F	For Information	11/02/2020	JFK
1	For Construction	10/03/2020	JFK
2	For Construction	7/04/2020	AK
REV.	DESCRIPTION	DATE	INIT.

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Paul Sekava raia		NSW 7180	QLD 3108
Paul Trotter fraia		NSW 7177	QLD 2646
Ryan Loveday raia			QLD 4500

www.fultontrotter.com.au

PHASE: **DD & DOCUMENTATION**

CLIENT: NSW Department of Education

PROJECT: Wentworthville Public School

ADDRESS: 70-100 Fullagar Road
WENTWORTHVILLE, NSW

DRAWING: **BUILDING G - LEVEL 1 KEY PLAN**

Figured dimensions take precedence over scale dimensions. Contractors must verify all dimensions on site before commencing any work or making shop drawings.

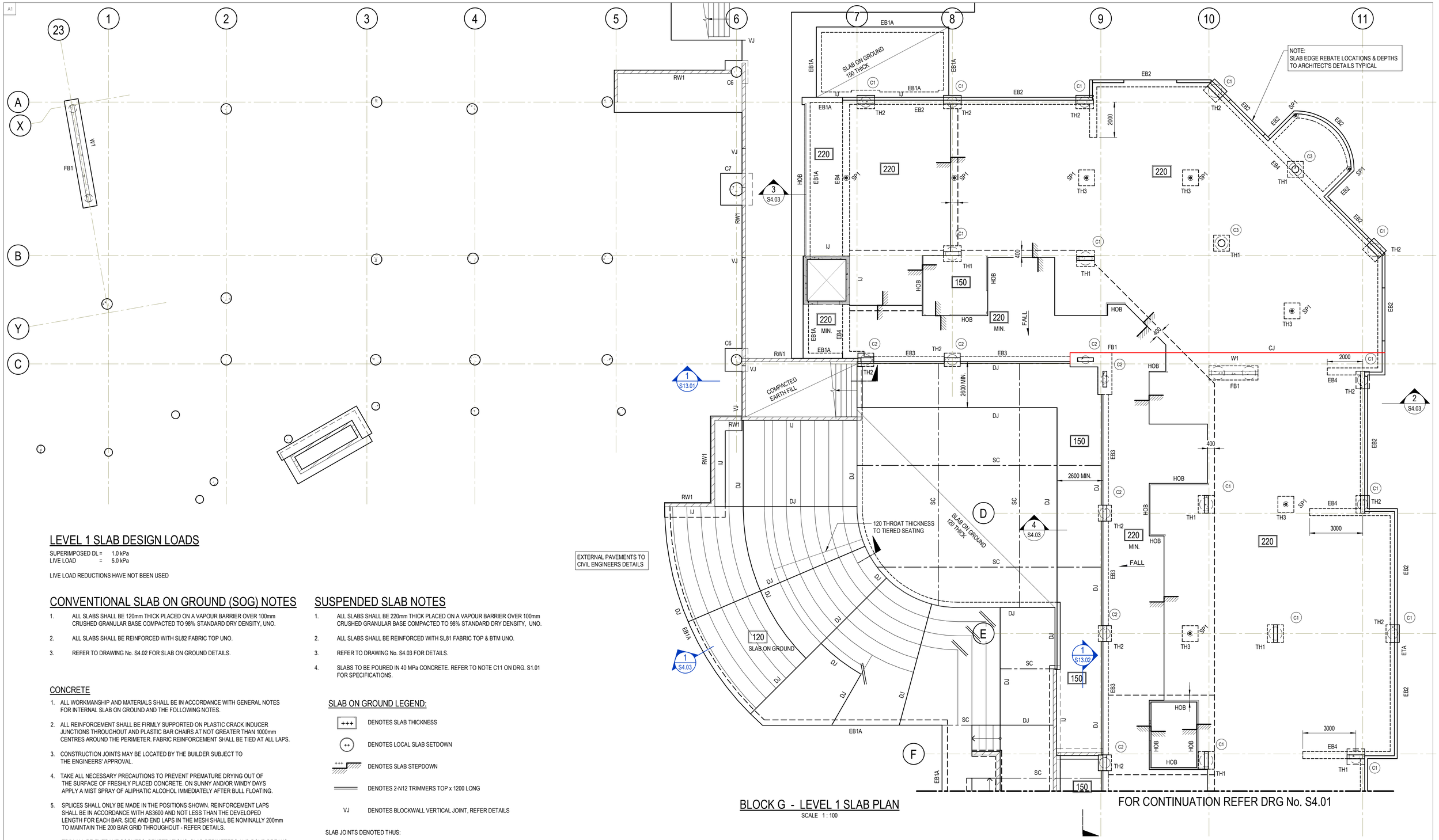
PROJECT NUMBER	DIRECTOR	CHECKED
7097WV01	JW	

DRAWING NUMBER	REVISION
AG-2001	2

1 PLAN
LEVEL 1 - KEY PLAN
SCALE: 1:200

150mm @ A1 | 100 | 50 | 0 | 50 | 100 | 150mm @ A1

plot date: Tuesday, 7 April 2020 file location: BIM Server: sydbimsyd 21 - BIM Server 21/7097 WVPS_BUILDING G



BLOCK G - LEVEL 1 SLAB PLAN

SCALE 1 : 100

LEVEL 1 SLAB DESIGN LOADS

SUPERIMPOSED DL = 1.0 kPa
LIVE LOAD = 5.0 kPa

LIVE LOAD REDUCTIONS HAVE NOT BEEN USED

CONVENTIONAL SLAB ON GROUND (SOG) NOTES

1. ALL SLABS SHALL BE 120mm THICK PLACED ON A VAPOUR BARRIER OVER 100mm CRUSHED GRANULAR BASE COMPACTED TO 98% STANDARD DRY DENSITY, UNO.
2. ALL SLABS SHALL BE REINFORCED WITH SL82 FABRIC TOP UNO.
3. REFER TO DRAWING No. S4.02 FOR SLAB ON GROUND DETAILS.

SUSPENDED SLAB NOTES

1. ALL SLABS SHALL BE 220mm THICK PLACED ON A VAPOUR BARRIER OVER 100mm CRUSHED GRANULAR BASE COMPACTED TO 98% STANDARD DRY DENSITY, UNO.
2. ALL SLABS SHALL BE REINFORCED WITH SL81 FABRIC TOP & BTM UNO.
3. REFER TO DRAWING No. S4.03 FOR DETAILS.
4. SLABS TO BE POURED IN 40 MPa CONCRETE. REFER TO NOTE C11 ON DRG. S1.01 FOR SPECIFICATIONS.

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH GENERAL NOTES FOR INTERNAL SLAB ON GROUND AND THE FOLLOWING NOTES.
2. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON PLASTIC CRACK INDUCER JUNCTIONS THROUGHOUT AND PLASTIC BAR CHAIRS AT NOT GREATER THAN 1000mm CENTRES AROUND THE PERIMETER. FABRIC REINFORCEMENT SHALL BE TIED AT ALL LAPS.
3. CONSTRUCTION JOINTS MAY BE LOCATED BY THE BUILDER SUBJECT TO THE ENGINEERS' APPROVAL.
4. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PREMATURE DRYING OUT OF THE SURFACE OF FRESHLY PLACED CONCRETE. ON SUNNY AND/OR WINDY DAYS APPLY A MIST SPRAY OF ALIPHATIC ALCOHOL IMMEDIATELY AFTER BULL FLOATING.
5. SPLICES SHALL ONLY BE MADE IN THE POSITIONS SHOWN. REINFORCEMENT LAPS SHALL BE IN ACCORDANCE WITH AS3600 AND NOT LESS THAN THE DEVELOPED LENGTH FOR EACH BAR. SIDE AND END LAPS IN THE MESH SHALL BE NOMINALLY 200mm TO MAINTAIN THE 200 BAR GRID THROUGHOUT - REFER DETAILS.

   TRIM ALL RE-ENTRANT CORNERS, PENETRATIONS, SLAB PERIMETERS AND POUR BREAKS WITH 2-N12 AS DETAILED.
6. TRIMMER BARS SHALL CONTINUE THROUGH POUR BREAKS SUFFICIENT TO PROVIDE A 400 LAP. FABRIC SHALL CONTINUE THROUGH POUR BREAKS SUFFICIENT TO PROVIDE A 200 LAP AS DETAILED.

SLAB ON GROUND LEGEND:

+++	DENOTES SLAB THICKNESS
++	DENOTES LOCAL SLAB SETDOWN
+++	DENOTES SLAB STEPDOWN
	DENOTES 2-N12 TRIMMERS TOP x 1200 LONG
VJ	DENOTES BLOCKWALL VERTICAL JOINT, REFER DETAILS

SLAB JOINTS DENOTED THUS:

TKJ	DENOTES TIED KEYED JOINT
DJ	DENOTED DOWELED JOINT
SC	DENOTES SAW CUT JOINT
TG	DENOTES TOOLED GROOVE
IJ	DENOTES ISOLATION JOINT

AS BUILT

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
H	AS BUILT	K.S.	P.K.	11-06-21
G	REVISED AS CLOUDED	K.S.	P.K.	09-10-20
F	BLOCK WALL ADDED	K.S.	P.R.	25-08-20
E	SUSPENDED SLABS ADDED	K.S.	P.R.	01-07-20
D	GENERALLY REVISED	S.K.	P.R.	18-06-20
C	PROFILE REVISED	S.K.	P.R.	31-01-20
B	NORTH EAST CORNER PROFILE REVISED, LIFT SIZE REVISED, COLUMNS & WALLS REVISED	S.K.	P.R.	09-12-19
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19

Client
NSW Department of Education
Architect
FULTON TROTTER ARCHITECTS

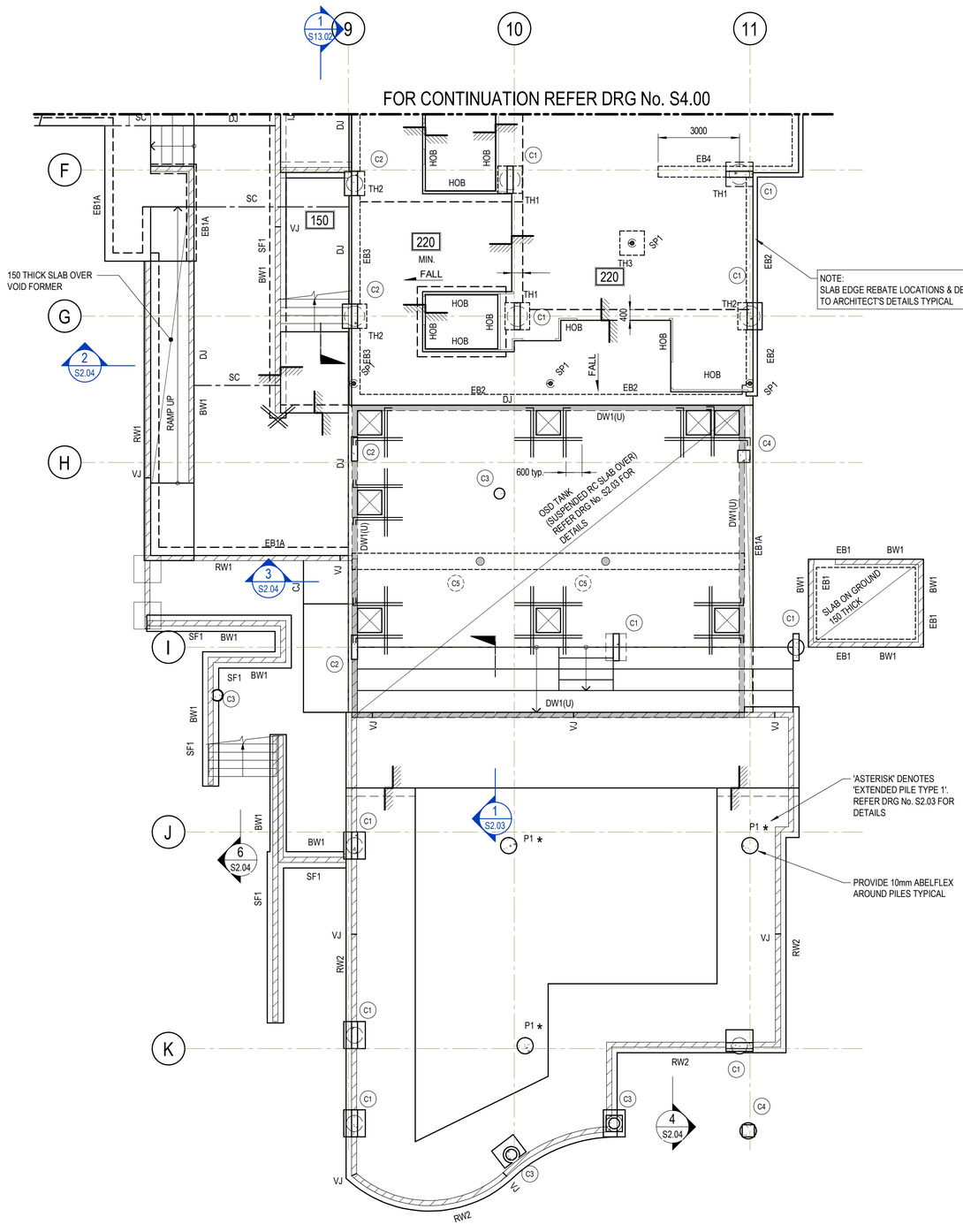
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henry&hymas

Project	WENTWORTHVILLE PUBLIC SCHOOL 70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW
Drawn	A.C.W.
Designed	P.R.
Date	09/25/18
Checked	P.R.
Approved	R.K.
Scale	As indicated
Title	BLOCK G - LEVEL 1 SLAB PLAN SHEET 1
Drawing number	17788-S4.00
Revision	H



BLOCK G - LEVEL 1 SLAB PLAN

SCALE 1 : 100

SLAB ON GROUND LEGEND:

+++	DENOTES SLAB THICKNESS
++	DENOTES LOCAL SLAB SETDOWN
+++	DENOTES SLAB STEPDOWN
	DENOTES 2-N12 TRIMMERS TOP x 1200 LONG
VJ	DENOTES BLOCKWALL VERTICAL JOINT, REFER DETAILS

SLAB JOINTS DENOTED THUS:

TKJ	DENOTES TIED KEYED JOINT
DJ	DENOTED DOWELED JOINT
SC	DENOTES SAW CUT JOINT
TG	DENOTES TOOLED GROOVE
IJ	DENOTES ISOLATION JOINT

AS BUILT

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
H	AS BUILT	K.S.	P.K.	11-06-21
G	BLOCK WALL ADDED	K.S.	P.R.	25-08-20
F	SUSPENDED SLABS ADDED	K.S.	P.R.	01-07-20
E	GENERALLY REVISED	S.K.	P.R.	18-06-20
D	PROFILE REVISED	S.K.	P.R.	31-01-20
C	NORTH EAST CORNER PROFILE REVISED, LIFT SIZE REVISED, COLUMNS & WALLS REVISED	S.K.	P.R.	09-12-19
B	OSD TANK WALL & RETAINING WALL LOCATION REVISED, SECTION ADDED	S.K.	P.R.	25-11-19
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19

Client: NSW Department of Education

Architect: FULTON TROTTER ARCHITECTS

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henry&hymas

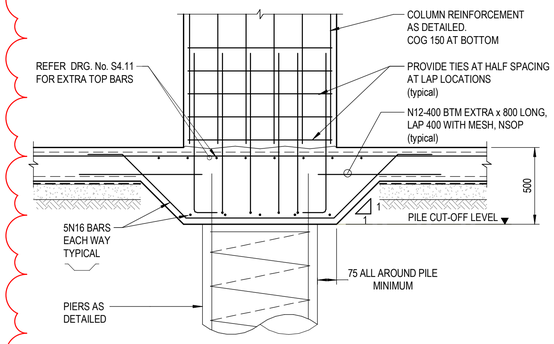
Project: WENTWORTHVILLE PUBLIC SCHOOL
70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW

Title: BLOCK G - LEVEL 1 SLAB PLAN SHEET 2

Drawn	Designed	Date
A.C.W.	P.R.	09/25/18
Checked	**Aproved**	**Scale**
P.R.	R.K.	As indicated

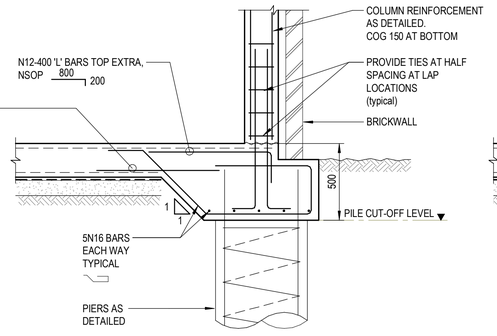
Drawing number: 17788-S4.01

Revision: H



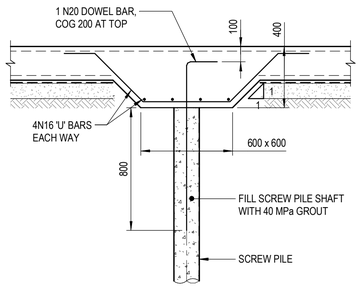
TYPICAL SLAB THICKENING 'TH1' DETAIL

SCALE 1 : 20



TYPICAL SLAB THICKENING 'TH2' DETAIL

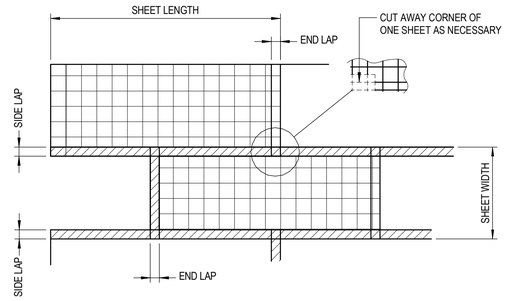
SCALE 1 : 20



TYPICAL SLAB THICKENING 'TH3' DETAIL

SCALE 1 : 20

C

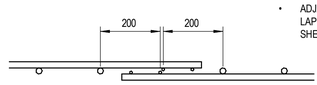


PLAN - FABRIC SHEET LAP DETAIL



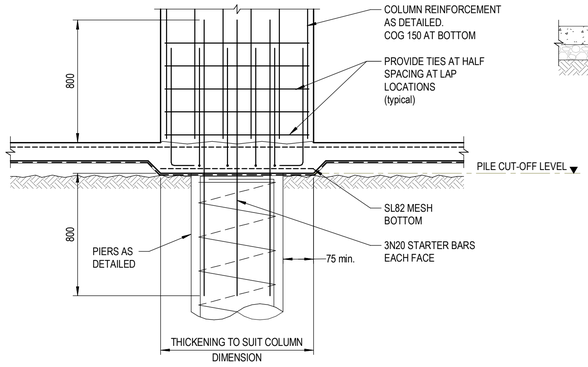
END LAP

- FABRIC END AND SIDE LAP 200mm NORMAL
- ADJACENT FABRIC RUNS TO BE SIDE LAP NESTED AND PLACED HALF SHEET LAP IN STRETCHER PATTERN



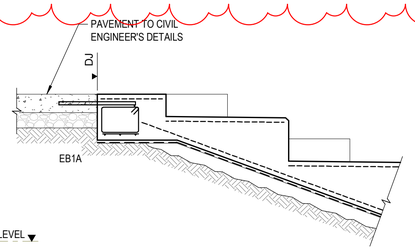
SIDE LAP

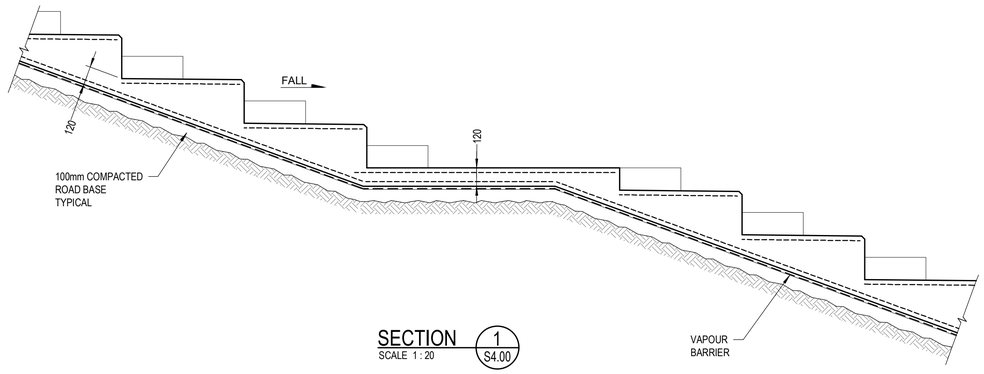
FABRIC LAP DETAIL



TYPICAL PILE / COLUMN TRANSITION DETAIL INSIDE OSD TANK

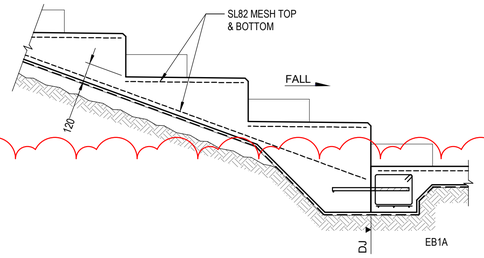
SCALE 1 : 20



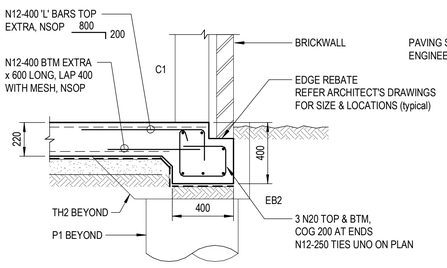


SECTION 1 S4.00

SCALE 1 : 20

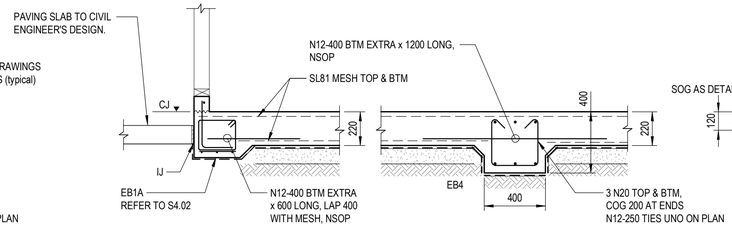


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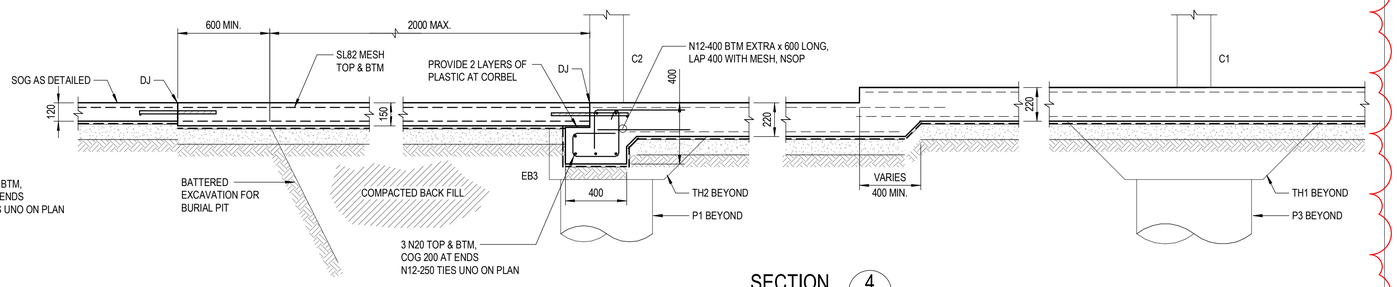
SECTION 2 S4.00

SCALE 1 : 20



SECTION 3 S4.00

SCALE 1 : 20



SECTION 4 S4.00

SCALE 1 : 20

FOR CONSTRUCTION

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
C	SUSPENDED SLAB DETAILS ADDED	K.S.	P.R.	01-07-20
B	DETAILS ADDED	S.K.	P.R.	18-06-20
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19
2	PRELIMINARY ISSUE	A.G.	P.R.	21-05-19
1	PRELIMINARY ISSUE - FOR CO-ORDINATION	A.W.	P.R.	09-10-18

Client
NSW Department of Education

Architect
FULTON TROTTER ARCHITECTS

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henry&hymas

Project
WENTWORTHVILLE PUBLIC SCHOOL
70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW

Title
SLAB ON GROUND DETAILS - SHEET 2

Drawn	Designed	Date
A.C.W.	P.R.	10/09/18
Checked	**Approved**	**Scale**
P.R.	R.K.	1 : 20

Drawing number
17788-S4.03

Revision
C

Burial Pit Looking South 25/08/2020



31.811
-0.019
31.812
-0.018
31.814
-0.016
31.811
-0.019
31.827
-0.003
31.814
-0.016
31.813
-0.017
31.831
0.001
31.837
0.007
31.811
-0.019
31.811
-0.019
31.824
-0.006
31.822
-0.008
31.818
-0.012
31.810
-0.020
31.822
-0.008
31.817
-0.013
31.812
-0.018
31.830
0.000
31.843
0.013
31.824
-0.006
31.829
-0.001
31.832
0.002
31.829
-0.001
31.818
-0.012

EDGE OF FILL ZONE

SURVEYED HEIGHT
HEIGHT DIFFERENCE TO DESIGN TOP OF FILL ZONE RL 31.83

STORM WATER TRENCH

PRINT SCALE: 1:200 @ A3

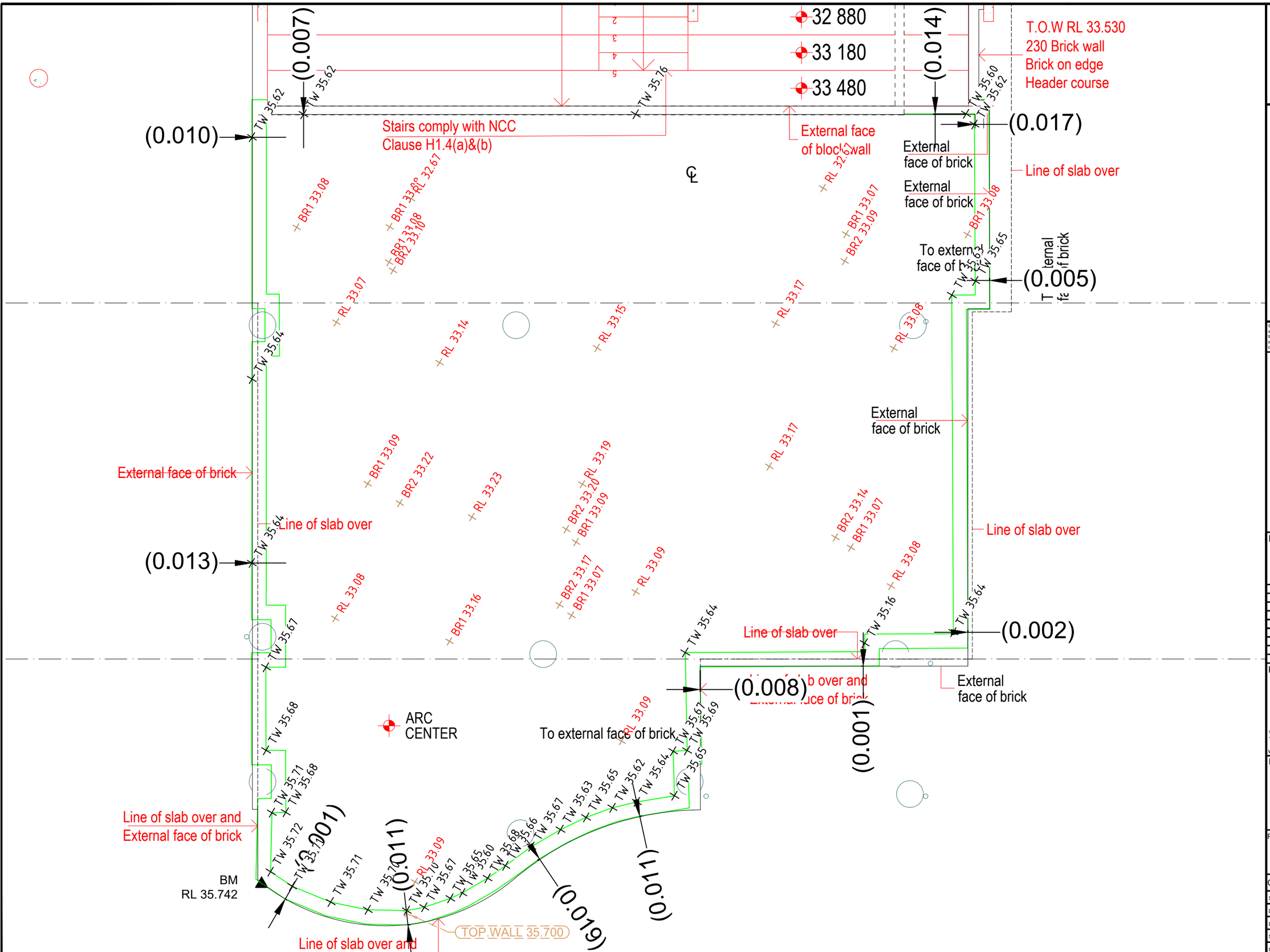
0 4 8 12 16 20 40

GRH Hawkes & Associates Pty Limited
E-Mail: grh@grh.com.au | Mob: 0419 249 667
Web: www.grh.com.au

Title:

Burial Pit
Top Of Fill Zone / Underside of Capping Layer
Works as Executed
Building G
Wentworthville Public School

Surveyed By:	Job No:	Surveyed For:
PE	1830	walan CONSTRUCTION SERVICES
Contour Interval: 0.10	Rev: A	
Projection: MGA	Datum: AHD	
Date: 25/08/2020		



APPROX NORTH

LEGEND:

- SETOUT POINT PLACED
- GRID LINE PLACED
- OFFSET DIMENSION
- GRID LINES
- BOUNDARY
- DESIGN LINEWORK

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NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.
2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.
3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS PLAN.
4. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO MAINTAIN THE INTEGRITY OF MARKS TO BE USED BY CONTRACTORS PRIOR TO USE.
5. THIS SURVEY IS FOR SETOUT PURPOSES ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
6. PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDERS REQUEST. FOR CLARITY OF THE OFFSET MARKS SHOWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED

PLANS USED FOR SETOUT:

L1_Slab AG-2403 Rev 3

REV.	DATE	AMENDMENTS
01	03/06/2021	HEIGHTS ADDED

PREPARED BY:

geosurv
consulting surveyors, planners & engineers
GEOSURV PTY LTD
ABN 99 121 987 004
PO Box R1670
ROYAL EXCHANGE NSW 1225
tel: 1300 554 675
fax: 1300 859 564
www.geosurv.com.au
e-mail: info@geosurv.com.au

PREPARED FOR:

GRINDLEY

PLAN:

RET WALL AB
LEVEL 1 SOUTH
WENTWORTHVILLE SCHOOL
WENTWORTHVILLE

ORIGINAL SIZE:	A1
SCALE:	CO-ORD:
DATUM: AHD	ORIG DATUM: NA
DATE OF SURVEY: 2020-08-17	DATE OF PLAN: 2021-06-03
SURVEY BY: JONATHAN C.	DRAWN BY: JONATHAN C.
CHECKED BY: JONATHAN C.	DATE: 2020-08-17
APPROVED BY: KD	DATE: 2021-06-03
PLAN REF:	SHEET: 1 OF 1 SHEETS

Z:\03. SURVEYING NETWORK\02. NSW SURVEY\03. PROJECTS\2019\NP190965 - WENTWORTHVILLE PUBLIC SCHOOL (GRINDLEY)\09. SITE VISITS\2020-08-17 JC (PLANTER BOX + WALL VOLUMES)\RET WALL AS BUILT R01.DWG

E2 STAGE 2

SKETCH

FOR INFORMATION ONLY

TPZ

Village Green

+40.51 +40.45 +40.43 +40.43 +40.28 +40.07 +39.92 +39.62 +39.72

+40.47 +40.24 +40.05 +39.86 +39.66

+40.76 +40.62 +40.36 +40.25 +40.06 +39.86

+40.72 +40.56 +40.33 +40.29 +39.99

MIXED PLANTING CONSISTING OF:
6 GRE FIR
18 CAR GLA
23 LOM FIL
23 HAR VIO

MIXED NATIVE PLANTING CONSISTING OF:
6 GRE FIR
18 CAR GLA
23 LOM FIL
23 HAR VIO

LANDSCAPE CONTRACTOR TO REPLACE TURF AND MAKE GOOD EXISTING AREAS OF TURF DISTURBED AS A RESULT OF THE PROPOSED CONSTRUCTION WORKS

LANDSCAPE CONTRACTOR TO REPLACE TURF AND MAKE GOOD EXISTING AREAS OF TURF DISTURBED AS A RESULT OF THE PROPOSED CONSTRUCTION WORKS

EXISTING TREE TO BE RETAINED AND PROTECTED FOR DURATION OF CONSTRUCTION WORKS IN ACCORDANCE WITH THE ARBORIST'S REPORT.

EXISTING TREES TO BE RETAINED IN ACCORDANCE WITH ARBORIST REPORT AND APPROVED DOCUMENTATION. REFER TO ARBORIST'S REPORT FOR TREE PROTECTION MEASURES INCLUDING SITE FENCING

ANTING MATRIX A
FER TO LA-400

MIXED PLANTING CONSISTING OF:
5 CAL MAC
15 CAR GLA
20 LOM FIL
20 THE AUS

PROPOSED DDA-COMPLIANT ACCES
RAMP SYSTEM TO ENGINEER'S DET

MIXED PLANTING CONSISTING OF:
5 WES BLU
15 MYO PAR
20 DIA LON
20 HAR VIO

Outdoor Learning Area
AR0067
109.5m²

EXISTING STEPS TO BE RETAINED

Movement
AR0019
7.7m²

Movement
AR0022
39.4m²

EDB
AR00008
1.9m²

Movement
AR0066
3.7m²

EXISTING BLEACHER AMPHITHEATRE CONCRETE STEPS

EXISTING FENCE LINE

CONDENSERS
2100 X 7200

Proposed Temp.
OOSH Office
12m²

51.7

Home B
AR0
59

Pres

Plot Date: 2 September 2021 - 10:02 AM
Cad File No: 190965 Checks.dwg

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SETOUT SKETCH

BLD A GROUND
WENTWORTHVILLE
PUBLIC SCHOOL

LEGEND:

- BENCHMARK
- NAIL PLACED
- TEXTA MARK PLACED
- PEG / STAKE PLACED
- SETOUT POINT PLACED
- GRID LINE PLACED
- 6.985 OFFSET DIMENSION
- GRID LINES
- BOUNDARY
- DESIGN LINEWORK

PREPARED FOR:

GRINDLEY

PLANS USED FOR SETOUT:

AH-2402
PLAN 2

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS SKETCH PLAN.

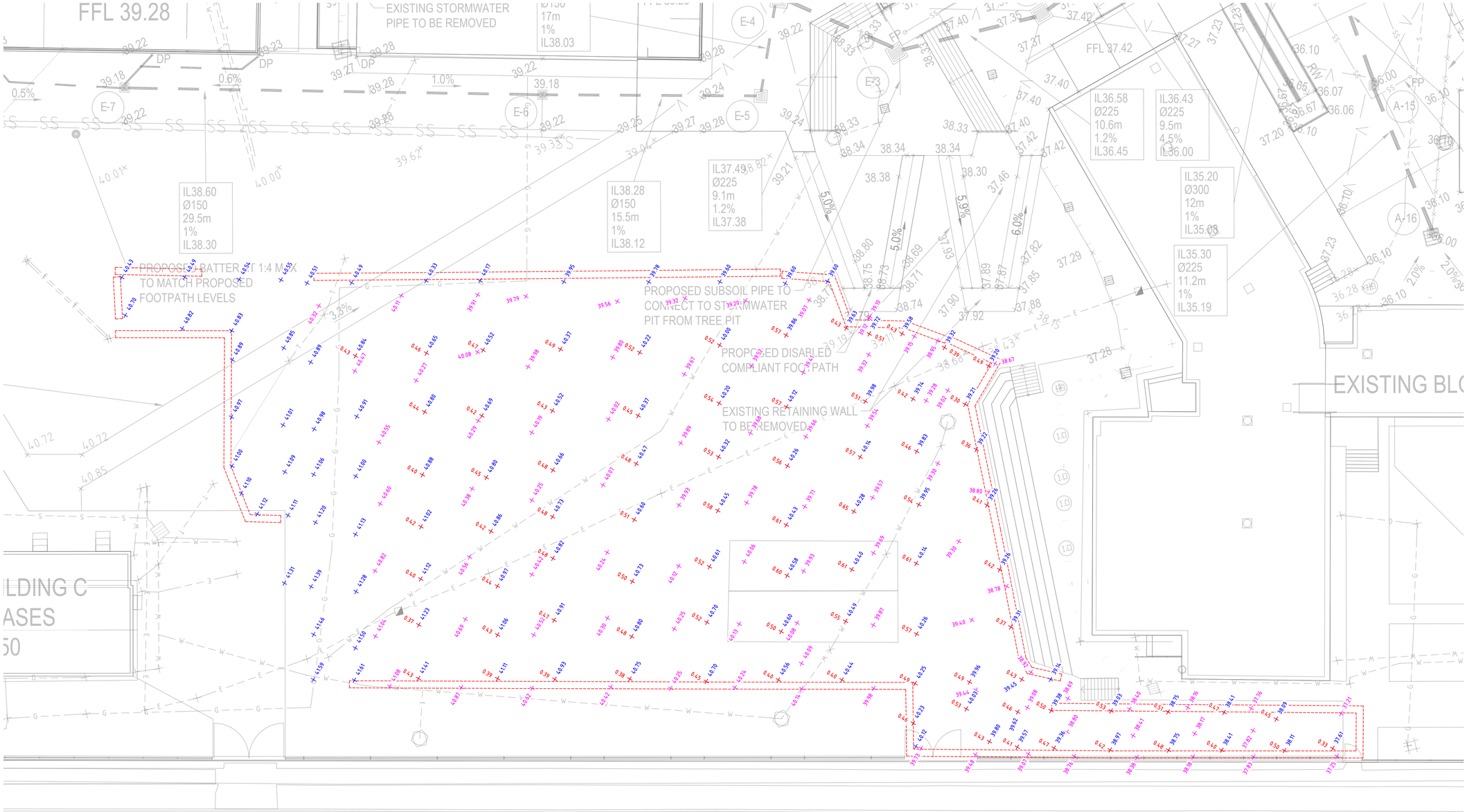
4. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO MAINTAIN THE INTEGRITY OF MARKS TO BE USED BY CONTRACTORS PRIOR TO USE.

5. THIS SURVEY IS FOR SETOUT PURPOSES ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE

6. THIS SKETCH PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDERS REQUEST. FOR CLARITY OF THE OFFSET MARKS SHOWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED

ORIGINAL SIZE:	A3
SCALE: 5.125910	CO-ORD: MGA
DATUM: AHD	ORIG DATUM: AHD
SURVEY BY: BM	DATE OF SURVEY: 02/09/21
DRAWN BY: BM	DATE OF PLAN: 02/09/21
CHECKED BY: BM	DATE: 02/09/21
SKETCH REF: XXXXXX-XX-XX	SHEET: 1 of 1

C:\USERS\GEOSURV\DESKTOP\TO BE DONE IN FIELD\190965 - WENTWORTHVILLE\2021-09-02 BM (BLD E SLAB+STEPDOWNS+SUBGRADE AS-BUILT+BLD H STAIRS)\190965 CHECKS.DWG



NORTH[APPROX]

LEGEND

× #.###	SURVEYED SPOT HEIGHT "TOP SOIL" [D.O.S. 20.01.22]
× #.###	SURVEYED SPOT HEIGHT "SUBGRADE" [D.O.S. 13 & 14.07.21]
× #.###	SURVEYED SPOT HEIGHT "BITUMEN" [D.O.S. 21.12.21]
× #.###	CALCULATED COVER DISTANCE FROM TOPSOIL TO SUBGRADE
– – – –	ASBUILT SANDSTONE BLOCK WALL
———	DESIGN INFORMATION FROM REFERENCED PLAN
D.O.S.	DATE OF SURVEY

NOTES:

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PLANS REFERENCED:

1900965 - 17788_CC_C101-C102

REV.	DATE	AMENDMENTS	INT.
A	20.01.22	ISSUED FOR INFORMATION	GPAP

PREPARED BY:

geosurv. with you from beginning to end

locating surveying 3Dscanning access

www.geosurv.com.au 1300 554 675

PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

ASBUILT PLAY AREA
COVER FROM TOPSOIL TO SUBGRADE
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH,NSW

ORIGINAL SIZE: A1

SCALE:	1:150	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	VAR	DATE:	VARIOUS [SEE LEGEND]
DRAWN BY:	GPAP	DATE:	20.01.22
CHECKED BY:	CB	DATE:	20.01.22
APPROVED BY:	AA	DATE:	20.01.22
DRAWING #:	190965-AB-PA-04	REV:	A

Plot Date: 20 January 2022 - 11:00 AM Cad File No: 190965-AB-PA-04[A].dwg



M.G.A

COORDINATES TABLE

NAME	EASTING	NORTHING
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2	312009.49	6256620.89
3	312006.54	6256607.42
4	311979.59	6256613.83
5	311960.41	6256604.02
6	312007.74	6256592.46
7	312019.30	6256582.35
8	312017.15	6256580.44
9	312016.36	6256561.40
10	312018.42	6256560.17
11	312017.99	6256558.39
12	312036.97	6256553.33
13	312036.23	6256549.78
14	312006.44	6256557.52
15	312007.57	6256561.94
16	311966.38	6256572.37
17	311967.85	6256579.03
18	311965.94	6256579.54
19	311967.34	6256584.38
20	311965.50	6256584.94
21	311964.70	6256586.85
22	311964.59	6256589.00
23	311966.85	6256597.88
24	311959.40	6256599.80
25	312027.15	6256600.01
26	312040.76	6256603.84
27	312045.83	6256585.78
28	312053.54	6256584.15
29	312055.85	6256593.47
30	312069.83	6256589.88
31	312060.32	6256552.57
32	312050.35	6256555.85
33	312054.01	6256570.01
34	312031.11	6256576.19
35	312032.57	6256580.88

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: JANUARY 2022

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 2 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116

PO Box 1144
Dundas
NSW 2117

t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **OE/GR** Date Surveyed: **10/20&5/21&01/22**
Drawn: **CLP/GR** Checked: **GR**

Dwg. No.

SY074981.000.7.4

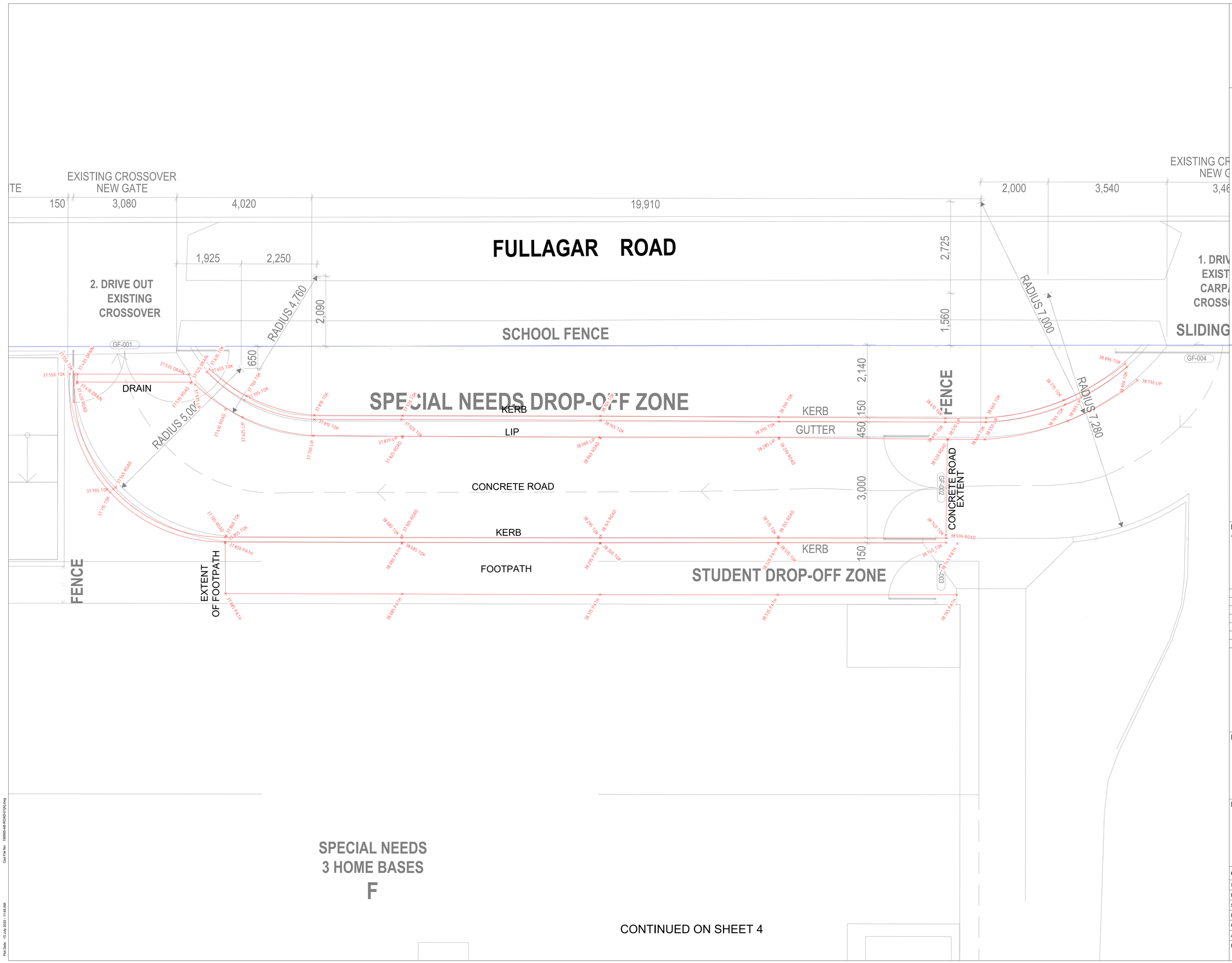
DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

©LandPartners Pty Ltd 2021

E3 STAGE 3



NORTH (APPROX)

LEGEND

	GRID LINES
× 0.010 XXX	AS-BUILT POINT & DESCRIPTION
	DESIGN
TOK	TOP OF KERB
PATH	PATH LEVEL
ROAD	CONCRETE ROAD LEVEL

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS PLAN.

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5. THIS SURVEY IS FOR SETOUT PURPOSES ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE

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PLANS USED:
--

REV.	DATE	AMENDMENTS	INT.
A	15.07.22	Issue for Client	GPAP
PRE	15.07.22	Preliminary Issue	GPAP

PREPARED FOR:

Grindley CONSTRUCTION

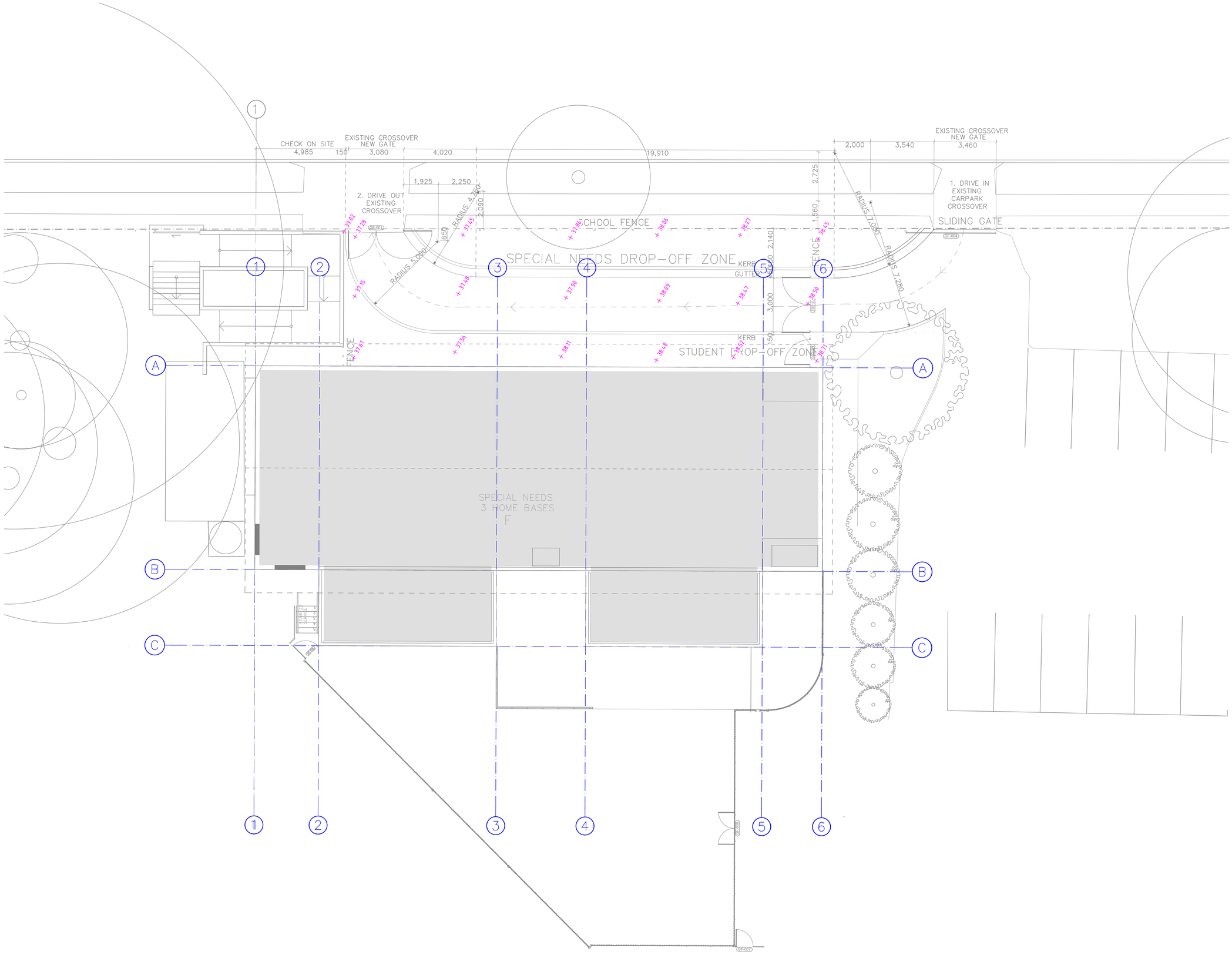
PLAN OF:

ROAD DETAIL
GROUND FLOOR
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH, NSW

ORIGINAL SIZE:	A1		
SCALE:	1:50	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	CB	DATE:	14.07.22
DRAWN BY:	GPAP	DATE:	15.07.22
CHECKED BY:	CB	DATE:	15.07.22
APPROVED BY:	AA	DATE:	15.07.22

DRAWING #: 190965-AB-ROAD-01[A]

Cad File No: 190965-AB-ROAD-01[A].dwg
Plot Date: 15 July 2022 - 11:48 AM



NORTH[APPROX]

LEGEND

———	GRID LINES
———	DESIGN FEATURES
× 40.00	AS-BUILT GEOFAB LAYER [D.O.S. 01.04.22]
D.O.S.	DATE OF SURVEY

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

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PLANS REFERENCED:

AF-2601

REV.	DATE	AMENDMENTS	INT.
A	04.04.22	ISSUED FOR INFORMATION	BTP

PREPARED BY:

geosurv. with you from beginning to end

locating surveying 3Dscanning access

www.geosurv.com.au 1300 554 675

PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

ASBUILT GEOFAB LAYER
BUILDING F - EXTERNAL WORKS
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH,NSW

ORIGINAL SIZE: A1

SCALE:	1:150	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	BM	DATE:	01.04.22
DRAWN BY:	BTP	DATE:	04.04.22
CHECKED BY:	BM	DATE:	04.04.22
APPROVED BY:	AA	DATE:	04.04.22

DRAWING #: 190965-AB-GEOFAB(BLD F-EW)01 [A]

Plot Date: 4 April 2022 - 11:49 AM Cad File No: 190965-AB-GEOFAB(BLD F-EW)01 [A].dwg

M.G.A



COORDINATES TABLE

NAME	EASTING	NORTHING
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5	311965.89	6256647.21
6	311962.05	6256634.01
7	311949.11	6256637.31
8	311947.76	6256636.58
9	311933.50	6256641.14
10	311927.07	6256651.37
11	311928.00	6256654.50
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19	311966.89	6256598.01
20	311964.61	6256588.99
21	311964.70	6256587.07
22	311965.46	6256585.12
23	311954.23	6256587.55

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: JANUARY 2022

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 3 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
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Surveyed: **RJ** Date Surveyed: **17/06/2022**
Drawn: **GR** Checked: **GR**

Dwg. No.
SY074981.000-STG3

---------- DENOTES EXTENT OF REMEDIATION WORKS

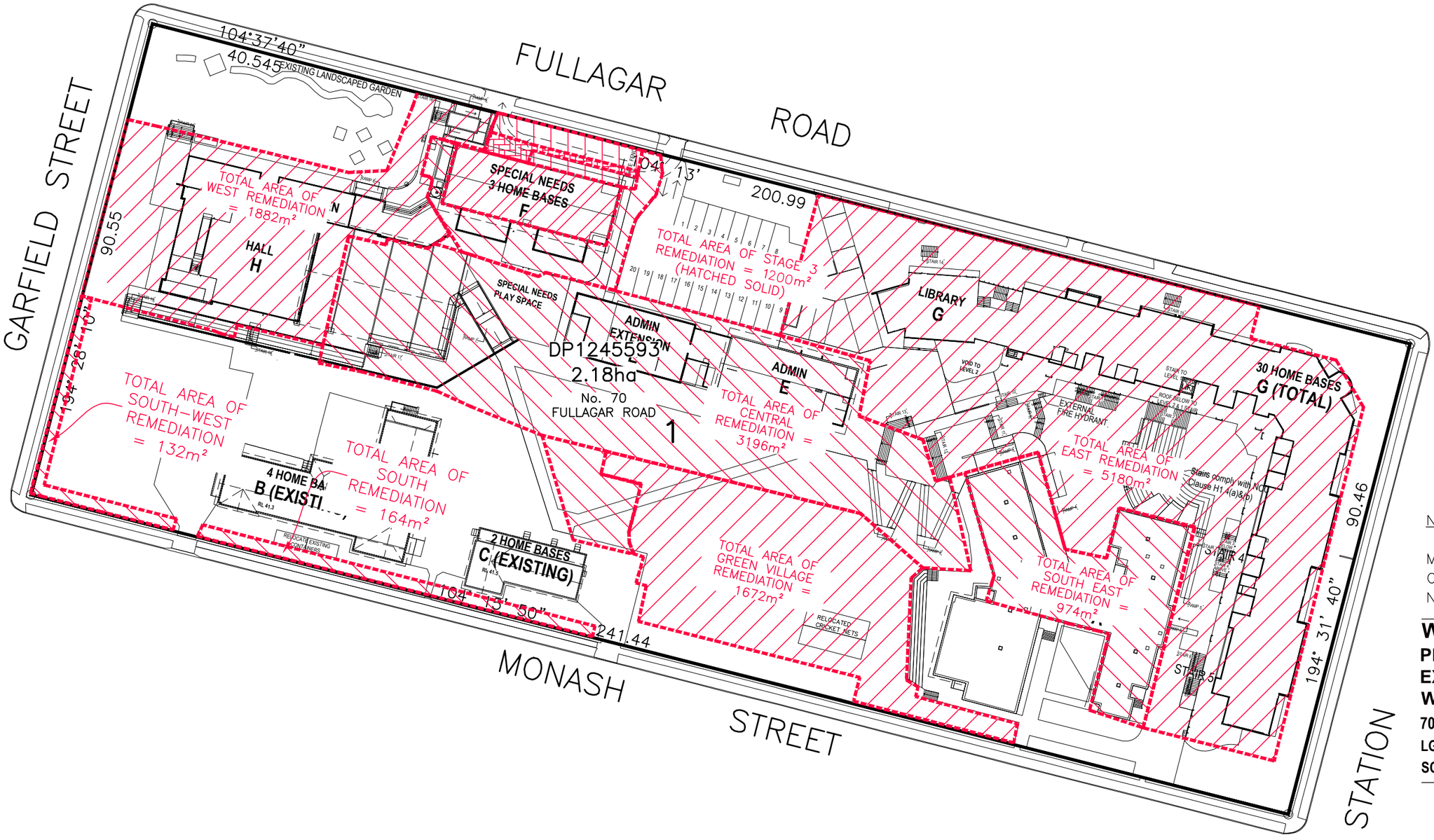
6 0 10 20 30 40m

SCALE 1:800

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E4 OVERALL REMEDIATION AREA

M.G.A



DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: MAY 2021

WSP AUSTRALIA PTY LTD

PLAN SHOWING OVERALL EXTENT OF REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

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e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **OE/GR/RJ** Date Surveyed: **10/20-06/22**
Drawn: **GR** Checked: **GR**

Dwg. No.

SY074981.000.7.5

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for a better
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GRINDLEY CONSTRUCTION PTY LTD

LONG-TERM ENVIRONMENTAL MANAGEMENT PLAN

STAGE 1, STAGE 2 AND STAGE 3 VALIDATION AREAS, WENTWORTHVILLE PUBLIC SCHOOL

AUGUST 2022

Question today
Imagine tomorrow
Create for the future

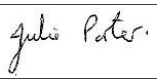
Long-Term Environmental Management Plan
Stage 1, Stage 2 and Stage 3 Validation Areas, Wentworthville Public School

Grindley Construction Pty LTD

WSP
Level 27, 680 George Street
Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
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REV	DATE	DETAILS
A	21/07/2022	Draft for auditor comment
B	9/08/2022	Updated draft addressing Auditor comments
C	17/08/2022	Final

	NAME	DATE	SIGNATURE
Prepared by:	James Green / Matt Vanderheyden	17/08/2022	
Reviewed by:	Julie Porter	17/08/2022	
Endorsed/ Approved by:	Amy Valentine CEnvP-SC No. SC40939	17/08/2022	

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ABBREVIATIONS

ACM	Asbestos-containing materials
ASAP	Asbestos situation action plan
ESA	Environmental site assessment
LTEMP	Long-term environmental management plan
IEMP	Interim environmental management plan
mAHD	Metres Australian Height Datum
mBGL	Metres below ground level
NEPM	*National Environment Protection (Assessment of Site Contamination) Measure 1999*
NSW EPA	New South Wales Environment Protection Authority
POEO Act	*Protection of the Environment Operations Act 1997*
SWMS	Safe work method statement
UFP	Unexpected finds protocol
WHS	Work Health and Safety

1 INTRODUCTION

1.1 OVERVIEW AND PURPOSE

WSP Australia Pty Ltd (WSP) was commissioned by Grindley Construction Pty Ltd to prepare a long-term environmental management plan (LTEMP) for Wentworthville Public School, located at 70-100 Fullagar Road, Wentworthville NSW (the site). Refer to Figure 1, Appendix A for the school location. The site comprises three validation areas, referred to as Stage 1, Stage 2 and Stage 3, which are all within the school boundary and have been completed in a staged approach. The three stages of remediation are illustrated on Figure 2, Appendix A.

This LTEMP is required, following completion of all three stages of the redevelopment works, to manage residual risks. Two separate interim environmental management plans (IEMPs) have previously been prepared for Stage 1 and Stage 2, upon completion of each stage and this final LTEMP supersedes these documents.

All three stages (Stage 1, Stage 2 and Stage 3) have now been completed as part of the remediation/redevelopment works. At the completion of each stage, a survey of the remediation extent had been completed by WSP. Survey data, showing the remediation extent across the full site, has been provided in Appendix E4.

The specific areas this LTEMP relates to includes the following:

- Stage 1: Burial pit 1 (815 m^2) and burial pit 2 (void) (255 m^2) - Both within the footprint of the new 'Block G' building;
- Stage 2: Green village soil capping area (1,672 m^2);
- Stage 2: Block A (974 m^2) and Block E (394 m^2) existing building footprint concrete cap;
- Stage 3: 'kiss and drop' asphalt/concrete capping area (54 m^2);
- Stage 3: Block F (356 m^2) existing building footprint concrete cap; and
- Stage 3: Temporary demountable area (230 m^2) existing asphalt cap.

The above-mentioned areas are illustrated in Figure 3, Appendix A.

Asbestos contaminated soils were previously identified at the site and have subsequently been remediated through either off-site disposal, construction of on-site burial pits and capping via pavement hardstand, or construction of soil capping layers over asbestos contaminated soils. Four locations (Block A, Block E, Block F and the temporary demountable area) are to remain undisturbed, and in-situ materials in these areas have been suspected to contain asbestos and are included in this LTEMP.

This LTEMP provides the management requirements to ensure the longevity of the cap and containment solution and to ensure any works that penetrate the cap are appropriately controlled.

1.2 OBJECTIVES

The objectives of this LTEMP are to:

- define appropriate management and mitigation measures to be implemented to manage potential environmental and health and safety risks associated with contaminated soil within capped areas;
- ensure activities associated with any future site works are managed in a way that minimises the potential impact to the surrounding environment; and
- ensure all personnel involved are aware of potential risks associated with the capped contaminated soil.

The objectives are to be achieved through the application of administrative and inspection protocols, health and safety procedures as well as the application of controls during the maintenance of utilities, site planning/preparation work and potential future excavation works at the site.

1.3 LTEMP CONTEXT AND TIMING

The purpose of this LTEMP is to manage asbestos contaminated soil remaining on-site, which has been remediated by burial within constructed burial pits, contained void spaces, soil capping layers and existing building/asphalt footprints. As no active risks are presented to routine site users (e.g. students and school staff), this LTEMP is considered 'passive'.

This LTEMP will apply with immediate effect upon provision of an occupancy certificate (OC) for the site by the independent verifier (IV) as required by the development consent. This LTEMP shall apply indefinitely or until such a time that a site audit statement can be prepared by a NSW Environment Protection Authority (EPA) accredited site auditor stating that an environmental management plan (EMP) is not required for the site.

With regard to the context of this LTEMP, this report supersedes the two previous IEMP reports prepared to manage residual contamination within Stage 1 and Stage 2 of the school redevelopment, prior to completion of all three stages. The IEMPs have been finalised into this LTEMP, which incorporates all three stages, in accordance with the development consent.

WSP notes that NSW Department of Education (DoE) c/o Public Works Advisory commissioned the *Wentworthville Public School – Asbestos in Grounds Management Plan, March 2020* (DoE EMP), which is currently active for the school. The DoE EMP is a site-specific asbestos management plan (SSAMP), which establishes management or remediation responses should asbestos be identified within school grounds. This LTEMP is a stand-alone document which manages residual contamination following the completion of remediation works.

The residual asbestos contamination described in this LTEMP must be added to the existing asbestos register for the school.

1.4 CONSENT REQUIREMENTS

Under Section D28 of Development Consent – SSD9273 (Consent), a LTEMP is required to be prepared within one month of completion of remediation works. Figure 1.1 shows the modified LTEMP consent requirements issued on 28 October 2020.

Figure 1.1 Modified LTEMP consent requirements

(a) be prepared by a suitably qualified and experienced person whose appointment has been endorsed by the Planning Secretary in consultation with EPA;

(b) be submitted to **the Site Auditor for review and endorsement and submitted to** EPA, **Council and** ~~**for review prior to submission to the**~~ Planning Secretary **for information**; and

(c) include, but not be limited to:

- (i) a description of the nature and location of any contamination remaining on site;
- (ii) provisions to manage and monitor any remaining contamination, including details of any restrictions placed on the land to prevent development over the containment cell;
- (iii) triggers that would indicate if further remediation is required; and
- (iv) details of any contingency measures that the Applicant is to carry out to address any ongoing contamination.

(d) include any ongoing measures set out in the Asbestos Management Plan approved under condition B5.

With regards to item (a), the LTEMP is prepared by the project environmental consultant (WSP), and will be subject to review by a NSW EPA accredited site auditor. The NSW EPA has been consulted with regard to the appointment of WSP (email from Bonic Rajkumari, Mace dated 19 April 2022). The EPA made no objection in relation to the

appointment of WSP. As per the NSW EPA recommendation (letter reference DOC221/134987-3, dated 27 April 2022), the site LTEMP will be reviewed by a Certified Environmental Practitioner (CEnvP) employed by WSP (Amy Valentine, CEnvP-SC No: 40939).

With regards to:

- item (ci), refer to Section 2.3;
- item (cii), refer to Section 4. No land restrictions are proposed in this LTEMP;
- item (ciii), refer to Section 7, unexpected finds protocol, for triggers for further remediation;
- item (civ), as this LTEMP is 'passive' (i.e. requires no active management other than inspections), contingency management relates to scenarios where planned breaches of the cap are unavoidable. In these circumstances, contingency protocols and controls are provided in Section 4 for how to protect human health and the environment from exposure to contaminated soils; and
- item (d), no ongoing measures required.

1.5 RELEVANT REGULATIONS AND GUIDELINES

Key legislation relevant to the proposed works is listed below:

- *Environmental Planning and Assessment Act 1979* (NSW; EP&A Act).
- *Environmental Planning and Assessment Regulation 2021*.
- *Protection of the Environment Operations Act 1997* (NSW; POEO Act) and *Protection of the Environment Operations Regulation 1997* (NSW; POEO Regulation).
- *Contaminated Land Management Act 1997* (NSW).
- NSW EPA 2022; *Practice Note, Preparing Environmental Management Plans*.
- *Waste Avoidance and Resource Recovery Act 2001* (NSW).
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM, as amended 2013).
- *Work Health and Safety Act 2011* (NSW).
- *Work Health and Safety Regulation 2017* (NSW).
- SafeWork NSW 2019, *Code of Practice - How to Manage Work Health and Safety Risks*.
- SafeWork NSW 2019, *Code of Practice - How to Manage and Control Asbestos in the Workplace*.
- SafeWork NSW 2019, *Code of Practice - How to Safely Remove Asbestos*.
- SafeWork NSW 2019, *Code of Practice - Construction Work*.
- SafeWork NSW 2020, *Code of Practice - Excavation Work*.

1.6 ENFORCEMENT

In order for the LTEMP to be effective, it must be practical and enforceable, for this LTEMP the regulatory instrument for enforcement will be NSW EP&A Act. Under the Development Consent (SSD9273), enforcement of the LTEMP is provided though Section D28 which enables the commencement of the LTEMP, and Section E17 which requires the LTEMP implementation on-going post-occupation.

1.7 PUBLIC NOTIFICATION OF THIS LTEMP

Remediation of the site has been undertaken under the Consent and, as required by the Consent, the site is subject to a site audit. When a site audit statement states that the site is suitable for a particular use if managed in accordance with an EMP, the plan must be attached to the site audit statement and included in the site audit report. The Planning Secretary and Cumberland Council (Council) are to be provided a copy of the site audit statement. Council must provide a notification of the existence of the audit on the section 10.7 planning certificate/s for the site in accordance with the *Environmental Planning and Assessment Regulation 2021*. Additionally, the residual asbestos contamination described in this LTEMP must be added to the existing asbestos register for the school, which is publicly available via NSW DoE schools asbestos register online portal.

2 SITE DESCRIPTION

2.1 SITE IDENTIFICATION

The general property identification information is provided in Table 2.1 below.

Table 2.1 Site details

Site address	The address of Wentworthville Public School, which contains the site, is 70-100 Fullagar Road, Wentworthville NSW.
Site identification	The site comprises part Lot 1 in Deposited Plan 1245593
Site owner	NSW DoE
Study area	Approximately 14,430 m^2
Local government area (LGA)	Cumberland Council (formerly Holroyd Council)
Zoning	R2 – low density residential land use under the *Cumberland Council Local Environment Plan 2021* (LEP) zoning maps (March 2021).
Current site use	Primary school
Current site condition	The site has been remediated and construction works for the library and 30 home bases are well progressed.
Surrounding land uses	Other surrounding land uses include the following: — To the north – Fullagar Road, residential properties and Wentworthville train station beyond — To the east – Station Street, residential properties and Parramatta beyond — To the south – Monash Street, the Western Motorway and residential properties beyond — To the west – Garfield Street, Cumberland Highway with Ringrose Park and residential properties beyond.

2.2 SITE HISTORY SUMMARY

Historical records indicate that the properties currently identified as the site are registered under the Minister of Education (previously identified as Her Most Gracious Majesty Queen Victoria) from 1880 to date, indicating that the land has been used as a school campus since then.

Aerial imagery shows that the site contained a small building in 1943, towards the south-eastern corner of the site. By 1961, the small building had been extended with the irregular shaped building and three new buildings had been constructed at the northern portion. One building had been removed from the northern portion in 1975. The northern car park appeared to have been constructed in 1986. Since the 1990s the site has remained largely unchanged to its current configuration with the exception of some demountables and shaded areas. The surrounding area north-west of site gradually developed between 1943 to its current configuration as a school campus.

2.3 PREVIOUS INVESTIGATIONS AND FINDINGS

The site has been subject to a number of historical geotechnical and environmental investigations since 2017. Most relevant investigation reports are listed here with summaries of select pertinent reports provided in the following subsections. An overall summary of the contamination status of the site is presented in Section 2.4.4.

- EIS 2017, *Preliminary Environmental Screening Proposed School Additions*. Reference: E31057Klet.
- WSP 2018b, *Preliminary Site Investigation (PSI) and Detailed Site Investigation (DSI)*. Reference: PS110641-CLM-REP-WWPS RevB_Final.
- JKE, formerly EIS 2019, *Preliminary Salinity Assessment*. Reference: E31057BTrpt2.
- P. Clifton and Associates Pty Ltd (PCA) 2020, *Waste Classification of In-situ Soils Containing Asbestos Cement Sheet Debris*. Reference: PCA6512-2020_WASTECLASSLET01_10Jan20.
- 4 Pillars 2020, *Waste Analysis and Classification Report* Reference: 20200107WAL_01.
- WSP 2020a, *Remediation Action Plan*. Reference: PS119057_Wentworthville Public School-RAP-CLM-REP-Rev5-FINAL.
- WSP 2020b, *Environmental Site Assessment (Block G and H)*. Reference: PS119057-CLM-REP-001-Rev3
- WSP 2020c, *Environmental Site Assessment (Southwest Landscaping Area and Green Village*). Reference: PS119057-CLM-REP-001-RevB.
- WSP 2021d, *Excavation and Stockpiled Material Assessment (Block E Extension*). Reference: PS119057-CLM-LTR-Rev0-Stg2_BlkE_Extension.
- WSP 2022, Material Suitability Memo (Stage 3). Reference: PS127030-CLM-LTR-Stage 3 Material_Rev1.

2.3.1 EIS (2017) PRELIMINARY ENVIRONMENTAL SCREENING

EIS undertook a limited combined geotechnical and environmental investigation across the school site to identify potential contamination. WSP notes that EIS had not been provided with development plans at the time of their investigation.

Eight soil bores were advanced at the property into natural soils and bedrock. Only lead exceeded the adopted health investigation level (HIL) at 0.1-0.2 m at one borehole located within the Green Village area (Stage 2 validation area; refer to Figure 3 of Appendix A) and four fragments of ACM were also encountered across the investigation area.

Ecological investigation levels (EILs) and/or ecological screening levels (ESLs) were exceeded in fill material at four locations. However, it is noted that site-specific soil parameters were not derived for the site and a ‘worst case’ scenario for aged heavy metal EILs were adopted.

2.3.2 WSP (2018b) PSI AND DSI

The investigation completed by WSP (2018b) identified a number of locations across the site impacted by asbestos contamination that were considered to present a potential risk to human health under certain conditions. Two surface fragments of asbestos were identified in the north-west and east of the property. An ACM fragment was also identified in fill material at approximately 0.3 m below ground level (BGL) in the north-east of the site, and loose asbestos fibre bundles at a depth of 0.5 mBGL in the central southern portion for the site.

A concentration of lead exceeding the HIL was reported at 0.5 mBGL at one borehole located within the Green Village area (Stage 2 validation area; refer to Figure 3 of Appendix A). Concentrations of zinc, benzo(a)pyrene and TRH C_{16}-C_{36} were also reported above the adopted ecological criteria, however, these concentrations were not considered to be significant due to the locations being within proposed building footprints, presenting negligible access for flora and fauna to underlying soils.

The results of the investigation indicated that the proposed design footprint was impacted with asbestos in soil and the identified asbestos will likely be disturbed during development works.

2.3.3 WSP (2020a) REMEDIATION ACTION PLAN

The objective of the remediation works outlined in the RAP was to mitigate potential contamination risks on site and render the site suitable for the proposed development. ACM was identified in soil on site requiring remediation and management during both redevelopment and ongoing use of the site as a primary school.

Validation acceptance criteria and procedures were established for different cap and containment scenarios, as well as re-use and suitability assessment of on-site soils (for both fill and natural soil profiles). For impacted materials which were surplus to the development levels, excavation and off-site disposal was adopted for remediation.

Validation protocols for the importation and disposal of soils were also detailed.

2.3.4 WSP 2020b, ENVIRONMENTAL SITE ASSESSMENT (BLOCK G AND H)

In April 2020, WSP conducted further investigation of Blocks G and H to further assess the extent of chemical and asbestos impacts. A summary of the findings is presented as follows:

- 34 test pits were advanced;
- ACM was identified at %w/w concentrations above the HSL A criterion in fill material at nine test pit locations;
- friable asbestos was detected in fill material at one test pit location within Block G;
- a selection of soil samples were analysed for TRH, BTEXN, PAHs and select heavy metals. The concentrations of these analytes did not exceed the adopted human health and ecological criteria, except for lead which exceeded the HIL A criterion at a depth of 0.2 mBGL at one test pit location within Block H[1]; and
- numerous fragments (approximately 10 to 15) were observed on the site surface sporadically throughout the Block H investigation area.

2.4 REMEDIATION ACTIVITIES AND STATUS

2.4.1 REMEDIATION SUMMARY (STAGE 1)

As part the Stage 1 redevelopment, the following remediation work was undertaken:

- Surficial fill material was scraped to natural surface and material was stockpiled in the western portion of the Stage 1 area.
- Natural soil was excavated beneath the footprint of the current Block G building for construction of an in-ground burial pit (burial pit 1). The burial pit was backfilled with stockpiled fill. The burial bit was dug approximately 1.5 m into natural soils with wall comprising dark red to brown, slightly mottled stiff clay.
- Upon completion of backfilling burial pit one, an aboveground burial pit was constructed, burial pit 2 (void). The void was backfilled with additional contaminated soils.
- Off-site disposal of remaining contaminated soils (approximately 3,852 tonnes).
- A capping layer was installed for burial pit one and the void comprising a layer of high visibility synthetic geotextile material (geotextile layer), approximately 180 mm of dense grade base and a conventionally reinforced concrete slab, minimum 150 mm thickness, with a combined minimum thickness of 320 mm.

[1] The lead exceedance was excavated and disposed off-site during the Stage 1 remediation.

- A stormwater trench was installed on the eastern edge of the burial pit, however this was placed wholly within certified imported fill material and is physically separated by geotextile and a retaining wall from contaminated backfill. No utility or service is installed within the contaminated fill.

Specific locations of the burial pits are illustrated in Figure 3, Appendix A. A topographic survey and 3D volumes of burial pit 1 and the void, as well as a general arrangement drawing, showing detail of the concrete slab construction and pavement profiles for Stage 1 are provided in Appendix E-1.

2.4.2 REMEDIATION SUMMARY (STAGE 2)

As part the Stage 2 redevelopment, the following remediation works were undertaken:

- Surficial fill material was scraped to natural surfaces and contaminated soils were disposed of off-site (approximately 987.37 tonnes).
- A soil capping layer was installed for Green Village, comprising a layer of high visibility synthetic geotextile material (geotextile layer) and minimum 300 mm soil material. Capping material was sourced from excavations of validated natural material on site and approved validated turf underlay and organic garden mix. Following completion of cap construction, a turf layer was applied to the surface across Green Village.
- Existing concrete hardstand was retained in building footprints for Block A and Block E for use as a capping layer for contaminated soils. On 18 January 2022, during the final clearance inspection completed a WSP Licensed Asbestos Assessor (LAA), accessible areas of the existing Block A and Block E concrete slabs were inspected. During inspection, the hardstand was noted to be in good condition with no cracking or integrity issues observed. The thickness of the existing slabs and subgrade materials are not known. However, it is likely these are fit for purpose.

A survey showing the perimeter of the Green Village capping area is provided in Appendix A and a topographic survey of the Green Village capping area is included in Appendix E-2. As-built survey drawings indicate that a minimum 300 mm soil cap has been constructed across the Green Village capping area. The survey drawings are considered to be an accurate representation of the as-built soil cap.

2.4.2.1 EXCAVATION WALLS (STAGE 2)

During remedial works, exposed fill walls resulting from excavation works were demarcated through the application of a high visibility geofabric marker layer to cover the exposed fill surface, or validated via the collection of asbestos soil validation samples where the wall was not clearly a natural surface.

The locations where excavation walls were validated via either being covered with a high visibility geofabric marker layer are detailed in Appendix A, Figure 3. One location (the northern boundary of the Block E extension) was not validated, as access to the excavation wall could not be granted. The area was subsequently covered with the present block E building extension concrete hardstand footprint and no exposure pathways are present in the sites current state. This location is shown in Appendix A, Figure 3.

2.4.3 REMEDIATION SUMMARY (STAGE 3)

As part the Stage 3 redevelopment, the following remediation works were undertaken:

- In the “Northern area” located to the north of block F, surficial fill material was scraped to natural surfaces and contaminated soil was disposed of off-site disposal (approximately 140 tonnes).
- Concrete capping was installed over existing in-situ services in the ‘kiss and drop’ roadway, comprising a layer of high visibility synthetic geotextile material (geotextile layer), minimum 100 mm soil material and concrete pavement.
- Existing concrete hardstand was retained in the building footprint for Block F for use as a capping layer for contaminated soils.

- Existing asphalt hardstand was retained beneath the temporary demountable area for use as a capping layer for contaminated soils.
- On 17 June 2022, during the final clearance a WSP LAA inspected accessible areas of the existing Block F and the temporary demountable area. During inspection, the hardstand was noted to be in good condition with no cracking or integrity issues observed. The thickness of the existing slabs and subgrade materials are not known. However, it is likely these are fit for purpose.

2.4.3.1 EXCAVATION WALLS (STAGE 3)

During remedial works, exposed fill walls resulting from excavation works were demarcated through the application of a high visibility geofabric marker layer to cover the exposed fill surface, or validated via the collection of asbestos soil validation samples where the wall was not clearly a natural surface.

The locations where excavation walls were covered with a high visibility geofabric marker layer are detailed in Appendix A, Figure 3.

2.4.4 NATURE OF CONTAMINATION IN BURIED SOIL

Previous investigation findings from reports listed in Section 2.3 provide a broad summary of the nature of the contamination in soils buried within the two burial pits, as well as beneath the Green Village and kiss & drop capping area. Previous investigation findings also provided an indication of fill materials remaining in-situ beneath the Block A, Block E and Block F concrete building slabs and beneath the asphalt hardstand in the temporary demountable area.

Identified contaminants of concern were TRH, BTEXN, PAHs, heavy metals and asbestos. With exception of asbestos, other chemical analytes were found to be at concentrations below the laboratory detection limits (LORs) or had low level detections which were compliant with the following site criteria, as defined in the NEPM (2013):

- health investigation level (HIL) A: Low density residential;
- health screening level (HSL) A: Residential; and
- ecological investigation and screening levels for urban residential/public open space.

Asbestos was the primary contaminant of concern with non-friable and friable forms identified in soil exceeding HSL-A and HSL-D (commercial/industrial) criteria. Additionally, as noted in Section 2.3, historical investigations also identified lead in fill material at concentrations above the HIL A criterion at two locations in the centre of the Green Village area (refer to Figure 3 of Appendix A for Green Village location). Concentrations of lead at these locations were 360 and 600 mg/kg.

3 MANAGEMENT ACTIVITIES

3.1 RESPONSIBILITIES

Table 3.1 provides a summary of the responsibilities for the implementation and management of the LTEMP. The list of responsibilities does not replace any regulatory, planning or licensing responsibilities of the parties in undertaking works at the property. In any instance where an inconsistency arises between this LTEMP and environmental law, the environmental law will take precedence over the LTEMP.

Table 3.1 Responsibilities

PARTY	RESPONSIBILITIES
Site Owner — Department of Education / Schools Infrastructure NSW	Provide the LTEMP to the Site Controller, and workers who are engaged directly by the Site Owner, have them sign the notification register and outline emergency response plan (*This function may be performed again by the Site Controller once workers are site*). Attach a copy of the LTEMP to any lease or contract for sale of the site. Incorporate the LTEMP into any other management plans implemented at the site. Providing final clearance, in consultation with the Site Controller, for major works, which are expected to disturb or breach the cap. Liaise with Council to include the LTEMP on any Section 10.7 planning certificate (i.e. zoning certificate) applicable to the site. Maintain the school asbestos register. Minimum 12 monthly reviews of the LTEMP. Risk assessment and options appraisals for proposal to breach the cap and review of contractor emergency protocols for planned cap breaches.
Site Controller — School Principal or nominated delegate	Provide the LTEMP to school staff and workers at the site (whether engaged by the Site Owner or Site Controller), provide site inductions, have them sign the notification register and outline emergency response plan. Comply with the LTEMP during occupation of the property. Conduct integrity inspections of the cap and inform the property owner if any deterioration of the cap is observed. Providing final clearance for routine school maintenance works (or similar), which will not disturb or breach the cap. Review the existing school emergency response protocol and update (if required) if there was an unplanned disturbance or breach of cap (e.g. review or contingency emergency assembly points if they coincide with burial pit or void). Maintain the LTEMP notification register. Refer to Appendix B. Minimum 12 monthly reviews of the LTEMP. Review of contractor emergency protocols for planned cap breaches for alignment/conflict with existing emergency protocols at the school.

PARTY	RESPONSIBILITIES
School staff and workers — School staff or workers undertaking normal functions of the school — Workers / contractors undertaking intrusive works below the cap	Comply with the LTEMP, including relevant legislation and guidance (including the *Work Health and Safety Act 2011* and *Work Health and Safety Regulation 2017* or relevant legislation current at the time of the works) when conducting works at the property. Understand the requirements of the LTEMP and have signed the notification register. Inform the Site Owner and Site Controller if after reading this LTEMP, anticipate their works will disturb or breach the cap, and if so, do not proceed with works until formal clearance by the Site Owner and Site Controller has been provided to commence. A site-specific emergency response plan must also be prepared.

This LTEMP is prepared with the assumption that any future works on the site shall be undertaken in accordance with relevant regulations, guidelines and laws current at the date works in NSW including but not limited to those referred to in Section 1.3.

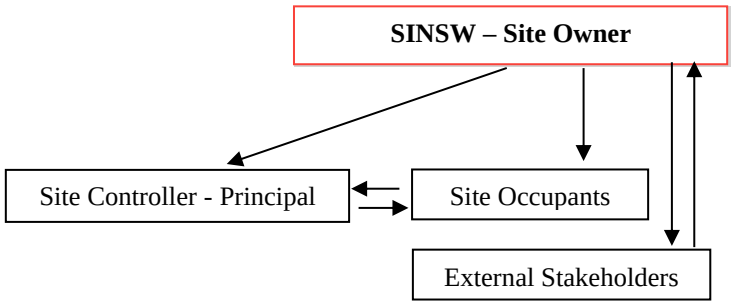
3.2 COMMUNICATIONS PROTOCOL

3.2.1 PLANNED MAJOR WORKS – CAP BREACHES

For all major works which may breach the capping layer, Schools Infrastructure NSW (SINSW) are to drive and co-ordinate formal communications to the Site Owner, Site Occupants and relevant key external stakeholders. The Site Owner may request the Site Controller provide any additional briefings to Site Occupants and field and queries specific to the school's normal function.

Refer to Figure 3.1 for flow chart of major works communication protocol.

Figure 3.1 - Major works communication protocol

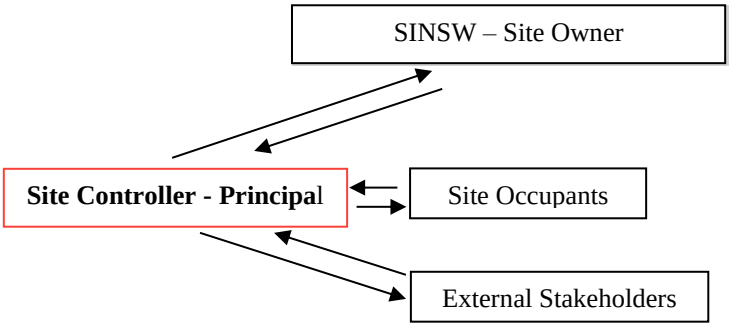


3.2.2 ROUTINE MINOR WORKS – NO DISTURBANCE OR BREACHES TO CAP

For all minor works which are not expected to disturb or breach the capping layer, and the worker/contractor is engaged by the Site Controller, the Site Controller is to drive and co-ordinate formal communications to the Site Occupants, External Stakeholders and SINSW if required. If workers/contractors are engaged by SINSW directly, SINSW and the Site Controller are to communicate as required and as per existing communication protocols.

Refer to Figure 3.2 for flow chart of minor works communication protocol.

Figure 3.2 - Minor works communication protocol



3.2.3 CHANGES TO THE LTEMP

For changes to the LTEMP led by SINSW, the following must be undertaken:

1. SINSW must communicate any updates or changes in responsibilities by formal letter or email correspondence to the Site Controller, school staff and workers.
2. SINSW must allow an opportunity for review and consultation.
3. Once agreed and finalised, SINSW will provide the updated LTEMP to the Site Controller, who can then communicate to school staff and workers and external stakeholders, (as required).

For changes to the LTEMP led by the Site Controller, staff or workers, the following must be undertaken:

1. Site Controller must first communicate the desired updates or changes in responsibilities by formal letter or email correspondence to the Site Controller.
2. SINSW must be allowed an opportunity for review and consultation, which includes the Site Controller and school staff and workers as required.
3. Once agreed and finalised, SINSW will provide the updated LTEMP to the Site Controller, who can then communicate to school staff and workers and external stakeholders, (as required).

3.3 EXISITING ENVIRONMENTAL SYSTEMS

This LTEMP is prepared only for the areas as described in Section 1.1 within the remediated area of the site. This LTEMP does not apply to the broader school. There are known asbestos impacts in other areas of the school which are managed through an overarching management plan *NSW Department of Education C/O – Public Works Advisory; Wentworthville public School, Asbestos in Grounds Management Plan, March 2020*.

3.4 ENVIRONMENTAL AWARENESS AND TRAINING

The Site Owner and Site Controller have joint responsibility in ensuring the existence and requirements of this LTEMP are made aware to site occupants and workers (e.g. school staff and general contractors whose works do not disturb or breach the cap). This is documented by signing the LTEMP notification register in Appendix B. For routine works as part of normal school operation which will not disturb or breach the cap, no emergency response training in the context of this LTEMP is provided. Existing emergency response and training protocols in place at the school should be followed.

For any works which intend to disturb or breach the capping layer, a specific emergency response plan must be generated (as per Table 3.1) by the contractor in consultation with the Site Owner and Site Controller.

3.5 LTEMP REVIEW

Review of this LTEMP by the Site Owner and Site Controller (collectively or independently), should be conducted every 12 months, and would include but not be limited to the following aspects:

- review non-compliances and corrective actions during the period;
- ensure inspections have been undertaken;
- ensure maintenance recommended (if any) during inspections and/or intrusive works has been completed;
- review whether any proposed changes to land use or site layout may conflict with the LTEMP;
- updates to legislation or codes of practice which may affect management protocols;
- changes to site ownership or updates to responsible parties and roles; and
- any proposals for works which may disturb or breach the cap.

Reviews and updates to this LTEMP can be undertaken by the Site Owner and Site Controller for administrative changes such as delegations of authority or outcomes of inspections and associated maintenance. However, a suitability qualified environmental specialist should be engaged to update the LTEMP in the following circumstances (non-exhaustive list):

- updates of the asbestos register (outside this LTEMP); or
- updates to the LTEMP from a planned or unplanned breach of the capping layer. For example, the LTEMP may be updated with clearance certificates, air monitoring results, validation samples and confirmation of correct cap re-instatement/repair.

An inspection register is presented in Appendix D-1. An LTEMP review register is presented in Appendix D-2.

3.6 CAP INSPECTION PROTOCOL

On an annual basis, the capped areas should be inspected by the site owner or the site occupant (as directed by the site owner) to verify the caps are maintaining their function as a barrier between contaminated soils and site users.

For the concrete or asphalt capped areas with underlying geotextile (Block G and kiss and drop), the inspection should look for evidence of deterioration such as:

- deep cracks or breaks in the concrete or asphalt surface which exposes geotextile; or
- separation of grout between Besser brick walls which exposes geotextile.

For the soil capping area (Green Village), the inspection should look for evidence of integrity damage such as:

- grass stress, where die-off of grass may expose the soil capping layer;
- exposed soil, where the soil capping layer may be worn down;
- erosion and/or cracking of soil capping layer, where severe weather events (i.e. intense rainfall or drought) damage the cap integrity;
- damage of sandstone blocks around the perimeter of the Green Village capping area, which may expose the geotextile; or
- exposed high-visibility synthetic geotextile material.

Following periods of extreme rainfall and/or flooding (or other significant erosional events), additional inspections of the soil cap should be completed.

For excavation walls which have been lined with a high visibility geotextile marker layer, the inspection should look for evidence of damage/deterioration such as:

- exposed high-visibility synthetic geotextile material; or
- erosion of capping material used on the "clean" side of the wall.

For areas of concrete or asphalt hardstand which are not underlain with geotextile (Block A, Block E, Block F, the temporary demountable area and the excavation wall beneath concrete hardstand along the northern boundary of Block E extension), the inspection should look for evidence of damage/deterioration such as:

- cracking in the concrete or asphalt, which exposes the underling contaminated soils; or
- subsistence and movement of building foundations, which subsequently exposes the underlying contaminated soils through gaps in the concrete.

Specific locations of the above are provided in Appendix A, Figure 3.

3.7 CAP REPAIR

3.7.1 VOID AND BURIAL PIT

Where deep cracks, breaks or separation between Besser brick wall are observed, (i.e. not superficial), these should be repaired with an appropriate filler to prevent exacerbation of the crack/break. If the crack/break continues to present after filling work, an engineer should be consulted to conduct an integrity assessment.

3.7.2 GREEN VILLAGE CAPPING AREA

Where grass stress is observed, the cause of the stress should be investigated (i.e. high traffic area, water stress or application of herbicides). Mitigation measures including the erection of temporary fencing around the impacted areas and grass seeding/regrowth should then be implemented to return grass to a suitable condition and minimise the potential of the soil capping layer being exposed and damaged.

If deep cracks, exposed soil and/or erosion of the soil capping layer are observed, these areas must be repaired with quarried products or certified virgin excavated natural material (VENM) or or excavated natural material (ENM). An environmental consultant should be engaged to confirm approval of the material.

3.7.3 NEW AND EXISTING HARDSTAND CAPPING

Where cracks, subsidence or damage to the existing concrete hardstand or asphalt capping layers of the kiss and drop, temporary demountable area, Block A, Block E or Block F is observed, these should be repaired with appropriate filler to prevent exposure to the underlying soils.

3.8 RISK ASSESSMENT FOR CAP BREACHES

Prior to any planned intrusive works where a breach of the capping layer is proposed, the work must undergo a risk assessment to verify the absolute need for the breach and exposure of contaminated soils. An options appraisal must be undertaken by the Site Owner to consider alternatives to breaching the cap and involve the Site Controller and any relevant key stakeholders.

Procurement of works to breach the capping layer may only commence after the risk assessment process and verification of no alternative to breaching the cap has been undertaken.

4 CONTINGENCY PLAN

If after risk assessment and options appraisal it is determined unavoidable to breach the cap, the following sub-sections outline the minimum controls.

4.1 CLOSURE AND PERMISSIONS

For planned breaches of the capping layer, the corresponding area of the school should be shut down and access restricted to workers specifically engaged by the Site Owner or Site Controller to undertake the works. The control of entry to the work area, in-particular when the planned breach has occurred and asbestos contaminated soils are exposed, must always be maintained by the contractor.

Prior to any planned capping breaches, the contractor undertaking the works must acquire necessary permissions from the school and from SINSW.

4.2 GENERAL REQUIREMENTS

To ensure that any asbestos encountered at the site is managed is accordance with the legislative requirements and current best practice, excavation works involving ACM and soils potentially impacted by asbestos will be conducted in accordance with the following guidelines:

- WA Department of Health (DoH) 2009, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*.
- *Work Health and Safety Act 2011* (NSW).
- *Work Health and Safety Regulation 2017* (NSW).
- SafeWork NSW 2019, *Code of Practice - How to Manage Work Health and Safety Risks*.
- SafeWork NSW 2019, *Code of Practice - How to Manage and Control Asbestos in the Workplace*.
- SafeWork NSW 2019, *Code of Practice - How to Safely Remove Asbestos*.
- SafeWork NSW 2019, *Code of Practice - Construction Work*.
- SafeWork NSW 2020, *Code of Practice - Excavation Work*.

It is noted that Clause 458 of the *Work Health and Safety Regulation 2017*, requires a person conducting a business or undertaking that commissions the removal of asbestos must ensure that the asbestos removal work is carried out by a licensed asbestos removal Contractor unless the asbestos to be removed is:

a) 10 square metres or less of non-friable asbestos or asbestos contaminated dust or debris associated with the removal of that amount of non-friable asbestos, or

b) Asbestos containing debris that is not associated with the removal of friable or non-friable asbestos and is only a minor contamination.

As the nature of contamination within the burial pit, Green Village and kiss and drop capping areas contains friable asbestos, a Class A Licenced asbestos removalist should undertake/supervise the works, and workers involved trained in asbestos removal.

Due to the presence of friable asbestos identified in fill material on-site, it is suspected that materials beneath the existing Block A, Block E and Block F building footprints, as well as beneath the temporary demountable asphalt footprint, contain friable asbestos. A Class A Licenced asbestos removalist should be engaged in the event that works penetrate the concrete footprint of these buildings or the asphalt hardstand layer.

4.3 ASBESTOS FIBRE AIR MONITORING

Asbestos fibre air monitoring should be undertaken when asbestos contaminated soils are exposed. The following presents an overview of the recommended air monitoring and analysis requirements:

- Asbestos fibre air monitoring will be conducted along the perimeter of the asbestos work area. The number of monitoring locations will be dependent on the size of the asbestos work area but will be at a minimum of four locations.
- Sample collection and analysis should be conducted in accordance with the National Occupational Health and Safety Commission (NOHSC) *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust* (NOHSC: 3003 (2005)), referred to as the membrane filter method (MFM).
- Sampling should be done with portable asbestos air monitoring pumps fitted with a sampling cartridge housing the asbestos sampling filter.
- The samples will be analysed by a laboratory accredited by the National Association of Testing Authorities (NATA) and the results reported on NATA-endorsed certificates of analysis.
- The samples will be analysed by phase contrast microscopy in accordance with the MFM.
- The sampling parameters will be set such that the detection limit of <0.01 fibres/mL is achieved.

4.4 CONTROL OF EARTHWORKS ACTIVITIES AND DUST MANAGEMENT

The following information is provided as a guide to control dust during earthworks in areas of known or suspected asbestos impacted soil:

- An asbestos work area (restricted area) is to be established.
- The restricted asbestos work area (proposed excavation/stockpile zone) should be demarcated with appropriate warning signs to prevent unauthorised access.
- Prior to the first removal of the sub surface soil, builders' plastic should be placed on an adjacent surface to contain excavated spoil.
- Prior to movement of stockpiled soils, dampen with water across the stockpile surface.
- During soil movement the materials should be kept sufficiently damp to minimise the emission of dust.

The excavation surface should be continually monitored and the surface wet down as drying occurs. This process should continue until the ACM or asbestos impacted soils excavation works in the asbestos work area are completed.

The above method relies on the following factors:

- use of water fogging nozzle (not high-pressure hoses); and
- constant vigilance of trained operators/contractor.

4.5 PERSON PROTECTIVE EQUIPMENT AND DECONTAMINATION

Where personnel are required to work on the ground within the designated asbestos work areas and are required to handle, or are likely to come into direct contact with asbestos material, the following personal protective equipment (PPE) is specified as a minimum requirement:

- safety boots with rubber soles (to permit easy cleaning);
- disposable Type 5/6 Tyvek® coveralls, or equivalent. Orange disposable overalls are recommended when working in close proximity to excavators;
- suitable respiratory protection, i.e. minimum P2 half face respirators; and.
- disposable gloves.

A decontamination area for personnel will be established at the entrance/exit to each asbestos work area for the use of the personnel conducting the asbestos related works. The decontamination area will comprise a segregated area where the contaminated work clothing and respirators are removed and discarded. Contaminated PPE is to be disposed of in appropriately labelled waste bins or bags.

The decontamination area must not be used for purposes other than decontamination (e.g. as a materials storage area).

4.6 CAP REINSTATEMENT AND CLEARANCE

At the completion of works, the cap is to be re-instated to equal standard prior to breaching. Each of the cap reinstatement types are described below.

4.6.1 ASPHALT/CONCRETE SLAB REINSTATEMENT

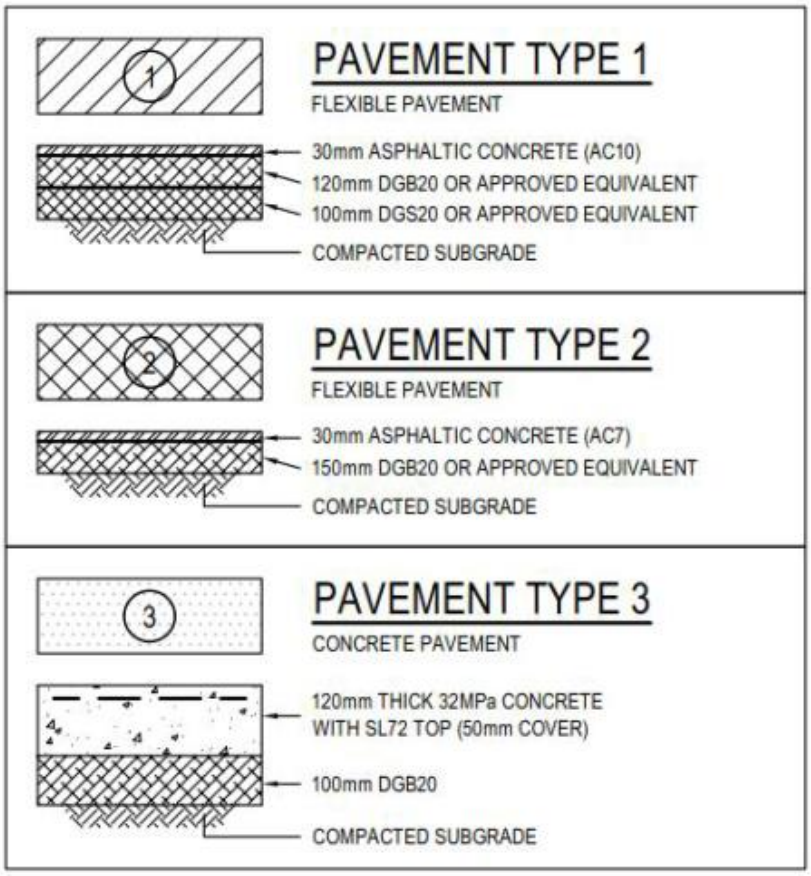
A geotextile layer should be placed over the footprint of the excavation, with any voids or depressions backfilled. Backfill material for excavation voids must use quarried products or certified VENM or ENM of an appropriate sizing and compaction to support the eventual concrete slab reinstatement.

The geotextile should be pinned in-place (steel ‘U’ pins or similar) to the edges of the concrete excavation/hole such that no contaminated soil is visible.

Geotechnical advice may be required prior to reinstatement of the asphalt / concrete surface. Once the geotextile is placed, the pavement cap should be formed in accordance with the appropriate Pavement Type (or equivalent), as detailed in Figure 4.1 (following page).

For the purposes of the cap, Pavement Type 3 as shown below applies to the capping within Burial Pit 1, the void and concrete hardstand areas of the kiss and drop area. Pavement Type 1 or 2 applies to the kiss and drop/temporary demountable asphalt areas.

Figure 4.1 Concept pavement cap reinstatement profile



An independent environmental consultant or occupational hygienist should inspect the work area at completion of reinstatement to verify no residual soil, PPE or asbestos contaminated material remains, and issue a clearance certificate for the work area.

4.6.2 SOIL CAP REINSTATEMENT

A geotextile layer should be replaced over the impacted soil prior to replacement of the capping layer. The geotextile should be pinned in-place (steel 'U' pins or similar) to the edges of the concrete excavation/hole such that no contaminated soil is visible.

Any backfill material used to reinstate the capping layer is to comprise either clean, previously validated capping layer material, site sourced clay or geotechnically suitable VENM (validated and compacted). Any excavations are to be finished flush with the surrounding surfaces of the capping layer to the satisfaction of the supervising hygienist or environmental consultant. For the purposes of the Green Village capping area, the unpaved capping design presented in Figure 4.2 applies.

Figure 4.2 Concept soil cap reinstatement profile



An independent environmental consultant or occupational hygienist should inspect the work area at completion of reinstatement to verify no residual soil, PPE or asbestos contaminated material remains, and issue a clearance certificate for the work area.

5 INCIDENT AND EMERGENCY PROCEDURES

5.1 PLANNED CAP BREACH

As the contractor is responsible for controlling access to the work area where a cap breach is planned, it is also the Contractor's responsibility to present the emergency procedures to the work crew.

The contractor will detail and explain the emergency procedures at the start up induction or toolbox talk prior to the commencement of works. This will include at a minimum:

- the name(s) of the first aider/s on site;
- the location of first aid kits and fire extinguishers;
- emergency procedure details for the site, including contact details for emergency services and the nearest hospital;
- site addresses details and map with route to nearest hospital highlighted; and
- location of the emergency assembly area.

The emergency protocols may leverage an existing emergency response protocol for the school and prepared in conjunction/review of the Site Owner and Site Controller, but must be made specific to the planned works.

It is noted that any failure in asbestos controls during planned cap breaches where site occupants may have been exposed must be managed in accordance with the emergency response outlined in Section 5.2.

5.2 UNPLANNED CAP BREACH - EMERGENCY RESPONSE

All unplanned events, irrespective how minor, shall be reported at the first opportunity to the Site Controller and Site Owner (and other parties where delegated by the Site Owner). An emergency in the context of this LTEMP is any unplanned breach of the capping layer, or unplanned exposure of contaminated soil (even if during planned work, as noted in Section 5.1 above), where there is the potential for exposure to contaminated soil. An emergency may be triggered by one of the following scenarios:

- uncontrolled excavation that breaches the cap without appropriate controls in place;
- significant erosion that exposes or breaches the cap, such as from flooding; or
- a failure or in the integrity of the wall or slab e.g. building collapse or fire.

Any potential exposure event should be immediately managed and contained. The following steps should be undertaken when an unplanned breach of the cap, or exposure event has occurred.

1. The worker/contractor undertaking the work should immediately isolate the area and restrict access to all personnel. If the breach of cap, or exposure to soil occurs during unplanned work (e.g. building failure or fire), the Site Controller is to isolate the area. Isolation should be performed with barriers to physically separate the area from personnel.
2. Notify the Site Controller (if not already part of the isolation process) and Site Owner.
3. Engage a required specialists (e.g. engineers to investigate and assess the area).
4. Alert appropriate regulatory authorities, such as the NSW EPA, SafeWork NSW, Council etc. as required.

Emergency contacts are listed in Table 5.1.

Table 5.1 Emergency contacts

PERSON/AGENCY	PHONE NUMBER
Department of Education – Schools Infrastructure NSW	1300 482 651 Or Richard Robertson 0460 011 272
Site contact (Principal - Wentworthville Public School)	02 9631 8529
Emergency services	
Emergency	000
Police – non-emergency (Granville Police Station)	+61 298 974 199
Ambulance – non-emergency (NSW Ambulance)	+61 293 207 777
NSW Fire and Rescue – non-emergency (Wentworthville Fire Station)	+61 296 310 908
Other	
Cumberland City Council	02 8757 9000
SafeWork NSW	13 10 50

5.3 COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

The receipt of complaints will be handled and responded to according to Wentworthville Public School's policy.

The purpose of the Complaints and Environmental Incident Register is to maintain a register of complaints from local residents or concerned parties, which will include a record of any action taken with respect to the complaints.

The complaints and environmental incident register is required to be completed immediately following the receipt of any complaints associated with works undertaken at the site. Written complaints should be addressed or acknowledged within five days of the complaint being received. Complaints made by telephone or in person should be addressed or acknowledged within two days of receipt. Complaints and incidents will be forwarded to Wentworthville Public School.

A copy of the complaints and environmental incident register is included in Appendix C.

6 LIMITATIONS

SCOPE OF SERVICES

This environmental site assessment report (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP (scope of services). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

In preparing the report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

ENVIRONMENTAL CONCLUSIONS

In accordance with the scope of services, WSP has relied upon the data and has not conducted any environmental field monitoring or testing in the preparation of the report. The conclusions are based upon the data and visual observations and are therefore merely indicative of the environmental condition of the site at the time of preparing the report, including the presence or otherwise of contaminants or emissions.

Within the limitations imposed by the scope of services, the assessment of the site and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party in relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

WSP will not be liable to update or revise the report to take into account any events, emergent circumstances or facts occurring or becoming apparent after the date of the report.

The scope of services did not include any assessment of the title to nor ownership of the properties, buildings and structures referred to in the report, nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

APPENDIX A

FIGURES



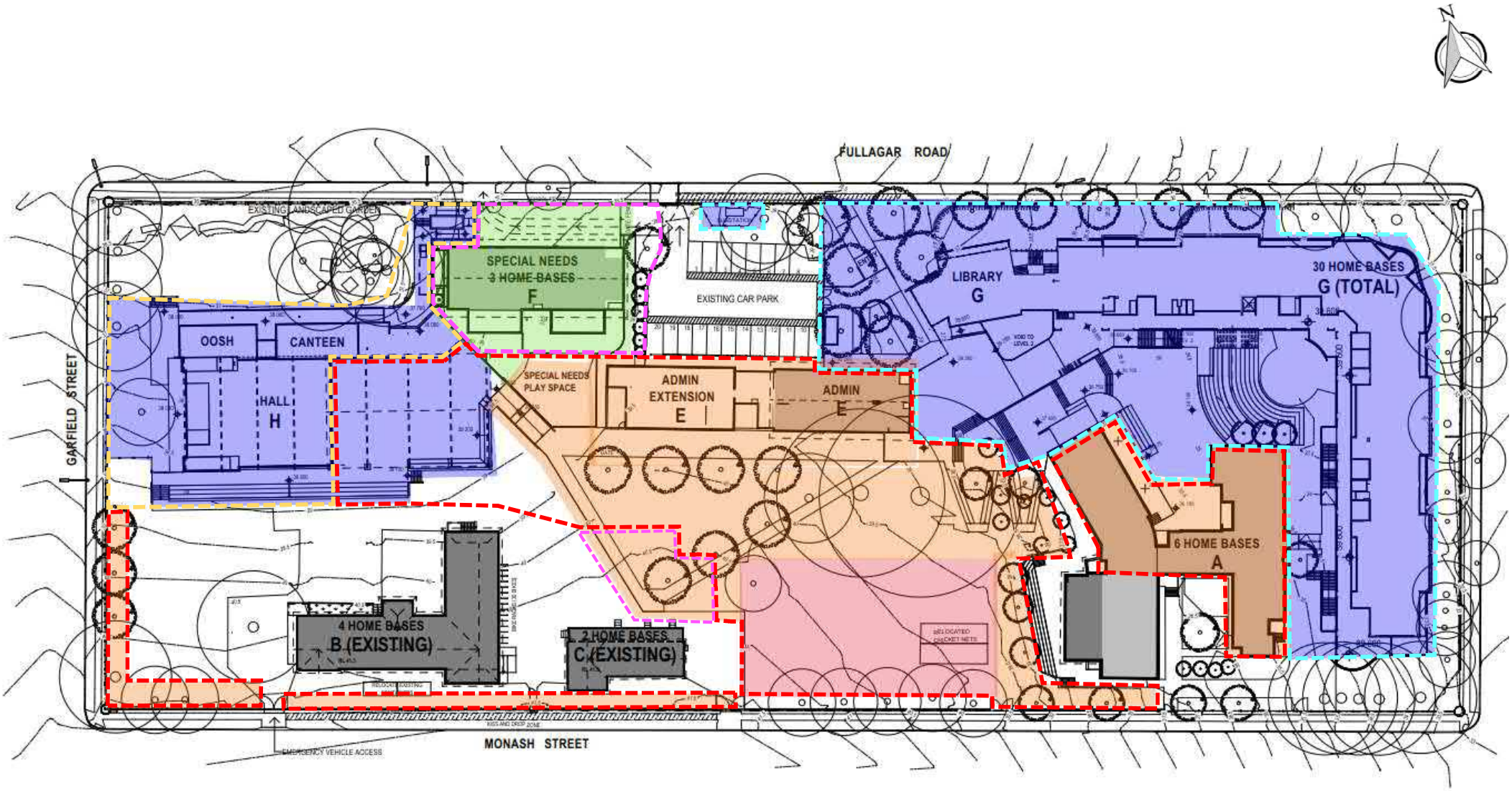
Legend

- School Location
- School Boundary

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Site Location Plan
Project no.:	PS127030

Figure 1



Legend

- Stage 1 Remediation Extent "Western Validation Area" (January 2021)
- Stage 1 Remediation Extent "Eastern Validation Area" (July 2021)
- Stage 2 Remediation Extent (March 2022)
- Stage 3 Remediation Extent (July 2022)

- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 1
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 2
- SSDA # 9273 - Condition B12 Site Auditor Scope of Work - Stage 3

Source: Grindley Construction Pty Ltd (2020)

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Auditable Areas and Stages
Project no.:	PS127030

Figure 2



Legend

- School Boundary
- Stage 1, 2 and 3 Remediation Extent
- Burial Pit 1 Asbestos Capping Area
- Burial Pit 2 ("Void") Asbestos Capping Area
- "Green Village" Asbestos Capping Area
- "Kiss and Drop" Asbestos Capping Area
- "Block A", "Block E" and "Block F" Existing Asbestos Concrete Capping Area
- "Temporary Demountable Area" Existing Asbestos Asphalt Capping Area

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Remediation Extent and Capping Areas
Project no.:	PS127030

Figure 3



Legend

- School Boundary
- Stage 1, 2 and 3 Remediation Extent
- Extent of High-visibility Geofabric Marker Layer
- Geofabric Marker Excavation Walls

Source: MetroMap, 2022

Client:	Grindley Constructions Pty Ltd
Project:	LTEMP - Wentworthville Public School, 70-100 Fullagar Road, South Wentworthville NSW 2145
Title:	Geofabric Marker Layer Extents
Project no.:	PS127030

Figure 4

APPENDIX B

LTEMP NOTIFICATION REGISTER

B1 LTEMP NOTIFICATION REGISTER

The purpose of the notification register is to acknowledge acceptance and compliance with the procedures outlined within this LTEMP by signing the attached log. Copies of this document must be made available for review and be readily available at the job site.

The register is required to be completed by each person notified of the LTEMP undertaking minor or major works at the site.

DATE	PERSON	COMPANY	TASK/JOB	SIGNATURE/ POSITION

APPENDIX C

COMPLAINTS AND ENVIRONMENTAL INCIDENT REGISTER

C1 COMPLAINTS AND ENVIRONMENTAL INCIDENTS REGISTER

DATE	TIME	TYPE OF COMMUNICATION	NAME, ADDRESS CONTACT NUMBER OF COMPLAINANT	NATURE OF COMPLAINT	RESPONSE/ CORRECTIVE ACTION	DATE OF RESPONSE	DATE COMPLAINANT NOTIFIED OF RESPONSE TAKEN	SIGNATURE/ POSITION

APPENDIX D

INSPECTION AND REVIEW CHECKLISTS

D1 INSPECTION CHECKLIST

WENTWORTHVILLE PUBLIC SCHOOL (WWPS), WENTWORTHVILLE NSW	
Date & Time of Inspection	
Name and Position of person(s) conducting the inspection	
GENERAL SITE INFORMATION	
Current Site Occupier	
Current Site Use	
SITE INSPECTION	
Are there any areas where the capping surfacing appears damaged / surfacing is not intact and geotextile is exposed??	☐ No ☐ Yes – *provide details*
Are there any areas where the capping walls appears damaged or are separating and geotextile is exposed?	☐ No ☐ Yes – *provide details*

SIGNATURE (INSPECTOR)		**DATE**	
SIGNATURE (YPS REPRESENTATIVE)		**DATE**	

APPENDIX E

SURVEY AND AREAS UNDER MANAGEMENT

E1 STAGE 1

Copyright

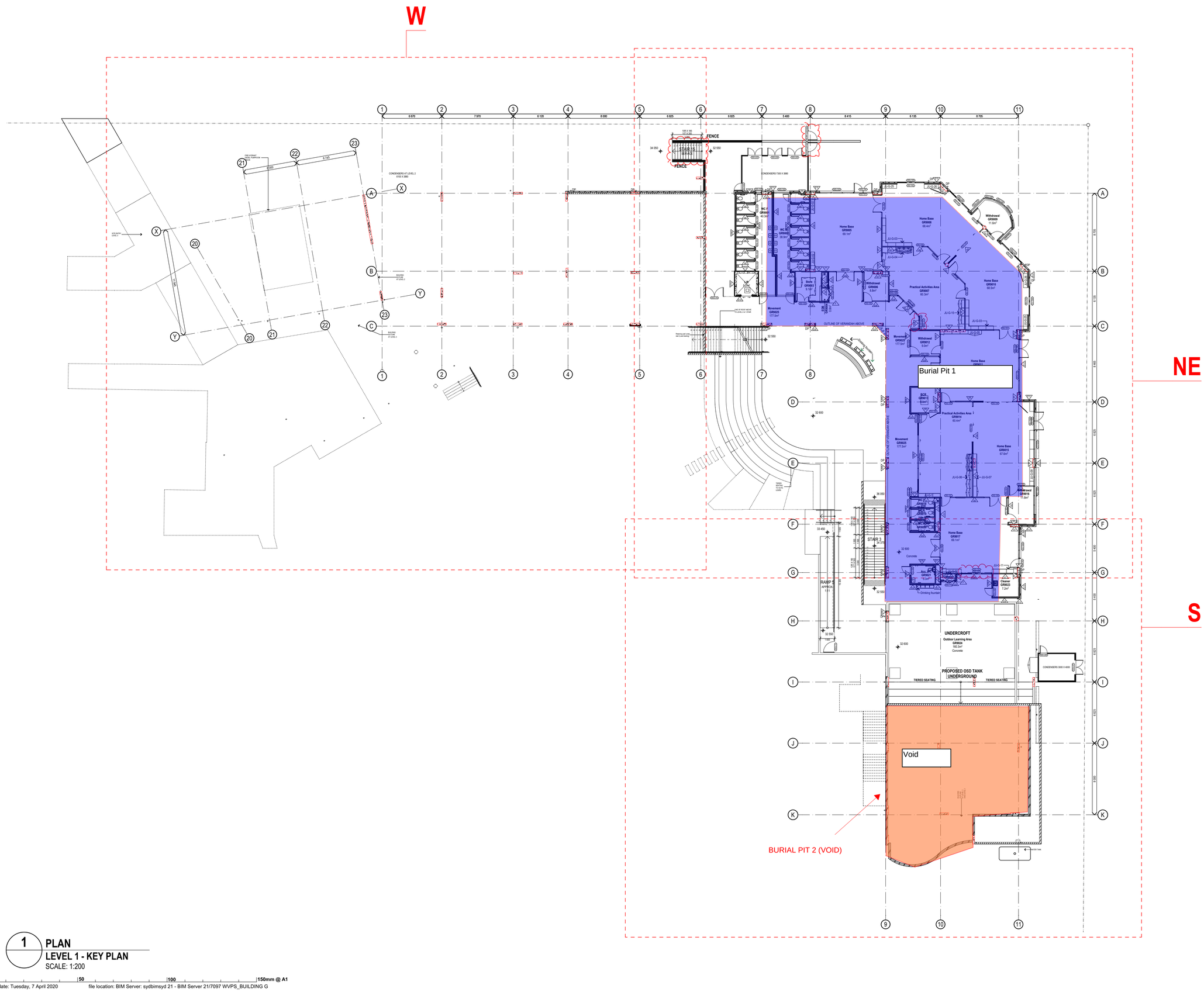
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LEGEND

W - WEST

NE- NORTH EAST

S - SOUTH



REV.	DESCRIPTION	DATE	INIT.
A	For Information	16/10/2019	JFK
B	For Information - Door Hardware Selection	06/11/2019	LW
C	For Information - Wall Types	19/11/2019	LW
D	For Information - Corner Facade	3/12/2019	JFK
E	For EFSG Review	11/12/2019	AK
F	For Information	11/02/2020	JFK
1	For Construction	10/03/2020	JFK
2	For Construction	7/04/2020	AK

fulton trotter ARCHITECTS

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Katerina Dracopoulos raia			QLD 4529
Mark Trotter fraia	VIC 17691	NSW 4421	QLD 1870
Paul Sekava raia		NSW 7180	QLD 3108
Paul Trotter fraia		NSW 7177	QLD 2646
Ryan Lovelay raia			QLD 4500

www.fultontrotter.com.au

PHASE: **DD & DOCUMENTATION**

CLIENT: NSW Department of Education

PROJECT: Wentworthville Public School

ADDRESS: 70-100 Fullagar Road
WENTWORTHVILLE, NSW

DRAWING: **BUILDING G - LEVEL 1 KEY PLAN**

Figured dimensions take precedence over scale dimensions. Contractors must verify all dimensions on site before commencing any work or making shop drawings.

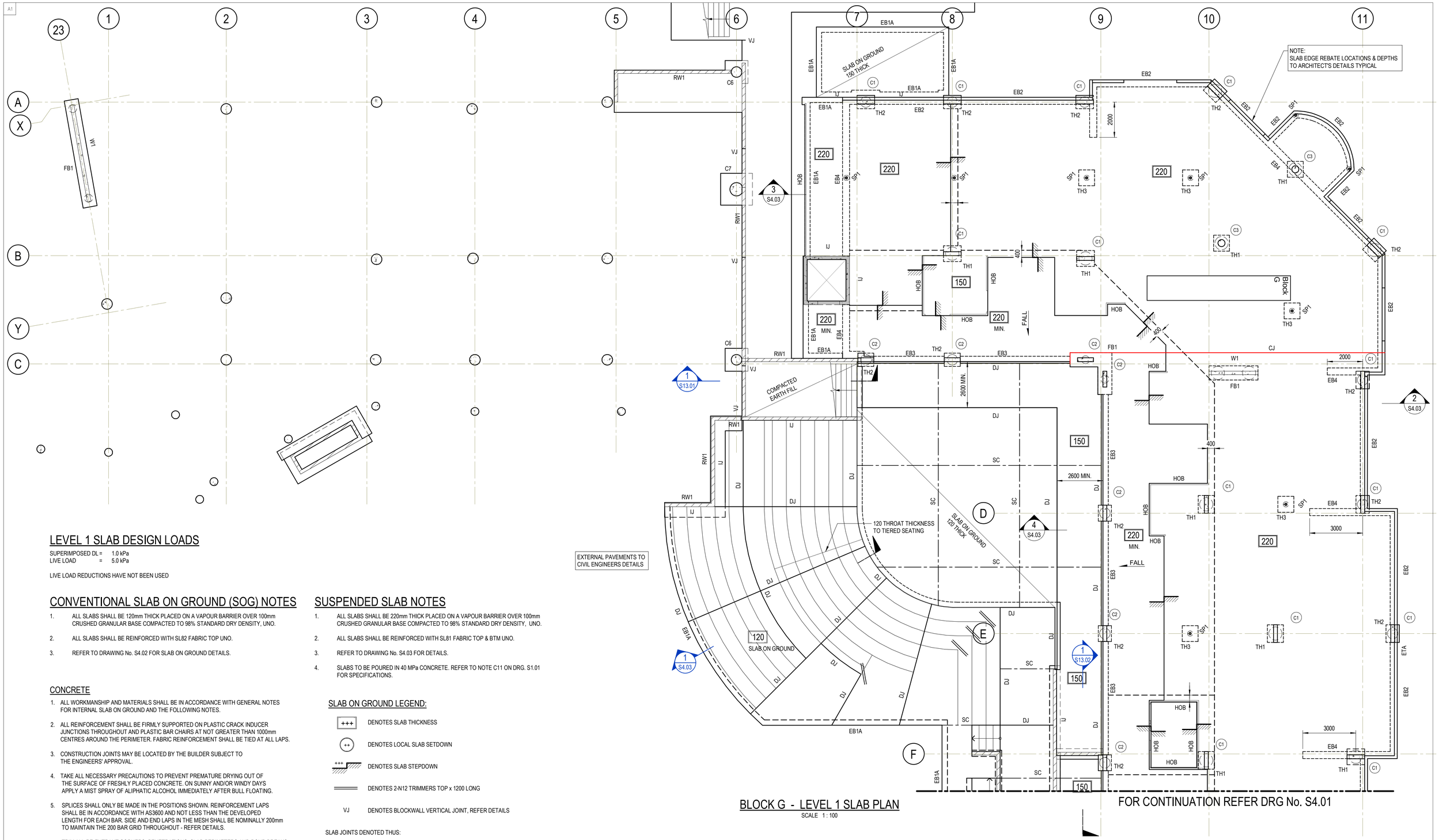
PROJECT NUMBER	DIRECTOR	CHECKED
7097WV01	JW	

DRAWING NUMBER	REVISION
AG-2001	2

1 PLAN
LEVEL 1 - KEY PLAN
SCALE: 1:200

150mm @ A1 | 100 | 50

plot date: Tuesday, 7 April 2020 file location: BIM Server: sydbimsyd 21 - BIM Server 21/7097 WVPS_BUILDING G



BLOCK G - LEVEL 1 SLAB PLAN

SCALE 1 : 100

LEVEL 1 SLAB DESIGN LOADS

SUPERIMPOSED DL = 1.0 kPa
LIVE LOAD = 5.0 kPa

LIVE LOAD REDUCTIONS HAVE NOT BEEN USED

CONVENTIONAL SLAB ON GROUND (SOG) NOTES

1. ALL SLABS SHALL BE 120mm THICK PLACED ON A VAPOUR BARRIER OVER 100mm CRUSHED GRANULAR BASE COMPACTED TO 98% STANDARD DRY DENSITY, UNO.
2. ALL SLABS SHALL BE REINFORCED WITH SL82 FABRIC TOP UNO.
3. REFER TO DRAWING No. S4.02 FOR SLAB ON GROUND DETAILS.

SUSPENDED SLAB NOTES

1. ALL SLABS SHALL BE 220mm THICK PLACED ON A VAPOUR BARRIER OVER 100mm CRUSHED GRANULAR BASE COMPACTED TO 98% STANDARD DRY DENSITY, UNO.
2. ALL SLABS SHALL BE REINFORCED WITH SL81 FABRIC TOP & BTM UNO.
3. REFER TO DRAWING No. S4.03 FOR DETAILS.
4. SLABS TO BE POURED IN 40 MPa CONCRETE. REFER TO NOTE C11 ON DRG. S1.01 FOR SPECIFICATIONS.

CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH GENERAL NOTES FOR INTERNAL SLAB ON GROUND AND THE FOLLOWING NOTES.
2. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON PLASTIC CRACK INDUCER JUNCTIONS THROUGHOUT AND PLASTIC BAR CHAIRS AT NOT GREATER THAN 1000mm CENTRES AROUND THE PERIMETER. FABRIC REINFORCEMENT SHALL BE TIED AT ALL LAPS.
3. CONSTRUCTION JOINTS MAY BE LOCATED BY THE BUILDER SUBJECT TO THE ENGINEERS' APPROVAL.
4. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PREMATURE DRYING OUT OF THE SURFACE OF FRESHLY PLACED CONCRETE. ON SUNNY AND/OR WINDY DAYS APPLY A MIST SPRAY OF ALIPHATIC ALCOHOL IMMEDIATELY AFTER BULL FLOATING.
5. SPLICES SHALL ONLY BE MADE IN THE POSITIONS SHOWN. REINFORCEMENT LAPS SHALL BE IN ACCORDANCE WITH AS3600 AND NOT LESS THAN THE DEVELOPED LENGTH FOR EACH BAR. SIDE AND END LAPS IN THE MESH SHALL BE NOMINALLY 200mm TO MAINTAIN THE 200 BAR GRID THROUGHOUT - REFER DETAILS.

   TRIM ALL RE-ENTRANT CORNERS, PENETRATIONS, SLAB PERIMETERS AND POUR BREAKS WITH 2-N12 AS DETAILED.
6. TRIMMER BARS SHALL CONTINUE THROUGH POUR BREAKS SUFFICIENT TO PROVIDE A 400 LAP. FABRIC SHALL CONTINUE THROUGH POUR BREAKS SUFFICIENT TO PROVIDE A 200 LAP AS DETAILED.

SLAB ON GROUND LEGEND:

+++	DENOTES SLAB THICKNESS
++	DENOTES LOCAL SLAB SETDOWN
+++	DENOTES SLAB STEPDOWN
	DENOTES 2-N12 TRIMMERS TOP x 1200 LONG
VJ	DENOTES BLOCKWALL VERTICAL JOINT, REFER DETAILS

SLAB JOINTS DENOTED THUS:

TKJ	DENOTES TIED KEYED JOINT
DJ	DENOTED DOWELED JOINT
SC	DENOTES SAW CUT JOINT
TG	DENOTES TOOLED GROOVE
IJ	DENOTES ISOLATION JOINT

AS BUILT

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
H	AS BUILT	K.S.	P.K.	11-06-21
G	REVISED AS CLOUDED	K.S.	P.K.	09-10-20
F	BLOCK WALL ADDED	K.S.	P.R.	25-08-20
E	SUSPENDED SLABS ADDED	K.S.	P.R.	01-07-20
D	GENERALLY REVISED	S.K.	P.R.	18-06-20
C	PROFILE REVISED	S.K.	P.R.	31-01-20
B	NORTH EAST CORNER PROFILE REVISED, LIFT SIZE REVISED, COLUMNS & WALLS REVISED	S.K.	P.R.	09-12-19
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19

Client: NSW Department of Education

Architect: FULTON TROTTER ARCHITECTS

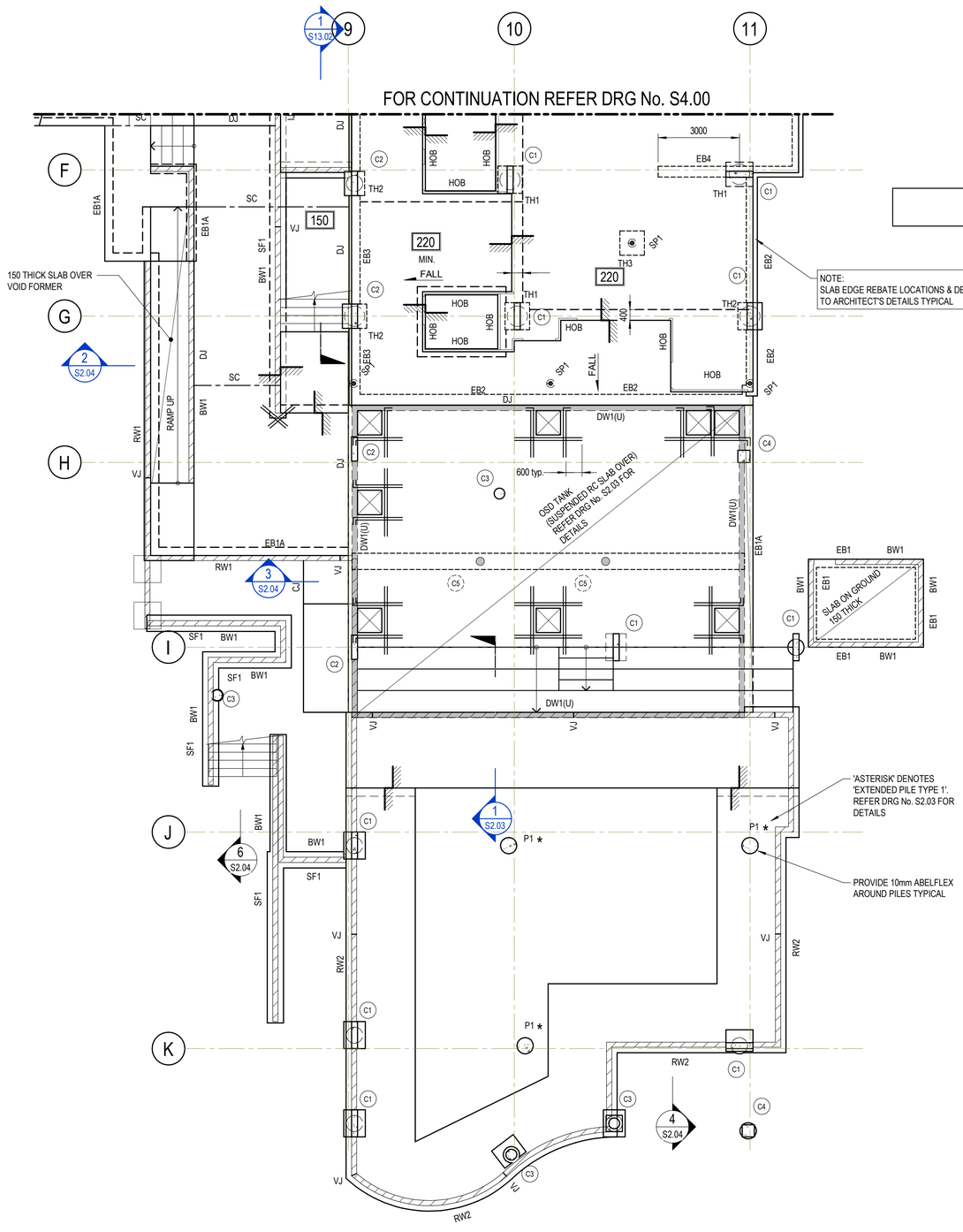
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henry&hymas

Project	WENTWORTHVILLE PUBLIC SCHOOL 70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW
Drawn	A.C.W.
Designed	P.R.
Date	09/25/18
Checked	P.R.
Approved	R.K.
Scale	As indicated
Title	BLOCK G - LEVEL 1 SLAB PLAN SHEET 1
Drawing number	17788-S4.00
Revision	H



BLOCK G - LEVEL 1 SLAB PLAN

SCALE 1 : 100

SLAB ON GROUND LEGEND:

- +++ — DENOTES SLAB THICKNESS
- ++ — DENOTES LOCAL SLAB SETDOWN
- +++ — DENOTES SLAB STEPDOWN
- DENOTES 2-N12 TRIMMERS TOP x 1200 LONG
- VJ — DENOTES BLOCKWALL VERTICAL JOINT, REFER DETAILS

SLAB JOINTS DENOTED THUS:

- TKJ — DENOTES TIED KEYED JOINT
- DJ — DENOTED DOWELED JOINT
- SC — DENOTES SAW CUT JOINT
- TG — DENOTES TOOLED GROOVE
- IJ — DENOTES ISOLATION JOINT

AS BUILT

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
H	AS BUILT	K.S.	P.K.	11-06-21
G	BLOCK WALL ADDED	K.S.	P.R.	25-08-20
F	SUSPENDED SLABS ADDED	K.S.	P.R.	01-07-20
E	GENERALLY REVISED	S.K.	P.R.	18-06-20
D	PROFILE REVISED	S.K.	P.R.	31-01-20
C	NORTH EAST CORNER PROFILE REVISED, LIFT SIZE REVISED, COLUMNS & WALLS REVISED	S.K.	P.R.	09-12-19
B	OSD TANK WALL & RETAINING WALL LOCATION REVISED, SECTION ADDED	S.K.	P.R.	25-11-19
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19

Client: NSW Department of Education

Architect: FULTON TROTTER ARCHITECTS

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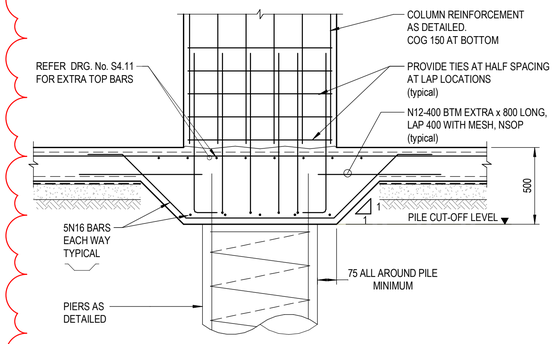
Project: WENTWORTHVILLE PUBLIC SCHOOL
70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW

Title: BLOCK G - LEVEL 1 SLAB PLAN SHEET 2

Drawn	Designed	Date
A.C.W.	P.R.	09/25/18
Checked	**Aproved**	**Scale**
P.R.	R.K.	As indicated

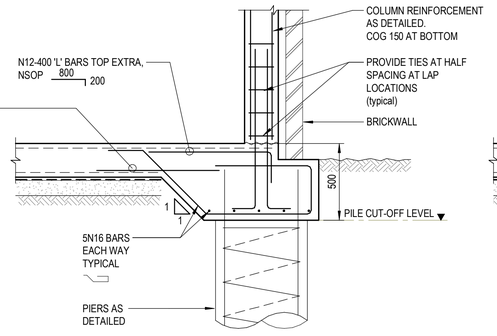
Drawing number: 17788-S4.01

Revision: H



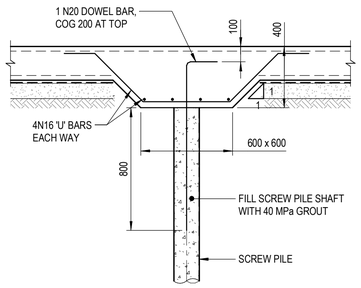
TYPICAL SLAB THICKENING 'TH1' DETAIL

SCALE 1 : 20



TYPICAL SLAB THICKENING 'TH2' DETAIL

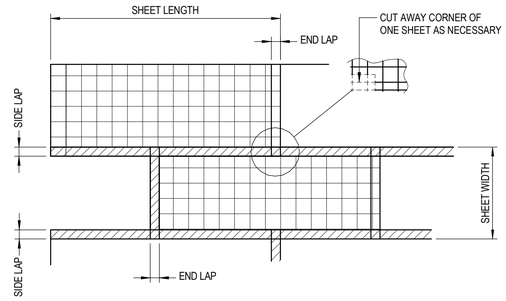
SCALE 1 : 20



TYPICAL SLAB THICKENING 'TH3' DETAIL

SCALE 1 : 20

C

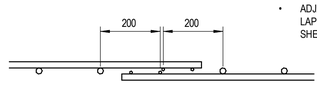


PLAN - FABRIC SHEET LAP DETAIL



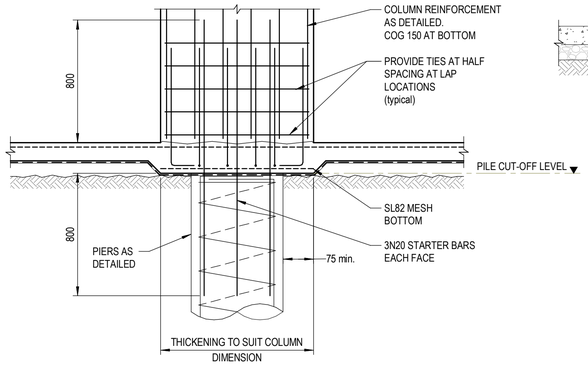
END LAP

- FABRIC END AND SIDE LAP 200mm NORMAL
- ADJACENT FABRIC RUNS TO BE SIDE LAP NESTED AND PLACED HALF SHEET LAP IN STRETCHER PATTERN



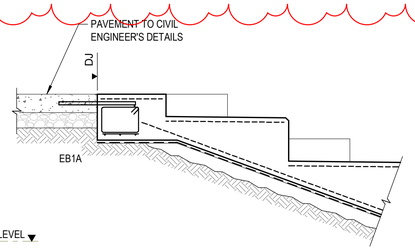
SIDE LAP

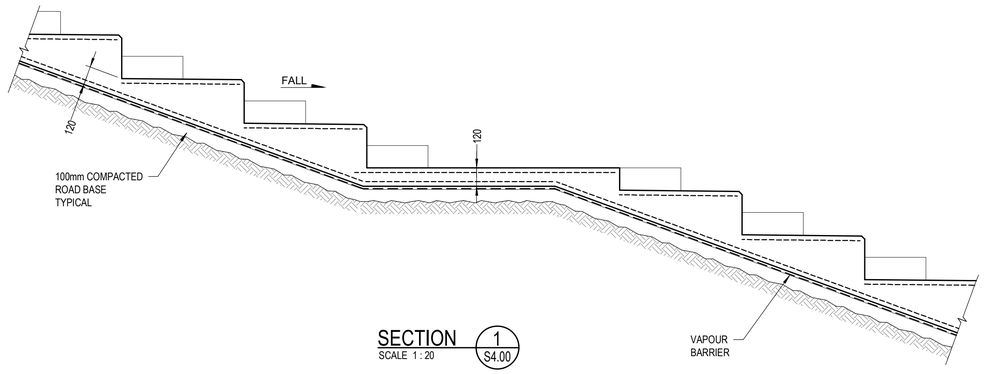
FABRIC LAP DETAIL



TYPICAL PILE / COLUMN TRANSITION DETAIL INSIDE OSD TANK

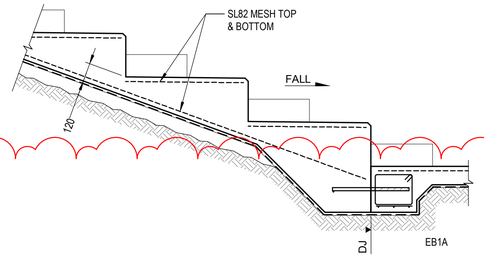
SCALE 1 : 20



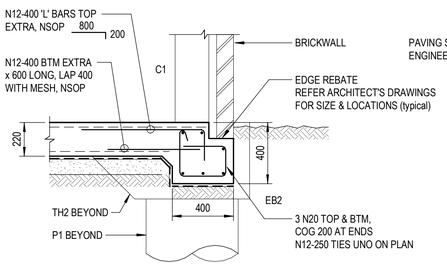


SECTION 1 S4.00

SCALE 1 : 20

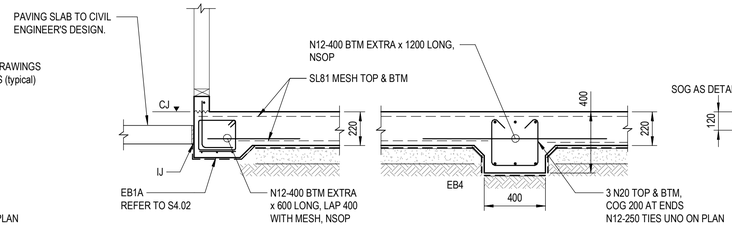


C



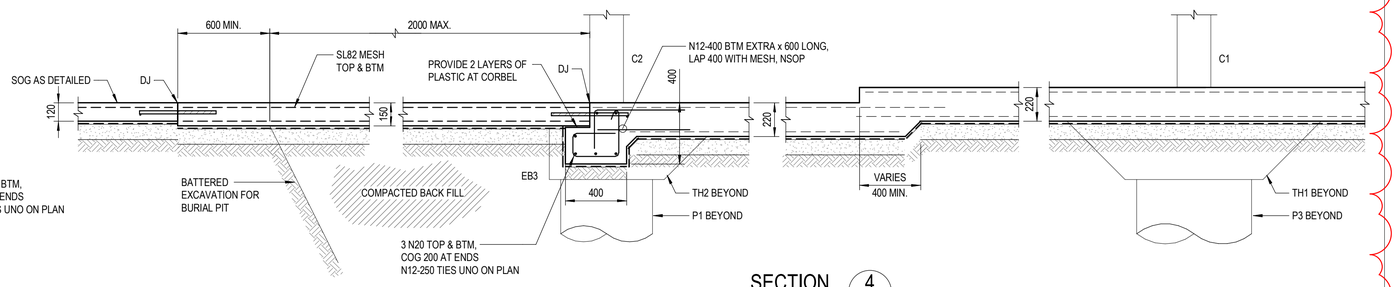
SECTION 2 S4.00

SCALE 1 : 20



SECTION 3 S4.00

SCALE 1 : 20



SECTION 4 S4.00

SCALE 1 : 20

FOR CONSTRUCTION

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
C	SUSPENDED SLAB DETAILS ADDED	K.S.	P.R.	01-07-20
B	DETAILS ADDED	S.K.	P.R.	18-06-20
A	ISSUED FOR CONSTRUCTION	S.K.	P.R.	18-10-19
2	PRELIMINARY ISSUE	A.G.	P.R.	21-05-19
1	PRELIMINARY ISSUE - FOR CO-ORDINATION	A.W.	P.R.	09-10-18

Client
NSW Department of Education

Architect
FULTON TROTTER ARCHITECTS

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henry&hymas

Project
WENTWORTHVILLE PUBLIC SCHOOL
70 - 100 FULLAGAR RD, WENTWORTHVILLE NSW

Title
SLAB ON GROUND DETAILS - SHEET 2

Drawn	Designed	Date
A.C.W.	P.R.	10/09/18
Checked	**Approved**	**Scale**
P.R.	R.K.	1 : 20

Drawing number
17788-S4.03

Revision
C

Burial Pit Looking South 25/08/2020





PRINT SCALE: 1:200 @ A3

0 4 8 12 16 20 40

GRH Hawkes & Associates Pty Limited

E-Mail: grh@grh.com.au | Mob: 0419 249 667
Web: www.grh.com.au

Title:

Burial Pit
Top Of Fill Zone / Underside of Capping Layer
Works as Executed
Building G
Wentworthville Public School

Surveyed By: PE	Job No: 1830
Contour Interval: 0.10	Rev: A
Projection: MGA	Datum: AHD
Date: 25/08/2020	

Surveyed For:

walan CONSTRUCTION SERVICES

32 880
33 180
33 480

T.O.W RL 33.530
230 Brick wall
Brick on edge
Header course

(0.007)
(0.010)
(0.014)
(0.017)
(0.005)
(0.013)
(0.002)
(0.008)
(0.001)
(0.011)
(0.019)

Stairs comply with NCC
Clause H1.4(a)&(b)

External face of block wall
External face of brick
External face of brick
External face of brick
External face of brick
External face of brick

Line of slab over
Line of slab over
Line of slab over
Line of slab over and
External face of brick
Line of slab over and
External face of brick

To external face of brick

Void

ARC
CENTER

BM
RL 35.742

TOP WALL 35.700

UNCONTROLLED SKETCH - FOR INFORMATION ONLY

APPROX NORTH

LEGEND:

- SETOUT POINT PLACED (SO)
- GRID LINE PLACED (GRID)
- OFFSET DIMENSION
- GRID LINES
- BOUNDARY
- DESIGN LINEWORK

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NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.
2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.
3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS PLAN.
4. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO MAINTAIN THE INTEGRITY OF MARKS TO BE USED BY CONTRACTORS PRIOR TO USE.
5. THIS SURVEY IS FOR SETOUT PURPOSES ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
6. PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDERS REQUEST. FOR CLARITY OF THE OFFSET MARKS SHOWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED

PLANS USED FOR SETOUT:

L1_Slab AG-2403 Rev 3

REV.	DATE	AMENDMENTS
01	03/06/2021	HEIGHTS ADDED

PREPARED BY:

geosurv
consulting surveyors, planners & engineers
GEOSURV PTY LTD
ABN 99 121 987 004
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ROYAL EXCHANGE NSW 1225
tel: 1300 554 675
fax: 1300 859 564
www.geosurv.com.au
e-mail: info@geosurv.com.au

PREPARED FOR:

GRINDLEY

PLAN:

RET WALL AB
LEVEL 1 SOUTH
WENTWORTHVILLE SCHOOL
WENTWORTHVILLE

ORIGINAL SIZE:	A1
SCALE:	CO-ORD:
DATUM: AHD	ORIG DATUM: NA
DATE OF SURVEY: 2020-08-17	DATE OF PLAN: 2021-06-03
SURVEY BY: JONATHAN C.	DRAWN BY: JONATHAN C.
CHECKED BY: JONATHAN C.	DATE: 2020-08-17
APPROVED BY: KD	DATE: 2021-06-03
PLAN REF:	SHEET: 1 OF 1 SHEETS

Z:\03. SURVEYING NETWORK\02. NSW SURVEY\03. PROJECTS\2019\NP190965 - WENTWORTHVILLE PUBLIC SCHOOL (GRINDLEY)\09. SITE VISITS\2020-08-17 JC (PLANTER BOX + WALL VOLUMES)\PLANTER WALL AS BUILT R01.DWG

E2 STAGE 2

SKETCH

FOR INFORMATION ONLY

TPZ

Village Green

+40.51 +40.45 +40.43 +40.43 +40.28 +40.07 +39.92 +39.62 +39.72

+40.47 +40.24 +40.05 +39.86 +39.66

+40.76 +40.62 +40.36 +40.25 +40.06 +39.86

+40.72 +40.56 +40.33 +40.29 +39.99

MIXED PLANTING CONSISTING OF:
6 GRE FIR
18 CAR GLA
23 LOM FIL
23 HAR VIO

MIXED NATIVE PLANTING CONSISTING OF:
6 GRE FIR
18 CAR GLA
23 LOM FIL
23 HAR VIO

LANDSCAPE CONTRACTOR TO REPLACE TURF AND MAKE GOOD EXISTING AREAS OF TURF DISTURBED AS A RESULT OF THE PROPOSED CONSTRUCTION WORKS

LANDSCAPE CONTRACTOR TO REPLACE TURF AND MAKE GOOD EXISTING AREAS OF TURF DISTURBED AS A RESULT OF THE PROPOSED CONSTRUCTION WORKS

EXISTING TREE TO BE RETAINED AND PROTECTED FOR DURATION OF CONSTRUCTION WORKS IN ACCORDANCE WITH THE ARBORIST'S REPORT.

EXISTING TREES TO BE RETAINED IN ACCORDANCE WITH ARBORIST REPORT AND APPROVED DOCUMENTATION. REFER TO ARBORIST'S REPORT FOR TREE PROTECTION MEASURES INCLUDING SITE FENCING

ANTING MATRIX A
FER TO LA-400

MIXED PLANTING CONSISTING OF:
5 CAL MAC
15 CAR GLA
20 LOM FIL
20 THE AUS

PROPOSED DDA-COMPLIANT ACCES
RAMP SYSTEM TO ENGINEER'S DET

MIXED PLANTING CONSISTING OF:
5 WES BLU
15 MYO PAR
20 DIA LON
20 HAR VIO

Outdoor Learning Area
AR0067
109.5m²

EXISTING STEPS TO BE RETAINED

Movement
AR0019
7.7m²

Movement
AR0022
39.4m²

EDB
AR00008
1.9m²

Movement
AR0066
3.7m²

EXISTING BLEACHER AMPHITHEATRE CONCRETE STEPS

EXISTING FENCE LINE

CONDENSERS
2100 X 7200

Proposed Temp.
OOSH Office
12m²

51.7

Home B
AR0
59

Pres

Plot Date: 2 September 2021 - 10:02 AM
Cad File No: 190965 Checks.dwg

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SETOUT SKETCH

BLD A GROUND
WENTWORTHVILLE
PUBLIC SCHOOL

LEGEND:

- BENCHMARK
- NAIL PLACED
- TEXTA MARK PLACED
- PEG / STAKE PLACED
- SETOUT POINT PLACED
- GRID LINE PLACED
- 6.985 OFFSET DIMENSION
- GRID LINES
- BOUNDARY
- DESIGN LINEWORK

PREPARED FOR:

GRINDLEY

PLANS USED FOR SETOUT:

AH-2402
PLAN 2

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS SKETCH PLAN.

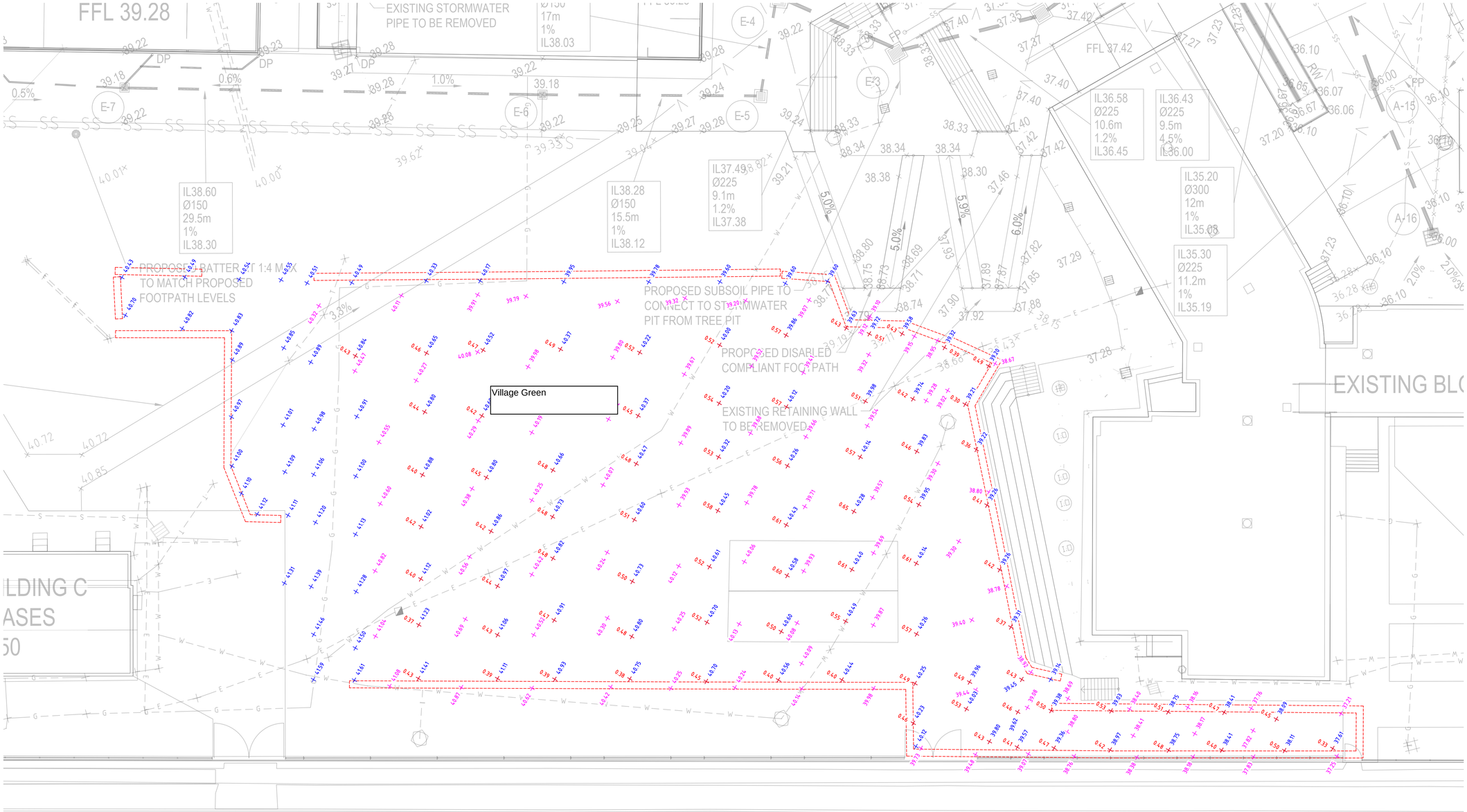
4. IT IS THE SOLE RESPONSIBILITY OF THE BUILDER TO MAINTAIN THE INTEGRITY OF MARKS TO BE USED BY CONTRACTORS PRIOR TO USE.

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6. THIS SKETCH PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDERS REQUEST. FOR CLARITY OF THE OFFSET MARKS SHOWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED

ORIGINAL SIZE:	A3
SCALE: 5.125910	CO-ORD: MGA
DATUM: AHD	ORIG DATUM: AHD
SURVEY BY: BM	DATE OF SURVEY: 02/09/21
DRAWN BY: BM	DATE OF PLAN: 02/09/21
CHECKED BY: BM	DATE: 02/09/21
SKETCH REF: XXXXXX-XX-XX	SHEET: 1 of 1

C:\USERS\GEOSURV\DESKTOP\TO BE DONE IN FIELD\190965 - WENTWORTHVILLE\2021-09-02 BM (BLD E SLAB+STEPDOWNS+SUBGRADE AS-BUILT+BLD H STAIRS)\190965 CHECKS.DWG



NORTH[APPROX]

LEGEND

✕ #.###	SURVEYED SPOT HEIGHT "TOP SOIL" [D.O.S. 20.01.22]
✕ #.###	SURVEYED SPOT HEIGHT "SUBGRADE" [D.O.S. 13 & 14.07.21]
✕ #.###	SURVEYED SPOT HEIGHT "BITUMEN" [D.O.S. 21.12.21]
✕ #.###	CALCULATED COVER DISTANCE FROM TOPSOIL TO SUBGRADE
– – – –	ASBUILT SANDSTONE BLOCK WALL
———	DESIGN INFORMATION FROM REFERENCED PLAN
D.O.S.	DATE OF SURVEY

NOTES:

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PLANS REFERENCED:

1900965 - 17788_CC_C101-C102

REV.	DATE	AMENDMENTS	INT.
A	20.01.22	ISSUED FOR INFORMATION	GPAP

PREPARED BY:

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PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

ASBUILT PLAY AREA
COVER FROM TOPSOIL TO SUBGRADE
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH,NSW

ORIGINAL SIZE: A1

SCALE:	1:150	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	VAR	DATE:	VARIOUS [SEE LEGEND]
DRAWN BY:	GPAP	DATE:	20.01.22
CHECKED BY:	CB	DATE:	20.01.22
APPROVED BY:	AA	DATE:	20.01.22
DRAWING #:	190965-AB-PA-04	REV:	A

Plot Date: 20 January 2022 - 11:00 AM Cad File No: 190965-AB-PA-04[A].dwg

M.G.A



COORDINATES TABLE

NAME	EASTING	NORTHING
1	311983.30	6256628.17
2	312009.49	6256620.89
3	312006.54	6256607.42
4	311979.59	6256613.83
5	311960.41	6256604.02
6	312007.74	6256592.46
7	312019.30	6256582.35
8	312017.15	6256580.44
9	312016.36	6256561.40
10	312018.42	6256560.17
11	312017.99	6256558.39
12	312036.97	6256553.33
13	312036.23	6256549.78
14	312006.44	6256557.52
15	312007.57	6256561.94
16	311966.38	6256572.37
17	311967.85	6256579.03
18	311965.94	6256579.54
19	311967.34	6256584.38
20	311965.50	6256584.94
21	311964.70	6256586.85
22	311964.59	6256589.00
23	311966.85	6256597.88
24	311959.40	6256599.80
25	312027.15	6256600.01
26	312040.76	6256603.84
27	312045.83	6256585.78
28	312053.54	6256584.15
29	312055.85	6256593.47
30	312069.83	6256589.88
31	312060.32	6256552.57
32	312050.35	6256555.85
33	312054.01	6256570.01
34	312031.11	6256576.19
35	312032.57	6256580.88

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: JANUARY 2022

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 2 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

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e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **OE/GR** Date Surveyed: **10/20&5/21&01/22**
Drawn: **CLP/GR** Checked: **GR**

Dwg. No.
SY074981.000.7.4

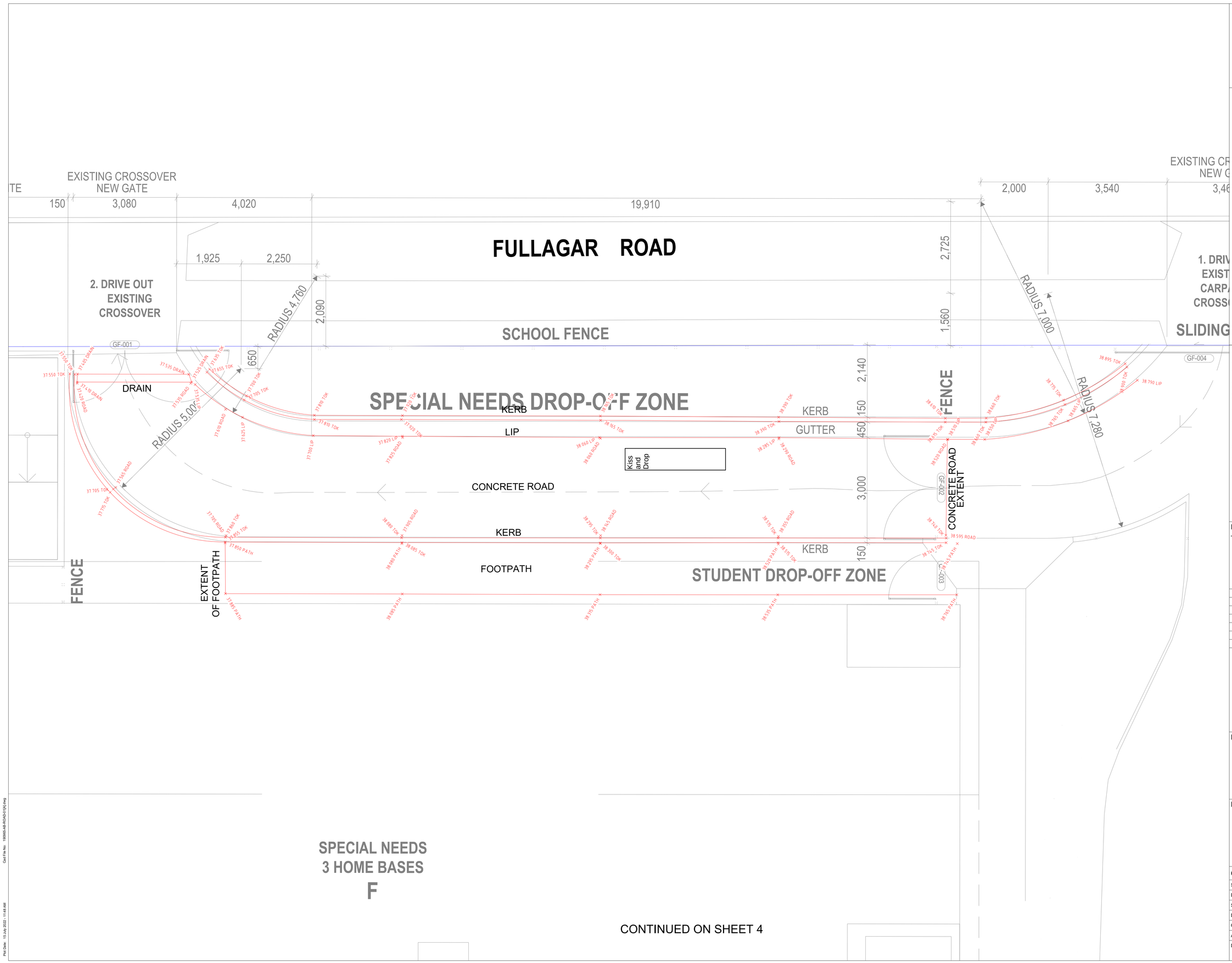
---------- DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

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E3 STAGE 3



NORTH (APPROX)

LEGEND

	GRID LINES
× 0.010 XXX	AS-BUILT POINT & DESCRIPTION
	DESIGN
TOK	TOP OF KERB
PATH	PATH LEVEL
ROAD	CONCRETE ROAD LEVEL

NOTES:

1. ALL MARKS PLACED ARE ACCURATE AND CORRECT AT DATE OF SURVEY.

2. IF MARKS ARE PLACED PRIOR TO STRESSING, GEOSURV TAKE NO RESPONSIBILITY FOR THE ACCURACY OF THOSE MARKS PLACED ONCE STRESSING HAS BEEN CARRIED OUT.

3. CONSTRUCTION WORKS MUST BE RELATED TO THE BENCHMARK ONLY AND NOT LEVELS OF STRUCTURES SHOWN ON THIS PLAN.

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PLANS USED:
--

REV.	DATE	AMENDMENTS	INT.
A	15.07.22	Issue for Client	GPAP
PRE	15.07.22	Preliminary Issue	GPAP

PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

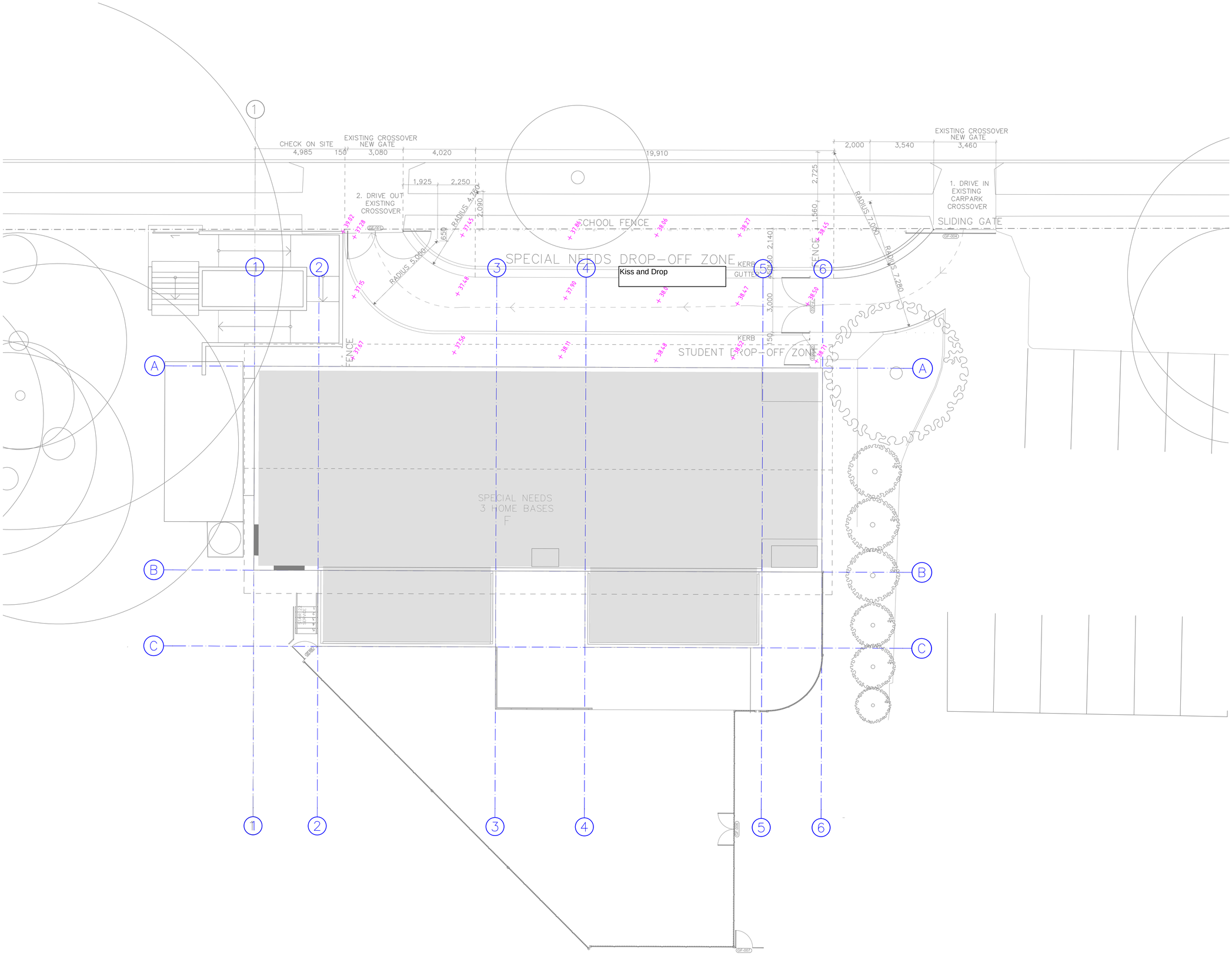
ROAD DETAIL
GROUND FLOOR
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH, NSW

ORIGINAL SIZE: A1

SCALE:	1:50	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	CB	DATE:	14.07.22
DRAWN BY:	GPAP	DATE:	15.07.22
CHECKED BY:	CB	DATE:	15.07.22
APPROVED BY:	AA	DATE:	15.07.22

DRAWING #: 190965-AB-ROAD-01[A]

Cad File No: 190965-AB-ROAD-01[A].dwg
Plot Date: 15 July 2022 - 11:48 AM



NORTH[APPROX]

LEGEND

- GRID LINES
- DESIGN FEATURES
- × 40.00 AS-BUILT GEOFAB LAYER [D.O.S. 01.04.22]
- D.O.S. DATE OF SURVEY

NOTES:

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PLANS REFERENCED:

AF-2601

REV.	DATE	AMENDMENTS	INT.
A	04.04.22	ISSUED FOR INFORMATION	BTP

PREPARED BY:

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PREPARED FOR:

Grindley CONSTRUCTION

PLAN OF:

ASBUILT GEOFAB LAYER
BUILDING F - EXTERNAL WORKS
WENTWORTH PUBLIC SCHOOL
70-100 FULLAGAR ROAD
WENTWORTH,NSW

ORIGINAL SIZE: A1

SCALE:	1:150	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	ADOPTED
SURVEY BY:	BM	DATE:	01.04.22
DRAWN BY:	BTP	DATE:	04.04.22
CHECKED BY:	BM	DATE:	04.04.22
APPROVED BY:	AA	DATE:	04.04.22

DRAWING #: 190965-AB-GEOFAB(BLD F-EW)01 [A]

Plot Date: 4 April 2022 - 11:49 AM Cad File No: 190965-AB-GEOFAB(BLD F-EW)01 [A].dwg

M.G.A



COORDINATES TABLE		
NAME	EASTING	NORTHING
1	311940.22	6256667.04
2	311970.53	6256659.10
3	311970.89	6256655.84
4	311969.38	6256651.28
5	311965.89	6256647.21
6	311962.05	6256634.01
7	311949.11	6256637.31
8	311947.76	6256636.58
9	311933.50	6256641.14
10	311927.07	6256651.37
11	311928.00	6256654.50
12	311927.33	6256655.20
13	311926.02	6256655.46
14	311927.87	6256662.58
15	311937.68	6256659.81
16	311948.43	6256607.02
17	311960.39	6256604.05
18	311959.40	6256599.81
19	311966.89	6256598.01
20	311964.61	6256588.99
21	311964.70	6256587.07
22	311965.46	6256585.12
23	311954.23	6256587.55

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: JANUARY 2022

WSP AUSTRALIA PTY LTD

PLAN SHOWING EXTENT OF STAGE 3 REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

LANDPARTNERS
built environment consultants

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Level 2, 23-29 South Street
Rydalmere NSW 2116

PO Box 1144
Dundas
NSW 2117

t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

Surveyed: **RJ** Date Surveyed: **17/06/2022**
Drawn: **GR** Checked: **GR**

Dwg. No.
SY074981.000-STG3

---------- DENOTES EXTENT OF REMEDIATION WORKS

6 0 10 20 30 40m

SCALE 1:800

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E4 OVERALL REMEDIATION AREA

M.G.A

Kiss and Drop

Block E Extension

COLA

Southern & Western Landscaping

Temporary Demountable Area

GARFIELD STREET

FULLAGAR ROAD

MONASH STREET

STATION STREET

104°37'40"

40.545

EXISTING LANDSCAPED GARDEN

90.55

194° 28' 10"

200.99

104° 13'

241.44

102° 13' 50"

194° 31' 40"

90.46

DP1245593

2.18ha

No. 70
FULLAGAR ROAD

1

SPECIAL NEEDS
3 HOME BASES
F

HALL
H

ADMIN
EXTENSION

ADMIN
E

LIBRARY
G

30 HOME BASES
G (TOTAL)

4 HOME BASES
B (EXISTING)

2 HOME BASES
C (EXISTING)

RELOCATED CRICKET NETS

EXTERNAL FIRE HYDRANT

STAIR 4

STAIR 5

TOTAL AREA OF WEST REMEDIATION = 1882m²

TOTAL AREA OF STAGE 3 REMEDIATION = 1200m² (HATCHED SOLID)

TOTAL AREA OF SOUTH-WEST REMEDIATION = 132m²

TOTAL AREA OF SOUTH REMEDIATION = 164m²

TOTAL AREA OF CENTRAL REMEDIATION = 3196m²

TOTAL AREA OF GREEN VILLAGE REMEDIATION = 1672m²

TOTAL AREA OF SOUTH EAST REMEDIATION = 974m²

TOTAL AREA OF EAST REMEDIATION = 5180m²

Stairs comply with NCC Clause H1.4(a)&(b)

RL 41.3

RL 41.2

6 0 10 20 30 40m

SCALE 1:800

DENOTES EXTENT OF REMEDIATION WORKS

NOTES

MERIDIAN: MGA ZONE 56
COORDINATE SYSTEM: MGA94
NEARMAP IMAGE: MAY 2021

WSP AUSTRALIA PTY LTD

PLAN SHOWING OVERALL EXTENT OF REMEDIATION WORKS ON LOT 1 IN DP1245593

70 FULLAGAR ROAD, WENTWORTHVILLE

LGA: CUMBERLAND

SCALE 1:800 (A3)

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w www.landpartners.com.au

Surveyed: **OE/GR/RJ** Date Surveyed: **10/20-06/22**
Drawn: **GR** Checked: **GR**

Dwg. No.

SY074981.000.7.5

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