

DUE DILIGENCE ENVIRONMENTAL ASSESSMENT

Oxley Vale Service Station

**171 Manilla Road, Oxley Vale NSW, 2340
(Lot B, DP161758)**

For:

Nic Summers

November 2019

Environmental Engineering Solutions

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Executive Summary

ENV Solutions Pty Ltd (ENV) has undertaken a Stage 1 Preliminary Site Investigation (PSI) forming a due diligence assessment at the Summers Oxley Vale Takeaway & Superette, situated at 171 Manilla Road, Oxley Vale NSW, 2340 (the site). The investigation was undertaken in general accordance with the *Managing Land Contamination Planning Guidelines* (DUAP and EPA, 1998), *Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 2000) and *Technical Note: Investigation of Service Station Sites* (NSW EPA, 2014).

This investigation is to inform and support a valuation of the site.

This Stage 1 PSI has:

- Described the site condition and surrounding environment;
- Reviewed site history details;
- Identified past and present potentially contaminating activities and potential contaminant types;
- Assessed soil and sample analysis results against relevant national screening and investigation levels;
- Provided a preliminary assessment of the site contamination;
- Assessed the need for further investigations; and
- Assessed contamination relating to the suitability of the site for continued commercial land use (operational service station) and future development.

Based on the preliminary desk-top review of site history, the following potentially contaminating activities and associated chemicals of potential concern were identified:

- The site has been used as a general service station with mechanical workshop dating back to the early 1960's, including dispensing bowzers and associated underground storage tanks (USTs) and fuel lines – aliphatic hydrocarbons; benzene, toluene, ethylbenzene and xylenes (BTEX); polycyclic aromatic

hydrocarbons (PAH) and metals.

A hazardous chemicals investigation was undertaken for the site in the form of a Schedule 11 assessment performed by WorkSafe NSW. The investigation provides information about hazardous chemicals historically stored at site and indicates that various underground fuels have been present at site dating from 1963.

A field program which included a site inspection, borehole investigations, and soil sampling was subsequently conducted to obtain further information about potential site contamination.

Six (6) boreholes were completed to a maximum depth of 3.0 metres below ground level (mBGL) in areas surrounding the fuel related infrastructure, with soil samples collected at discrete depth intervals from within each borehole. The locations of the boreholes were selected to assess the potential for contamination in areas close to and/or in the inferred down-hydraulic gradient direction from the existing USTs, as well as in close proximity to the fuel dispensing bowsers. Practical auger refusal was encountered on inferred rock at each of the drilling locations. Thirteen (13) soil samples were selected for laboratory analysis of petroleum hydrocarbons (TRH, BTEX and PAH) and metals – averaging two per borehole as well as two (2) quality assurance and quality control (QA/QC) samples.

Three of the six soil bore locations were converted into monitoring wells (MW1, MW2 and MW3). The monitoring wells were installed, yet due to shallow refusal on bedrock, the groundwater table was not intercepted. As such, MW1, MW2 and MW3 were installed dry. ENV mobilised back to site the following day (30th) to check if groundwater had infiltrated any of the wells. Each well was again noted to be dry, meaning no groundwater samples were able to be obtained as part of the investigation.

Analytical soil laboratory results return with detects for various metals with each of the selected samples as well as C29-36 (140 mg/kg), C16-34 (180 mg/kg) and C10-40 (sum of total) (180 mg/kg) in BH03_0.2 only. The metal detect are expected due to the naturally occurring properties of soil and background metal levels. The TRH/TPH detects in BH03_0.2 are recorded as being low. As this sample was obtained from a

shallow depth of 0.2 mBGL, it is possible that hydrocarbon stained surface soils were accidentally mixed in with the material while it was being pulled from the ground on the auger of the drill rig, as opposed to it being from an *in situ* layer of contamination in the profile.

In summary, concentrations of each of the COPC were less than the laboratory LOR, or less than the adopted assessment criteria, in the soil samples analysed.

On the basis of the results, it is concluded that **the site is free of any notable contamination and suitable for continued commercial land use (ongoing operation as a service station).**

Introduction

ENV Solutions Pty Ltd (ENV) has been engaged by Nic Summer (the client) to undertake an environmental assessment of the Summers Oxley Vale Takeaway & Superette, situated at 171 Manilla Road, Oxley Vale NSW, 2340 (Figures 1 and 2, **Attachment 1**) (the site). The site comprises a small convenience store, bottle shop and fuel dispensary, situated in a building on the approximate centre of the lot. A single-story residential dwelling is located to the immediate north of the shop building while a driveway situated on the southern portion of the site leads to the rear of the block where staff parking and the backyard of the dwelling is located.

The site is bordered on the approximate south, south-west and west by the Oxley Vale Public School, with Manilla Road to the east and north. During the site inspection and upon reference to the Schedule 11 Storage of Hazardous Chemicals assessment, it was noted that the site contained two (2) small (~5,000 litre) underground storage tanks (UST) and associated vents located on the approximate south-western corner of the shop building. It is assumed that piping running to the bowser – located along Manilla Road at the front of the site – lies beneath the building or runs around the perimeter of the building. Regardless, the location and direction of the Underground petroleum storage systems (UPSS) piping was unable to be determined.

The assessment has been completed for due diligence purposes, to support a property valuation for potential purchase of the site and future development.

Scope of Works

Clause 7(1) of State Environment Planning Policy No 55 – Remediation of Land (SEPP 55) states that:

- “(1) A consent authority must not consent to the carrying out of any development on land unless:*
- (a) it has considered whether the land is contaminated, and*
 - (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*
- (2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.*
- (3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority...”*

This Stage 1 PSI has been prepared to address the outlined SEPP 55 requirements. ENV understand that the client intends to purchase the free hold for the property and intends to build across the lot. As such, this Due Diligence Assessment is to investigate the suitability of the site for ongoing and future land uses, with regard to the environmental status of soils on site relating to the historical context of the site.

The environmental assessment has been prepared in accordance with the *Managing Land Contamination Planning Guidelines* (Department of Urban Affairs and Planning [DUAP] and the NSW Environment Protection Authority [EPA], 2011), *Guidelines for*

Consultants Reporting on Contaminated Sites (Office of Environment and Heritage (OEHS, 2011)) and *Technical Note: Investigation of Service Station Sites* (NSW EPA, 2014).

This assessment:

- Describes the site conditions and surrounding environment;
- Reviews site history details;
- Identifies past and present potentially contaminating activities and potential contaminant types;
- Assesses soil sample analysis results against relevant criteria;
- Provides a preliminary assessment of the site contamination;
- Assesses the need for further investigations; and,
- Assesses the suitability of the site for ongoing commercial use (i.e. continued operation as a service station and retail store).

Summary of Methodology

This assessment has been undertaken to identify the potential for contamination at the site. A desktop review of site history information; and a site inspection including borehole investigations and soil sampling has been conducted as part of the investigation. The original scope of works was to include a groundwater assessment of localised groundwater conditions at site. However, groundwater monitoring wells were installed shallow (from 2 – 3 mBGL) due to refusal on bedrock and as such, no groundwater samples were able to be obtained as part of the investigation. While groundwater samples can be helpful in determining contamination relating to historical land use of an area, consideration should be given to the fact that groundwater in the Tamworth region is expected to be deep (greater than 20 mBGL), and as such, it would be unlikely that the two USTs located on site would ever be surrounded by or immersed in groundwater. Considering this, the USTs are likely to not be impacted from historical groundwater degradation that is a major cause of holes and leaks occurring in steel USTs.

The desktop site history review included collating information from the following sources:

- NSW Office of Environment and Heritage's (OEH) Protection of Environment Operations Act 1997 (POEO Act) Public Register;
- Historical Hazardous Chemicals Notification; and
- OEH's Contaminated Land – Record of Notices.

The site inspection and investigation included:

- An inspection of the site to identify the layout of fuel dispensing infrastructure and other potential areas of contamination; and
- Preliminary soil sampling across targeted areas of the site in order to detect contamination hotspots.

Site Details

Table 1 provides a summary of identification details for the subject land which are relevant to this assessment. Further details are provided in Section 0.

Table 1: Site Identification Details

Site Address	171 Manilla Road, Oxley Vale NSW, 2340
Site Area	Total site – approximately 1637 m ² (Six Maps, 2011)
Real Property Description	Lot B, DP161758
Local Government Area	Tamworth Regional Council
Zoning	<p>R1 – General Residential – Tamworth Regional Council Local Environmental Plan (LEP) 2010 (refer Figure 3, Attachment 1). The objectives of this zone are:</p> <ul style="list-style-type: none"> - To provide for the housing needs of the community. - To provide for a variety of housing types and densities. - To enable other land uses that provide facilities or services to meet the day to day needs of residents.
Site Features and Observations	<ul style="list-style-type: none"> - Shop building selling various goods and including food and drinks and take away alcohol. A single bowser is located on the front of the lot located directly off Manilla Road. - The underground fuel infrastructure relating to the bowser includes: <ul style="list-style-type: none"> - 1 x UST storing diesel – 5 kL; - 1 x UST storing UL – 5 kL; - 1 x fuel dispensing bowser; - 2 x fill points; - 2 x vent pipes, situated on the southern fence line of the property; and, - 1 x discontinued fill point located at the beginning of the driveway from Manilla Road leading to the rear of the property. - The shop building is located in the general centre of the block, while a single-story residential dwelling is situated on the approximate north of the site. - A backyard, car storage area is situated at the rear of the site and borders a portion of the Oxley Vale Public School. Much of this area consists of grass and gravels with fragmented trees and shrubs.

	<ul style="list-style-type: none"> - Minor surface staining was noted around the fuel dispensing pumps in the forecourt area as well as surrounding the USTs and fill points at the approximate south-western corner of the shop building. - No stressed vegetation was observed in the landscaped areas.
Surrounding Environment	<ul style="list-style-type: none"> - North: Medium density residential dwellings. - South: The Oxley Vale Public School. - East: Medium density residential dwellings. - West: The Oxley Vale Public School.
Existing Land Use	Commercial and shopfront
Proposed Land Use	Likely to be Commercial (ongoing service station and retail shop)
Topography	The site elevation is 395 metres Australian Height Datum (mAHD). The topography of the site has a slight gradient towards the west across the site.
Soils	Reference to <i>in-situ</i> soils as encountered as part of the drilling processes describes the geological makeup to be a mix of gravelly clayey fills in areas within close proximity to site based infrastructure, while less disturbed (visually noted) portions of the site consisted of either reworked or natural clays. Refer to borehole logs in Attachment 3 .
Groundwater Resources	A search of the Water NSW (formally NSW Office of Water) groundwater bores online mapping shows 5 licensed bores within a 500 m radius of the site (refer Figure 4, Attachment 1).
Surface Water	Dry Gully runs to the south and east of the site, which feeds into Peel River; approximately 540 m to the west of the site at its closest point.
Flooding	Reference to flooding risk can be found in The Tamworth Regional Council Environmental Plan (LEP) 2010. Reference to the flooding map indicates the site is not in a flood prone area (refer Figure 5, Attachment 1).
Acid Sulfate Soils	Due to the site's elevation and significant distance from any intertidal/low lying floodplain area, acid sulfate does not pose a risk during disturbance of soils at the site.

Site Condition and Surrounding Environment

A desktop study was undertaken to establish the physical characteristics of the site and surrounding environment. This study was supplemented by site observations made during fieldwork conducted on 29 October 2019. Photographs taken during the site inspection are presented in the photolog found in **Attachment 2**.

Surrounding Environment

North: Medium density residential dwellings.

South: The Oxley Vale Public School.

East: Medium density residential dwellings.

West: The Oxley Vale Public School.

Topography

The site elevation is 395 (mAHD). The topography of the site has a slight gradient towards the west across the site.

Flooding

Reference to flooding risk can be found in The Tamworth Regional Council Environmental Plan (LEP) 2010. Reference to the flooding map indicates the site is not in a flood prone area (refer Figure 5, **Attachment 1**).

Groundwater Resources

A search of the NSW Office of Water Groundwater Bores online mapping shows two (2) licensed bores located within 500 m of the site; all located to the west and south-west of the site. Identification of each bore indicates each is used for domestic purposes and were installed to 22 and 63 mBGL respectively.

Given the distance of these bores from the site, the risk of any groundwater impacts from the subject site reaching the licensed bores is considered to be low. Reference to the identified bores can be found in Figure 4, **Attachment 1**.

Site History

A desktop review of site history was undertaken to develop a picture of the history of site uses and development, and potential sources and locations of any contamination in addition to the fuel dispensing infrastructure. The findings of the desk-top site history assessment are summarised below.

Previous Assessments

ENV Solutions have endeavoured to obtain historical environmental information, yet it is believed no previous environmental investigations have been undertaken for the site.

SafeWork NSW Site Search for Hazardous Chemicals

Additional information about chemical storage at the site was obtained in the form of a Schedule 11, Hazardous Chemicals Notification search through SafeWork NSW. Information within the Schedule 11 search relates to historical hazardous chemical storage at site, the type of chemicals, the volume of chemicals, location of the chemicals on site and information relating to licences required for keeping dangerous goods and who is responsible for these licences at the site.

Information relevant to the site indicates that hazardous chemicals (fuel) stored within underground storage tanks (USTs) have been registered at the premises since 1963 until the present time. Table 2 outlines the historical chemical storage found at site according to the Schedule 11 information. The Schedule 11 document can be referenced in **Attachment 6**.

Table 2: Schedule 11 Information

1963		
Occupier	M Whackett	
Supplier	BP Australia	
Construction of depots	Underground tank	Underground tank
Inflammable liquid (L)	-3785.41	-3785.41
1978		
Occupier	M Whackett	
Supplier	BP Australia	
Construction of depots	Underground tank	Underground tank
Inflammable liquid (L)	- 5,000	- 5,000
1981		
Occupier	M Whackett	
Supplier	Ampol	
Construction of depots	Underground tank	Underground tank
Inflammable liquid (L)	- 4,500 - Standard Petrol	- 4,500 - Super Petrol
1981		
Occupier	Doris Lynette and Reginald Thomas Germon	
Supplier	Ampol	
Construction of depots	Underground tank	Underground tank
Inflammable liquid (L)	- 5,000	- 5,000
1990		
Occupier	Stargleam Pty Ltd	
Supplier	Ampol	
Construction of depots	Underground tank	Underground tank
Inflammable liquid (L)	- 4,500	- 4,500

POEO Act Public Register Search

The NSW EPA POEO Act Public Register contains information about environment protection licences, licence applications, notices issued under the POEO Act and pollution studies and reduction programs.

The EPA's POEO Act Public Register was searched for the Tamworth area on 8 November 2019. A number of licences were found during the search, including the likes of milling, concrete plants, waste treatment services and agricultural services such as bird and poultry housing.

Due to the significant distance of these operations from the site, there is considered to be a low risk of contamination from these activities reaching the site.

Contaminated Land – Record of Notices Search

The OEH's Contaminated Land – Record of Notices was searched (accessed 8 November 2019) for the Tamworth area. Two sites were found to contain "Significantly Contaminated Land". These sites are located at 251 – 253 Goonoo Goonoo Road and 65 Nundle Road, Tamworth. The first site on Goonoo Goonoo Road (Coles Express) was noted to contain elevated levels of Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethyl benzene, Xylene (BTEX), with significant levels of Phase Separated Hydrocarbon identified at site. The site sits approximately 6.5 km to the south-east of the site.

The second site, identified as the Woolomin Gold Rush Store, which is located approximately 50 km to the south-east, was identified as having Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl benzene, Xylene (BTEX) and Napthalene in groundwater due to fuel loss on site.

Considering the location of each property, the identified contamination poses very little impact to the subject site.

Cattle Dip Site Locator

The NSW DPI cattle dip site locator was accessed on 8 November 2019, to assess the potential for historic cattle dip sites in the Tamworth region. The register did not identify any dips in the region.

Historical Land Ownership

The online NSW Land and Property Information (LPI) Historical Land Records Viewer (HLRV) tool was used to search for parish maps for the Tamworth region. The search was unable to locate any maps for the subject site.

Summary of Site History Review – Areas of Environmental Concern

Based on the desktop review of site history and figures obtained through various sources, it appears that the subject land has been an active service station since the 1960's. Prior to this, the land may have been used for residential purposes or other commercial uses and following that, the area was most likely used for agricultural purposes.

The current and historical service station land use, which includes dispensing bowsers and associated USTs and fuel lines, is considered to be the primary reason for further investigation of potential site contamination.

The following potentially contaminating activities and chemicals of potential concern are associated with these sources:

- General service station land use and former mechanical workshop, including use of dispensing bowsers and associated USTs and suction/vent lines: aliphatic hydrocarbons, BTEX (i.e. benzene, toluene, ethylbenzene, xylenes), polycyclic aromatic hydrocarbons (PAH) and lead (SEPP 55 (DUAP and NSW EPA, 1998)).

A combined inspection of the site and field sampling program, including borehole investigations with associated soil sampling, was conducted to obtain further information about potential site contamination. As mentioned previously, a groundwater investigation was intended to be undertaken - however, due to deep

groundwater conditions in the Tamworth region (~20 mBGL), drilling and groundwater monitoring well installation was unable to intercept the groundwater table. As shallow refusal was encountered at each of the 6 locations – ranging from 2 – 3 mBGL, drilling any further into the bedrock was unable to be achieved. As such, no groundwater samples were able to be obtained to support this investigation.

Conceptual Site Model

From the desktop study, a preliminary Conceptual Site Model (CSM) was developed to identify potential sources, exposure pathways and receptors of contamination associated with the service station operations and former mechanical workshop at the subject site. This information is summarised in the following sub-sections.

Contamination Sources

Based on the current and historical use of the site for fuel dispensing purposes, the contamination sources are considered to include the following:

- Leaks from historical USTs which have either been abandoned or buried without removal upon discontinued use;
- Leaks from the existing USTs and associated fill pipes;
- Leaks from the existing fuel dispensing bowsers and associated suction pipework;
- Leaks from the former filling points and spills during refuelling operations; and
- Spills on the forecourt area. Although the forecourt was covered with concrete and bitumen, historical staining was observed to be present in certain areas.

Chemicals of Potential Concern

Based on the likely contamination sources, the chemicals of potential concern (COPC) have been summarised in Table 3.

Table 3: Summary of COPC

Chemical	Comments
Total recoverable hydrocarbons (TRH): <ul style="list-style-type: none"> - F1: C₆-C₁₀ minus BTEX - F2: >C₁₀-C₁₆ minus naphthalene - F3: >C₁₆-C₃₄ - F4: >C₃₄-C₄₀ 	Health risk-based fractions presented in the NEPM (2013)*. Associated with all forms of petroleum products as well as mechanical lubricants within the workshop.
Benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN)	Associated primarily with unleaded petrol and mechanical lubricants within the workshop.
Polycyclic aromatic hydrocarbons (PAH)	Associated primarily with diesel.
Lead	Associated with leaded (super) petrol.

National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).

Potentially Affected Environmental Media

Petroleum hydrocarbons from fuel related infrastructure may affect the quality of soil, groundwater and soil vapour within the unsaturated (vadose) zone.

Potential Exposure Pathways and Receptors of Contamination

Potential exposure pathways and receptors of contamination at the site and in off-site areas are summarised in Table 4.

Table 4: Summary of Potential Exposure Pathways and Receptors of Contamination

Potential Exposure Pathway	Potential Receptor(s)	Potentially Complete Pathway?
On Site	On Site	
Direct contact with contaminated soil	- Sub-surface workers	- Yes
Direct contact with contaminated groundwater	- Sub-surface workers	- Unlikely, given the depth to groundwater (>20 mBGL)
Inhalation of vapours from soil and/or groundwater	<ul style="list-style-type: none"> - On site workers - Sub-surface workers, including utility pit workers (where vapours may accumulate) - Visitors to the site (transient only) 	- Yes, noting the presence of concrete and bitumen in good condition covering the majority of the fuel dispensing area
Off-Site	Off-Site	
Direct contact with contaminated soil and/or groundwater	<ul style="list-style-type: none"> - Sub-surface workers - Workers and/or residents that may extract and have contact with contaminated groundwater - Ecosystems associated with Dry Gully creek system - Recreational users of Dry Gully creek system and the Peel River 	- Possible, although no off-site impacts reported
Inhalation of vapours from soil and/or groundwater	<ul style="list-style-type: none"> - Residents and workers in buildings adjacent to the site - Sub-surface workers, including utility pit workers - Visitors to these areas (transient only) 	- Possible, although no off-site impacts reported

Data Quality Objectives

Issues Identification

This investigation was conducted to assess the contamination status of soil beneath the site. The investigation provides information to support a valuation of the site and the potential to develop the site in the future.

Project Resources

The investigation was completed using the resources summarised in Table 5.

Table 5 Summary of Project Resources

Project Resource	Details
Client	Nic Summers
Environmental Consultant	ENV Solutions

Data Gaps and Sampling Objectives

The sampling objectives for the investigation was to assess soil quality beneath the site. There are no historical environmental investigations to reference for the site. As previously mentioned, due to the deep groundwater table in the Tamworth region (>20 mBGL), the three groundwater monitoring wells (MW1-MW3) installed on 29 October 2019 were unable to intercept the groundwater table and as such, no groundwater samples were able to be obtained.

Required Information

To achieve the sampling objectives, soil data were collected by drilling six (6) boreholes at strategic locations across the site. Boreholes BH01, BH02 and BH03 were converted into groundwater monitoring wells (MW1, MW2 and MW3 respectively), yet were installed dry. No further information was required to achieve the project objectives.

Study Boundaries

The study boundaries for the recent investigation were the lot boundaries for the subject site, as shown on Figure 2, **Attachment 1**. No works were undertaken beyond this area.

Investigation and Screening Levels

For the purpose of assessing site contamination, investigation levels from OEH's approved guidelines have been selected for the protection of human health and ecological impacts via exposure to contaminants.

OEH recommends using the NEPM for assessing soil contamination, which includes a range of investigation and screening levels for various land uses that are designed to be used for guidance purposes to determine if further investigation is required (NEPC, 2013). For the purpose of this investigation, the following investigation and screening levels from *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater* (NEPC, 2013) have been adopted:

Soil:

- NEPM Health Investigation Levels (HILs) and Health Screening Levels (HSLs) exposure setting D (HIL D) for Commercial/Industrial land use; and
- NEPM Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for Commercial/Industrial land use.

Assumptions and Limitations of Screening Levels

The threshold and background levels contained in these documents have been established through toxicity tests and field and laboratory experiments. In some cases, insufficient data currently exist to provide thresholds. In these cases, the data are simply used as an indicator of the presence and extent of contamination.

HILs establish the concentration of a contaminant above which further appropriate health investigation and evaluation will be required. The HILs are derived from generic assumptions that are not necessarily applicable to a particular site. Concentrations

slightly in excess of the HILs do not imply that a significant health risk is likely to be present; rather that further investigation is required to establish the degree of risk posed to potential receptors at the subject site.

The HSLs for soil have been derived from predictive vapour modelling of subsurface volatile compounds. The derivation process makes many assumptions regarding the behaviour of these compounds, which may not be consistent with the sub-surface conditions and consequent behaviour of these compounds at a particular site. Although the HSL methodology enables some parameter inputs to be adjusted to more accurately reflect local soil, site or building conditions, others cannot be adjusted and may affect the accuracy of the HSL adopted for the Tier 1 (screening level) assessment.

Investigation Design Optimisation

The proposed sampling regime was designed principally to investigate the quality of soil beneath the site. The regime was designed in consideration of guidance provided by the NSW EPA, as well as applicable Australian Standards.

Site Investigation

Site Inspection Overview

A site inspection was completed concurrently with the soil (and initially proposed groundwater) investigation on 29 October 2019. Photographs taken on site as part of the investigation can be referenced in **Attachment 2**. Following is a brief overview of selected observations relevant to the environmental status of the site:

- Good housekeeping was observed throughout the site;
- Localised staining was observed on concrete surfaces in areas adjacent to the dispensing bowzers and the UST fill points. Other areas of the forecourt were free of staining, with the concrete, bitumen and gravel area observed to be in fair condition; and,
- No signs of vegetation stress were noted in the landscaped areas.

Sampling and Analysis

An accredited service location contractor was used to identify the on-site utility locations and clear the proposed investigation locations prior to drilling, using radio detection methods and ground penetrating radar (GPR).

Six (6) boreholes (BH01 to BH06) were subsequently completed to depth ranging from 2.0 - 3.0 mBGL at the locations shown on the Sampling Location figure (Figure 2, **Attachment 1**). The boreholes were situated to target the current fuel storage locations and broadly across the site for even coverage, including the rear (western) portion of the site. It should also be noted that due to the small size of the site, location of services (overhead and underground) and the probability of disrupting public access into the shop building, the proposed drilling and groundwater monitoring well locations were somewhat limited.

Borehole logs describing the soil profile encountered are provided in **Attachment 3**. A trailer mounted drill rig and solid flight augers were used for drilling and sampling at

each location, with the exception of BH04 where a hand auger was used, due to the close proximity of the location and the USTs.

Eleven (11) primary soil samples were selected for laboratory testing (Table 6). Selections were made based on field observations and proximity to the fuel related infrastructure (dispensing bowzers and USTs), but also to give broad coverage of site areas and different soil profiles. All *in-situ* material uncovered as part of the drilling program at each location was screened for the potential presence of volatile organic compounds (VOCs) using a photo-ionisation detector (PID).

Each of the selected soil samples were laboratory analysed for a suite of 8 heavy metals; total recoverable hydrocarbons (TRH); benzene, toluene, ethylbenzene and xylene compounds (BTEX) and polycyclic aromatic hydrocarbons (PAH).

Table 6: Site Sampling and Analysis Details (Soils)

Sample Depth (m)	BH01	BH02	BH03	BH04	BH05	BH06
0.1 – 0.2			X	X	X	
0.4 – 0.5		X		X	X	X
0.9 – 1.0			X			X
1.4 – 1.5						
1.9 – 2.0	X					
2.9 – 3.0		X				
	EOB – 3.0	EOB – 2.0	EOB – 3.0	EOB – 2.0	EOB – 2.0	EOB – 2.0

EOB = end of borehole (mBGL)

It should be noted that the original scope of works was to analyse two (2) samples per borehole. However – as can be seen in Table 6 - BH01 only had 1 sample analysed. This was due to one of the targeted samples breaking in transit on the way to the laboratory. As such, only BH01_2.0 was analysed from this location.

Sampling Methodology and Field Quality Assurance/Quality Control (QA/QC)

Soil samples were collected in the field by appropriately qualified Environmental Scientists from ENV Solutions.

Using disposable nitrile gloves, the soil samples were collected by hand directly from the solid auger length as it was removed from the borehole. Samples were sealed in glass sample jars (supplied by the laboratory) and chilled prior to dispatch to the laboratory.

The reusable sampling equipment (solid flight augers) were cleaned by scraping to remove gross cuttings, and then washing with pressurised potable water and hydrocarbon-free detergent.

All samples were stored in an iced cool box and transported to Envirolab laboratories in Sydney using Chain of Custody (COC) documentation for the specified testing (refer **Attachment 4**).

Results

Soil sample laboratory analysis results are tabulated and presented in **Attachment 5**. Laboratory certificates are also provided in **Attachment 4**.

Subsurface Profile and Field Indicators of Contamination

The geological profile encountered during the field program was slightly varied regarding soil classification and identification against the adopted United Soils Classification System (USCS). At locations BH01, BH02 and BH03 – located closer to Manilla Road and site-based infrastructure – a material of gravelly fill and reworked natural clays was noted to overlay natural clays. In BH01 and BH02, natural clays weren't encountered until approximately 1.5 – 1.8 mBGL, while natural clays in BH03 were encountered shallower at approximately 0.5 mBGL. BH04, in which as located to the direct west and immediately down gradient of the x2 USTs was hand augered until shallow refusal at 2.0 mBGL. At this location, reworked natural clays were

encountered from surface until 0.5 mBGL, where natural clays proceeded. BH04 was strategically located as close as possible to the USTs in order to pick up any possible contamination.

BH05 and BH06 were situated at the rear of the property, west of the shop building and downgradient of all UPSS. These locations encountered natural clays directly beneath surface and proceeded until shallow refusal on bedrock at 2.0 mBGL.

All locations had refusal on rock (shale) at varying depths. BH01 and BH03 – the deepest of the boreholes – encountered refusal at approximately 3.0 mBGL, while BH02, BH04, BH05 and BH06 each encountered refusal at 2.0 mBGL.

No visual or olfactory signs of contamination were noted, and no VOCs were picked up with the PID in any of the boreholes on site.

Quality Assurance/Quality Control and Data Usability

During the soil sampling program, one intra-laboratory and one inter-laboratory duplicate sample (QC01 and QC02) were collected with primary soil sample BH04_0.5. Both QC01 and QA02 were analysed for TRH/TPH, BTEX, PAHs and Heavy Metals at NATA certified laboratories Envirolab (QC01) and Eurofins (QC02).

The precision (reproducibility) of the results was assessed by determining the relative percentage difference (RPD) between duplicate samples. RPDs were only calculated where results of both the sample and the duplicate were above laboratory reporting limits. There is an acceptable variance limit of 50% for soils and groundwater. The duplicate results are presented in Table 2 **Attachment 5**.

For the majority of the chemicals analysed in soil samples during the borehole investigation, RPDs could not be calculated as one or both of the duplicate pair concentrations were less than the laboratory reporting limits. Each of the calculated RPDs were less than the acceptable threshold of 50% with the exception of nickel for inter-lab duplicate QA02 (14 mg/kg) against the primary sample of BH04_0.5 (7 mg/kg), with an RPD% of 66.7%. The variable result may be attributed to differing testing/analysing methodologies adopted by each lab.

On the basis of the calculated RPDs, reported recoveries of selected analytes and internal QA data reported by the laboratory, the reproducibility, accuracy and representativeness of the analytical results is considered suitable to meet the objectives of the assessment, and to provide sufficient confidence in the primary dataset for interpretative purposes.

Laboratory Analytical Results

Analytical laboratory results return with detects for various metals with each of the selected samples as well as C29-36 (140 mg/kg), C16-34 (180 mg/kg) and C10-40 (sum of total (180 mg/kg) in BH03_0.2 only. The metal detect are expected due to the naturally occurring properties of soil and background metal levels. The TRH/TPH detects in BH03_0.2 are recorded as low. As this samples was obtained from a shallow depth of 0.3 mBGL, it is possible that hydrocarbon stained surface soils were accidentally mixed in with the material while it was being pulled from the ground on the auger of the drill rig, as opposed to it being from an *in situ* state.

In summary, concentrations of each of the COPC were less than the laboratory LOR, or less than the adopted assessment criteria, in the soil samples analysed. Soil results can be referenced in Table 1, **Attachment 5**.

Conclusion

Based on the preliminary desk-top review of site history, the site has been developed for service station uses dating back to approximately the 1960's. With reference to the information provided in the Schedule 11 assessment as shown in **Attachment 6**, and as tabulated in Table 2 indicates that hazardous chemicals (fuel) stored within underground storage tanks (USTs) have been registered at the premises since 1963, and is still stored on site to this present day. UPSS on site consists of two 5,000 L ULP and diesel tanks, vents, associated pipework and a single bowser. The location of the fill points and subsequently the tanks are located on the far south-western corner of the shop building footprint, and it is assumed the tanks extend a small portion under the building itself (based of GPR readings in which did not pick up indicators of the tanks underground to west of the edge of the building). The location of the vent pipes is approximately 4 meters to the south along the sites boundary and the bowser is located in front of the shop along Manilla Road.

The following potentially contaminating activities and associated chemicals of potential concern were subsequently identified for these land uses:

- General service station land use, including use of dispensing bowsers and associated USTs and suction/vent lines: aliphatic hydrocarbons, BTEX (i.e. benzene, toluene, ethylbenzene, xylenes), polycyclic aromatic hydrocarbons (PAH) and lead (SEPP 55 (DUAP and NSW EPA, 1998)).

A combined inspection of the site and field sampling program, including borehole investigations with associated soil sampling, was conducted to obtain further information about potential site contamination. The original scope of the works was also to conduct a groundwater sampling event from the groundwater monitoring wells installed on the field program day, however due to shallow refusal, the wells were installed dry.

Six boreholes were completed to a depth ranging between 2 – 3 mBGL at the locations shown on Figure 2, **Attachment 1** with soil samples collected at discrete depth intervals from within each borehole. Auger refusal on inferred rock was encountered

at each of the drilling locations. The locations of the boreholes were selected to assess the potential for contamination in areas close to and/or in the inferred down-hydraulic gradient direction from the USTs, as well as in close proximity to the fuel dispensing bowsers. Thirteen soil samples (including x2 QA/QC samples) were selected for laboratory analysis of petroleum hydrocarbons (TRH, BTEX and PAH) and metals – based on changes in lithology and for greatest general site coverage.

The soil results were either less than laboratory detection limits or less than the human health and ecologically based screening and investigation levels adopted for a commercial (service station) land use.

On the basis of the results, it is concluded that **the site is free of any notable contamination and suitable for continued commercial land use (ongoing operation as a service station).**

References

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- Department of Primary Industries. (2018, April 20). Cattle dip site locator.
- NEPC (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013). Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater.
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- NSW DPI (2018). Office of Water Online Groundwater Database. Accessed 20 April 2018. Available at: <http://allwaterdata.water.nsw.gov.au/water.stm>
- NSW EPA (1995). Sampling Design Guidelines. Accessed on 31 October 2017. Available at: <http://www.epa.nsw.gov.au/resources/clm/95059samppgdline.pdf>
- NSW EPA (2014). Technical Note: Investigation of Service Station Sites. Accessed on 20 April 2018. Available at: <http://www.epa.nsw.gov.au/resources/clm/140315servstatsites.pdf>
- OEH (2011). Guidelines for Consultants Reporting on Contaminated Sites. Accessed on 20 April 2018. Available at: <http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf>
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Available at:

<http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx>

SafeWork NSW (2018). Schedule 11, *Storage of Hazardous Chemicals* information (2018)

Tamworth (2010). Local Environmental Plan. Accessed on 8 November 2019.

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Glossary

Below is a list of commonly used abbreviations in the report:

AEC – Areas of Environmental Concern

COC – Chain of Custody

COPC – Contaminants of Potential Concern

DPI – Department of Primary Industries

EILs – Ecological Investigation Levels

ENV – ENV Solutions PTY LTD

ESLs – Ecological Screening Levels

GILs – Groundwater Investigation Levels (for groundwater)

HILs – Health Investigation Levels (for soil)

HSLs – Health Screening Levels (for soil and groundwater)

mBGL – metres below ground level

NEPC – National Environment Protection Council

NEPM – National Environment Protection (Assessment of Site Contamination)
Measure 1999 (as amended 2013)

NSW EPA – New South Wales Environment Protection Authority

OEH – Office of Environment & Heritage

PID – Photo Ionisation Detector

ppm_v – Parts Per Million (by volume)


QA/QC – Quality Assurance and Quality Control

UST – Underground Storage Tank

Attachments

Attachment 1	Figures
Attachment 2	Photolog
Attachment 3	Borehole Logs
Attachment 4	Laboratory Documentation
Attachment 5	Results Tables
Attachment 6	Schedule 11 Information

Document Control:

Filename:	19372_Oxley Vale Due Diligence Assessment_20191108		
Job No.:	19372		
Author:	Jacques Chiomey		
Client:	Nic Summers		
File/Pathname:	D:\Dropbox (ENV Solutions)\Dropbox (ENV Solutions)\ENV Solutions Team Folder\01. jobs\19372 – Oxley vale DSI\REPORT		
Revision No:	Date:	Issued By	
		Name	Signed
1	08/11/2019	Jacques Chiomey	

Scope of Engagement:

This report has been prepared by ENV Solutions PTY LTD (ENV) ABN 46856079490 at the request of Nic Summers for the purpose of supporting a due diligence/valuation of the site and is not to be used for any other purpose or by any other person or corporation.

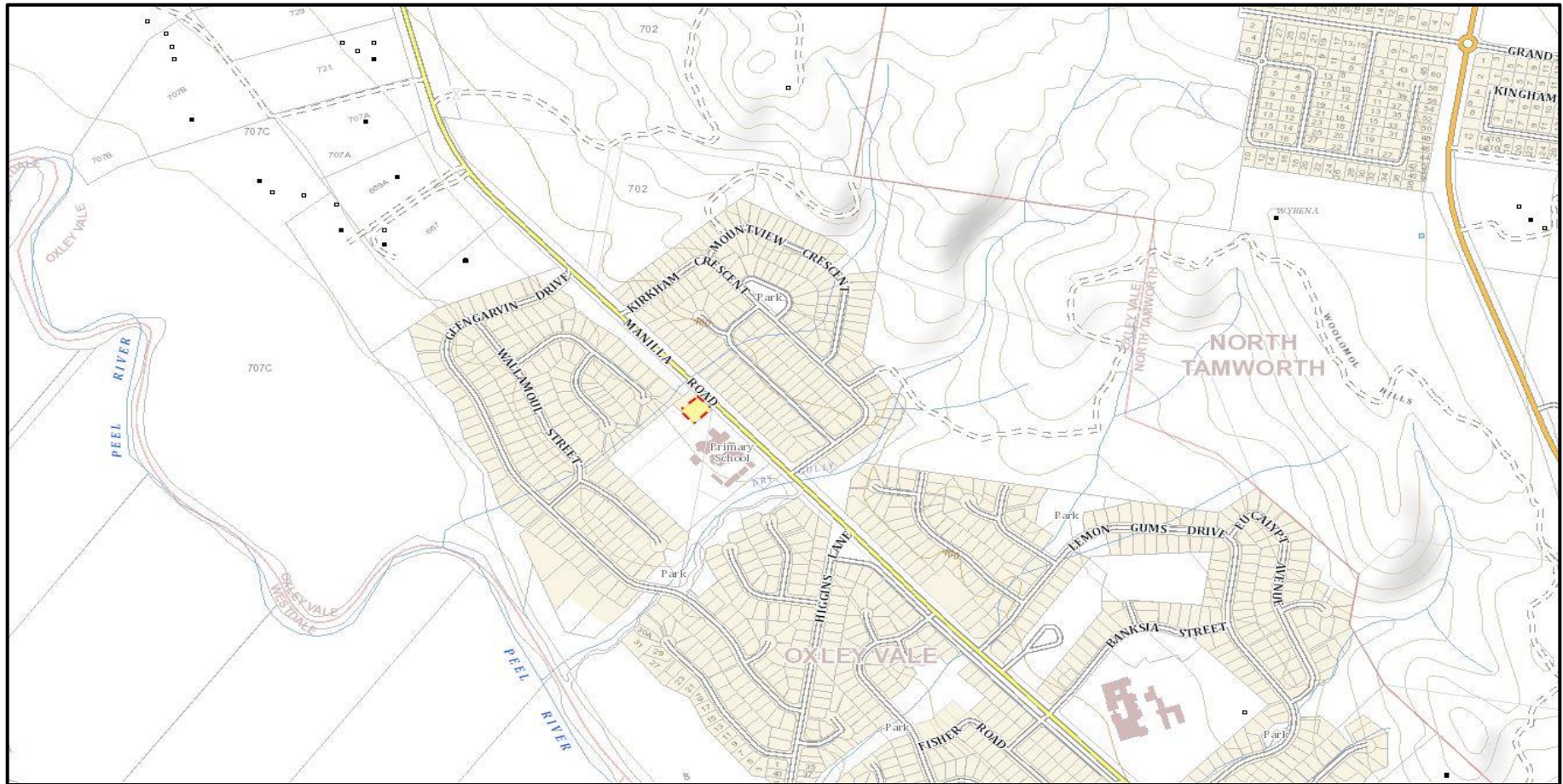
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ATTACHMENT 1



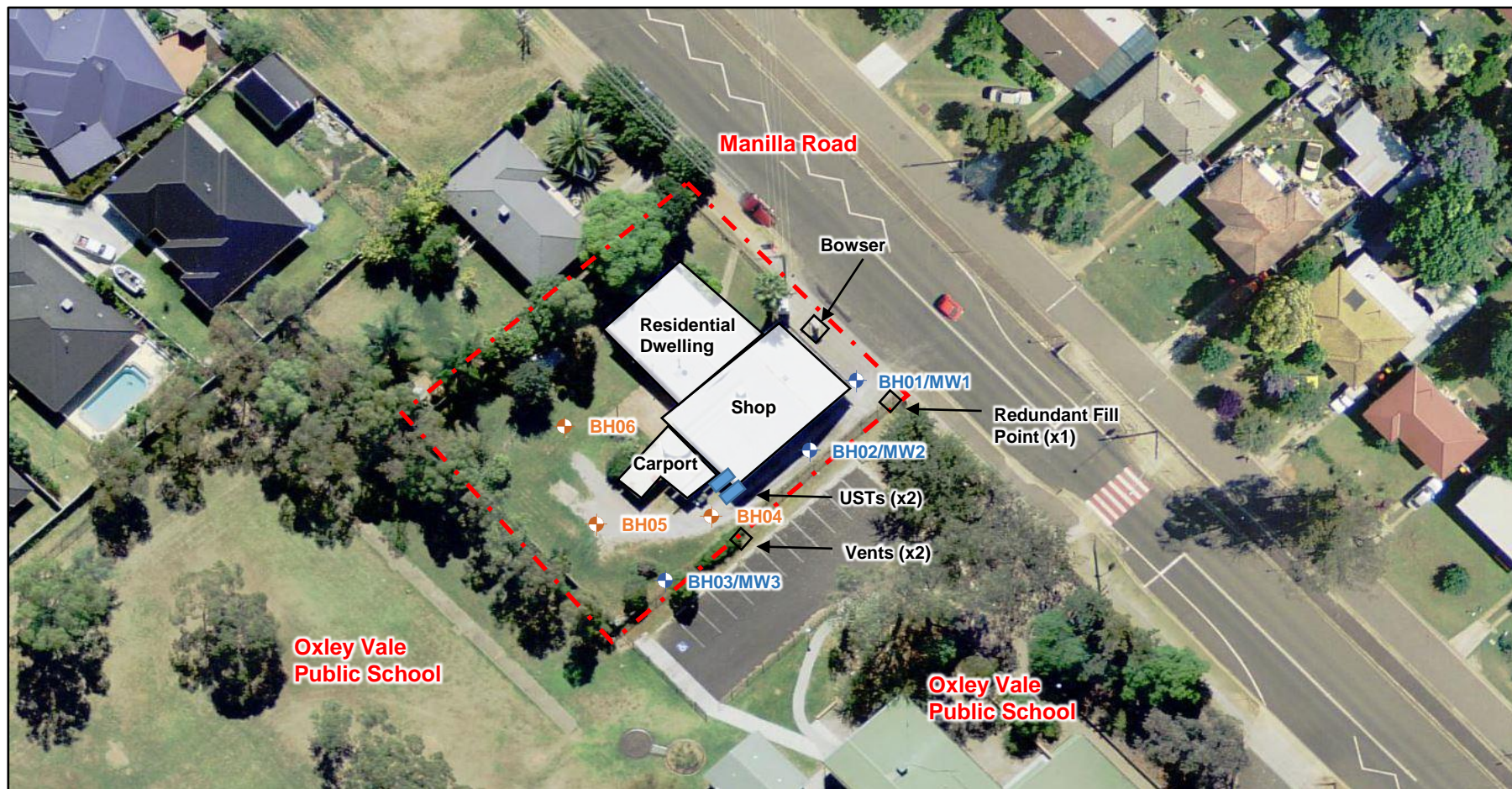
Site area (approximate)



0 0.1 0.2 km



Figure 1 - Site Location
171 Manilla Road, Oxley Vale NSW, 2340



Site area (approximate)



Sample Locations & Groundwater Monitoring
Well Installation Locations (drill rig)



Soil Sample Location



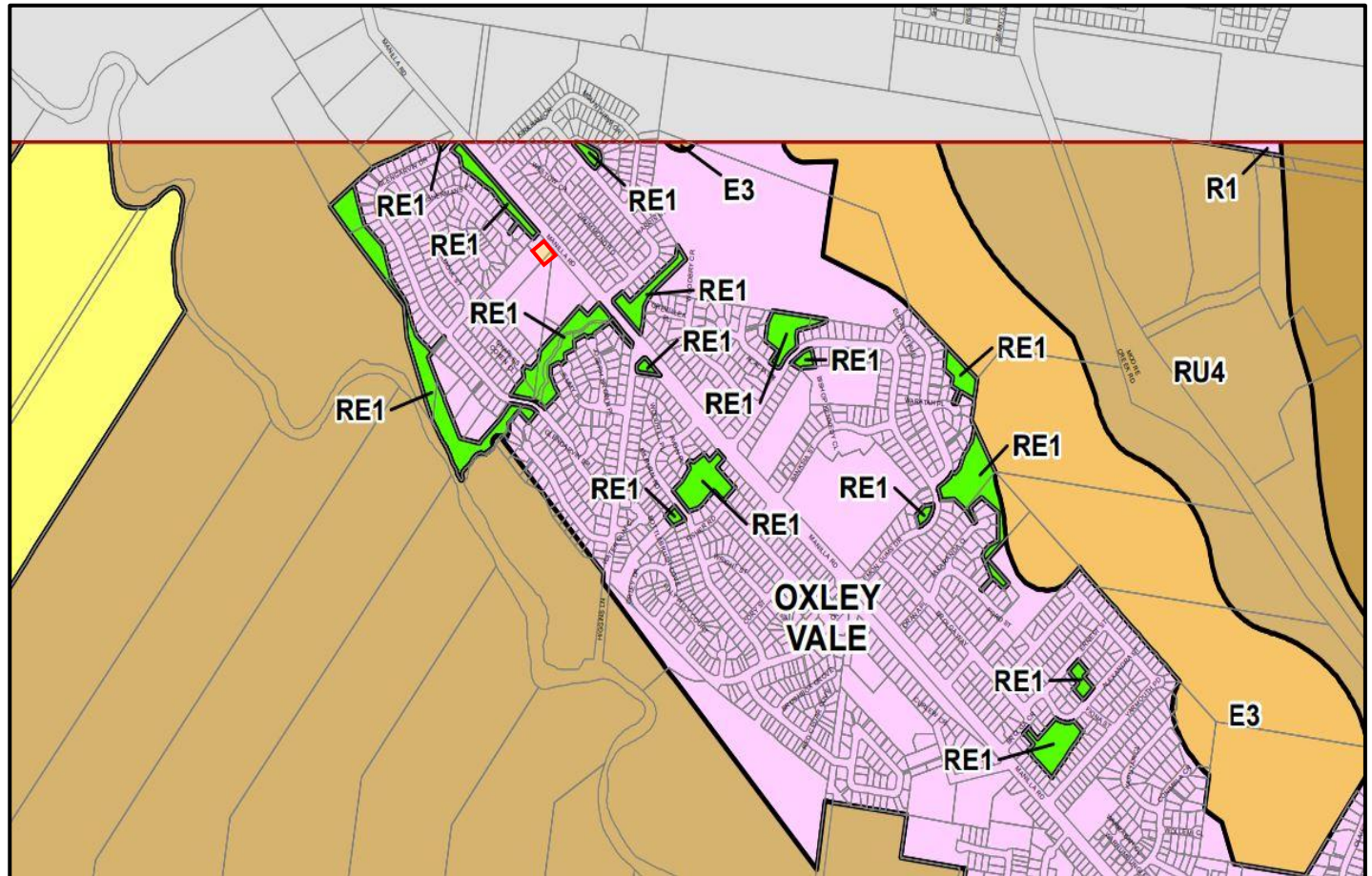
Underground Storage Tanks (approximate)



0 05 10 m



Figure 2 – Sample Location/Site Layout
171 Manilla Road, Oxley Vale NSW, 2340



Site area (approximate)



Figure 3 - Site Zoning Map
171 Manilla Road, Oxley Vale NSW, 2340

Groundwater Bores

- Groundwater works
- ◆ Telemetered bores
- ▲ Logged bores
- Manual bores

Monitoring Bore Types

Alluvial

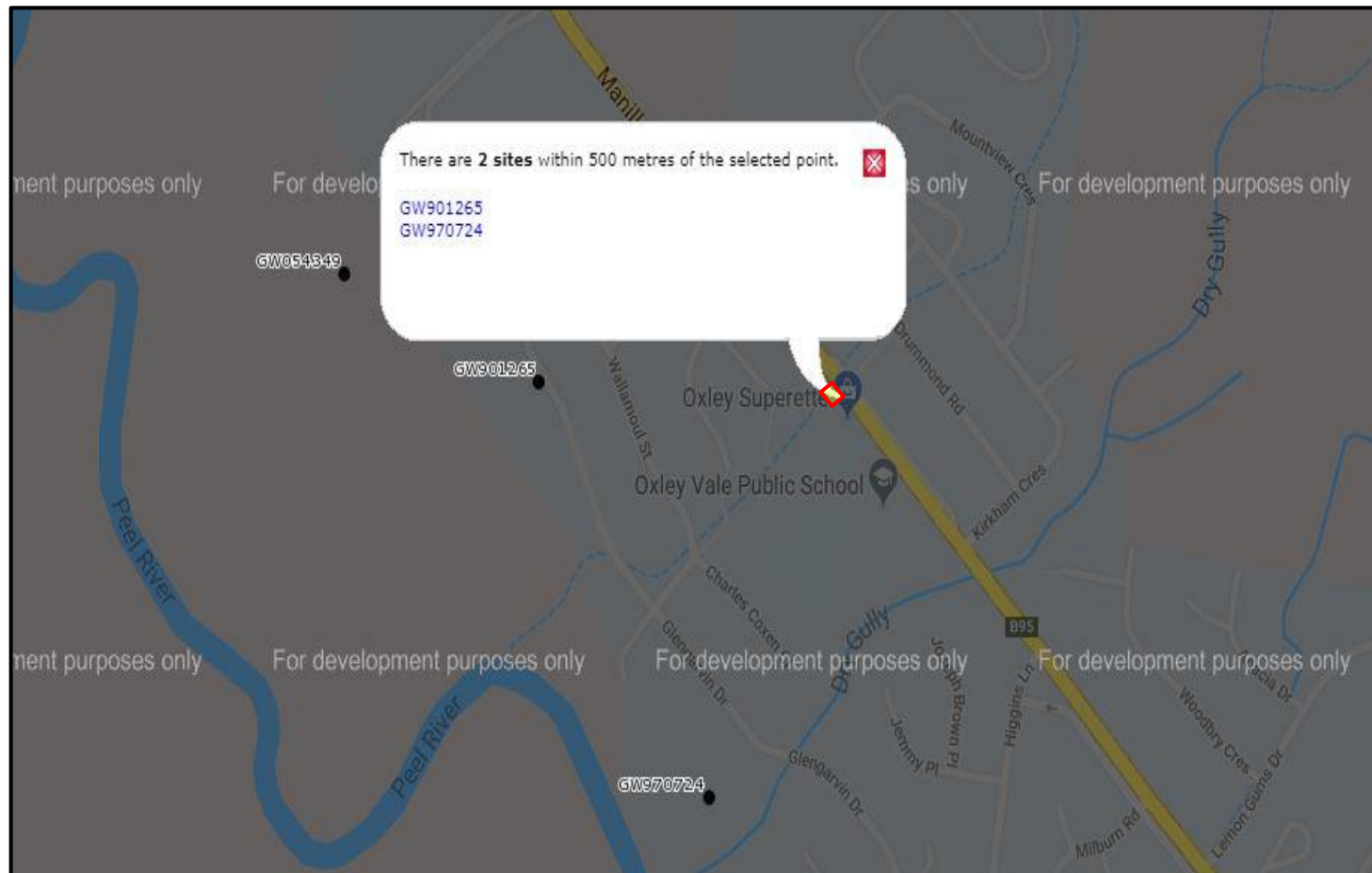
Coastal Sands

Fractured Rock

Porous Rock

Great Artesian Basin


Discontinued



Site area (approximate)



Figure 4 – Groundwater Resource Map
171 Manilla Road, Oxley Vale NSW, 2340

 **Tamworth Regional
Local Environmental
Plan 2010**


Flood Planning Map
Australian Noise Exposure
Forecast Map

Sheet CL3_004C

Flood Planning

 Flood Planning Area

Australian Noise Exposure Forecast (units)

 20	ANEF between 20 and 24
 25	ANEF between 25 and 29
 30	ANEF between 30 and 34
 35	ANEF exceeding 35

Cadastral

 Cadastral 01/06/2010 © NSW LPMA



Site area (approximate)



Figure 5 – Flooding Risk Map
171 Manilla Road, Oxley Vale NSW, 2340

ATTACHMENT 2



			PHOTOGRAPHIC LOG		
Client Name Nic Summers		Site Location 171 Manilla Road, Oxley Vale NSW, 2340			Project Due Diligence Environmental Assessment

Photo No.	Date	
1	29.11.2019	


Description
Image of the front of the site showing the bowser and shop building access off Manilla Road.

Photo No. 2	Date 29.11.2019	
Description Image of the rear of the site showing the vent pipes on the lots perimeter fence line and the fill points relating to the x2 USTs (red).		

PHOTOGRAPHIC LOG

Client Name	Site Location	Project
Nic Summers	171 Manilla Road, Oxley Vale NSW, 2340	Due Diligence Environmental Assessment

Photo No.	Date	
3	29.11.2019	
Description Image of one of the fill points relating to the USTs.		

Photo No.	Date	
4	29.11.2019	
Description Additional image of the other UST fill point. Minor staining noted surrounding gatic cover.		

Client Name	Site Location	Project
Nic Summers	171 Manilla Road, Oxley Vale NSW, 2340	Due Diligence Environmental Assessment




Photo No.	Date	
5	29.11.2019	
Description Image of the concrete corer working out the concrete hardstand to dill BH01 and install groundwater monitoring well MW1.		

Photo No.	Date	
6	29.11.2019	
Description Drilling BH02 and Installing MW2.		

Client Name	Site Location	Project
Nic Summers	171 Manilla Road, Oxley Vale NSW, 2340	Due Diligence Environmental Assessment

Photo No.	Date	
7	29.11.2019	
Description Location of BH03/MW3. Material in this location noted to be reworked clays over natural material.		

Photo No.	Date	
8	29.11.2019	
Description Location of BH04. This location was advanced via the use of a hand auger due to the close proximity of the location to the USTs (red).		

Client Name Nic Summers	Site Location 171 Manilla Road, Oxley Vale NSW, 2340	Project Due Diligence Environmental Assessment
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Photo No.	Date	
9	29.11.2019	
Description		
Typical material encountered at BH03. No visual or olfactory signs of contamination noted.		

Photo No.	Date	
10	29.11.2019	
Description <p>Material taken from BH02_2.0. Soils from 1.8 mBGL in BH02 (located in driveway) were noted to be naturally occurring clays.</p>		

ATTACHMENT 3

ENVIRONMENTAL WELL BH01/MW1

PROJECT NUMBER 19372
PROJECT NAME Oxley Vale DSI
CLIENT Nic Summers
ADDRESS 171 Oxley Vale Road, Oxley Vale
DRILLING DATE 29/10/2019

DRILLING COMPANY ENV Solutions
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 3 mBGL
LOGGED BY JC
CHECKED BY CH

COMPLETION **CASING** uPVC **SCREEN** uPVC Factory Slotted

COMMENTS Near SE corner of shop front concrete slab

Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.0	HA	0.0	BH01_0.2					HARDSTAND: Concrete Core			Concrete Core
0.2								BACKFILL SANDS: Fill, grey and brown, loose, coarse, dry	D	L	- Fill - No odour/staining - No visual signs of ACM
0.4		0.0	BH01_0.5					REWORKED NATURAL: Clay, brown and red, slightly moist, dense, fine and soft with a low to medium plasticity index. Sub-angular and angular gravels of <40mm throughout.	D	D	
0.6											
0.8											
1.0	SFA	0.0	BH01_1.0					NATURAL: Clay, red and maroon, slightly moist, dense, fine and medium firm with a medium plasticity index.	D	D	- Natural
1.2											
1.4											
1.6											
1.8											
2.0		0.0	BH01_2.0	Y				Termination Depth at: 3.0 mBGL - Refusal on bedrock	D	D	- Becoming very stiff at 2.9
2.2											
2.4											
2.6											
2.8											
3.0		0.0	BH01_3.0						D	H	
3.0								Termination Depth at: 3.0 mBGL - Refusal on bedrock			

Disclaimer This bore log is intended for environmental not geotechnical purposes.

ENVIRONMENTAL WELL BH02/MW2

PROJECT NUMBER 19372	DRILLING COMPANY ENV Solutions
PROJECT NAME Oxley Vale DSI	DRILLING METHOD Solid Flight Auger
CLIENT Nic Summers	TOTAL DEPTH 2 mBGL
ADDRESS 171 Oxley Vale Road, Oxley Vale	LOGGED BY JC
DRILLING DATE 29/10/2019	CHECKED BY CH

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Half way down gravel driveway leading to rear of site		

Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.1	SFA	0.0	BH02_0.2					FILL: Gravelly clay, red and maroon, dry, dense, medium fine and soft with a low plasticity index. Sub-angular gravels of <10mm throughout	D	D	- Fill - No odour/staining - No visual signs of ACM
0.2											
0.3		0.0						FILL: Gravelly clay, red and maroon, dry, loose, fine and soft with a low plasticity index. Sub-angular gravels of <10mm decreasing	D	D	
0.4			BH02_0.5	Y							
0.5											
0.6		0.0						REWORKED NATURAL: Clay, red and maroon, slightly moist, medium density, fine and soft with a low to medium plasticity index and occasional sub-angular gravels of <10mm throughout			
0.7											
0.8											
0.9			BH02_1.0						SM	MD	
1.0											
1.1		0.0									- Natural - Extremely weathered shale inclusion encountered from 1.8 mBGL
1.2											
1.3											
1.4											
1.5		0.0									
1.6											
1.7											
1.8											
1.9		0.0	BH02_2.0	Y				NATURAL: Clay, red and maroon, slightly moist, medium dense, fine and soft with a medium plasticity index. Extremely weathered shale inclusions noted from 1.8 mBGL.	SM	MD	
2.0								Termination Depth at: 2.0 mBGL - Refusal on bedrock			

Disclaimer This bore log is intended for environmental not geotechnical purposes.

ENVIRONMENTAL WELL BH03/MW3

PROJECT NUMBER 19372
PROJECT NAME Oxley Vale DSI
CLIENT Nic Summers
ADDRESS 171 Oxley Vale Road, Oxley Vale
DRILLING DATE 29/10/2019

DRILLING COMPANY ENV Solutions
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 3 mBGL
LOGGED BY JC
CHECKED BY CH

COMPLETION **CASING** uPVC **SCREEN** uPVC Factory Slotted

COMMENTS SE rear of site between perimeter school fence and tree stump

Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Well Installation	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.2	SFA	0.0	BH03_0.2	Y				REWORKED NATURAL: Clay, light brown and orangy, dry, loose, fine and soft with a low plasticity index and occasional sub-angular gravels of <10mm throughout	D	L	- Fill - No odour/staining - No visual signs of ACM
0.4		0.0	BH03_0.5								
0.6								NATURAL: Clay, red and maroon, dry, loose, fine and soft with a low plasticity index. Extremely weathered shale inclusions noted from 2.8 mBGL.	D	L	- Natural - Extremely weathered shale inclusion encountered from 2.8 mBGL
0.8											
1.0		0.0	BH03_1.0	Y							
1.2											
1.4											
1.6											
1.8											
2.0		0.0	BH03_2.0								
2.2											
2.4											
2.6											
2.8											
3.0		0.0	BH03_3.0								
3.0								Termination Depth at: 3.0 mBGL - Refusal on bedrock			

Disclaimer This bore log is intended for environmental not geotechnical purposes.

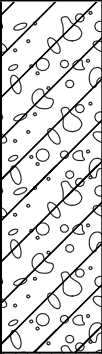
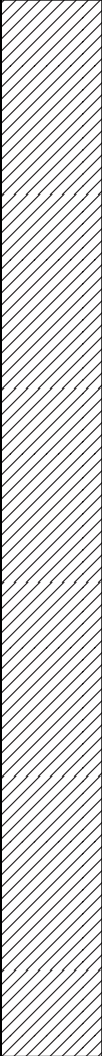
Page 1 of 1

BOREHOLE LOG BH04

PROJECT NUMBER 19372
PROJECT NAME Oxley Vale DSI
CLIENT Nic Summers
ADDRESS 171 Oxley Vale Road, Oxley Vale
DRILLING DATE 29/10/2019

DRILLING COMPANY ENV Solutions
DRILLING METHOD Hand Auger
TOTAL DEPTH 2 mBGL
LOGGED BY JC
CHECKED BY CH

COMMENTS Approximately 1m to the west (hydraulically downgradient) of the USTs

Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.1	HA	0.0	BH04_0.2	Y			REWORKED NATURAL: Clay, light brown and orangy, dry, loose, fine and soft with a low plasticity index and occasional sub-angular gravels of <10mm throughout	D	L	- Fill - No odour/staining - No visual signs of ACM
0.2										
0.3		0.0					NATURAL: Clay, red and maroon, dry, loose, fine and soft with a low plasticity index. Extremely weathered shale inclusions noted from 1.8 mBGL.	D	L	- Natural - Extremely weathered shale inclusion encountered from 1.8 mBGL
0.4			BH04_0.5 QA01 QA02	Y						
0.5										
0.6		0.0								
0.7										
0.8										
0.9			BH04_1.0							
1.0										
1.1		0.0								
1.2										
1.3										
1.4		0.0	BH04_1.5							
1.5										
1.6		0.0								
1.7										
1.8										
1.9		0.0	BH04_2.0							
2.0										
2.0							Termination Depth at: 2 mBGL - Refusal			

BOREHOLE LOG BH05

PROJECT NUMBER 19372
PROJECT NAME Oxley Vale DSI
CLIENT Nic Summers
ADDRESS 171 Oxley Vale Road, Oxley Vale
DRILLING DATE 29/10/2019

DRILLING COMPANY ENV Solutions
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 2 mBGL
LOGGED BY JC
CHECKED BY CH

COMMENTS Approximately 1m to the west (hydraulically downgradient) of the USTs

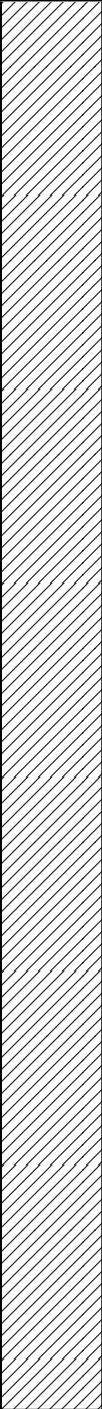
Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.1	SFA	0.0	BH05_0.2	Y			NATURAL: Clay, red and brown, dry, loose, fine and soft with a low plasticity index. Extremely weathered shale inclusions noted from 1.8 mBGL.	D	L	- Natural - Extremely weathered shale inclusion encountered from 1.8 mBGL
0.2										
0.3										
0.4		0.0	BH05_0.5	Y						
0.5										
0.6										
0.7										
0.8										
0.9		0.0	BH05_1.0							
1.0										
1.1										
1.2										
1.3										
1.4										
1.5										
1.6										
1.7										
1.8										
1.9		0.0	BH05_2.0							
2.0							Termination Depth at: 2 mBGL - Refusal			

BOREHOLE LOG BH06

PROJECT NUMBER 19372
PROJECT NAME Oxley Vale DSI
CLIENT Nic Summers
ADDRESS 171 Oxley Vale Road, Oxley Vale
DRILLING DATE 29/10/2019

DRILLING COMPANY ENV Solutions
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 2 mBGL
LOGGED BY JC
CHECKED BY CH

COMMENTS Approximately 1m to the west (hydraulically downgradient) of the USTs

Depth (m)	Drilling Method	PID	Samples	Is Analysed?	Water	Graphic Log	Material Description	Moisture	Consistency	Additional Observations
0.1	SFA	0.0	BH06_0.2				NATURAL: Clay, red and brown, dry, loose, fine and soft with a low plasticity index. Extremely weathered shale inclusions noted from 1.8 mBGL.	D	L	- Natural - Extremely weathered shale inclusion encountered from 1.8 mBGL
0.2										
0.3										
0.4		0.0	BH06_0.5	Y						
0.5										
0.6										
0.7										
0.8										
0.9		0.0	BH06_1.0	Y						
1.0										
1.1										
1.2										
1.3										
1.4										
1.5										
1.6										
1.7										
1.8										
1.9		0.0	BH06_2.0							
2.0							Termination Depth at: 2 mBGL - Refusal			

ATTACHMENT 4

SAMPLE RECEIPT ADVICE

Client Details

Client	ENV Solutions Pty Ltd
Attention	Jacques Chiomey

Sample Login Details

Your reference	19372 , Oxley Vale DSI
Envirolab Reference	229767
Date Sample Received	31/01/2019
Date Instructions Received	31/01/2019
Date Results Expected to be Reported	08/11/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	28 SOIL
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments

BH01-0.2 MISSING

BH01-2.0 ON LID BUT BH01-1.0 ON JAR

EXTRA
BH04-1.5 ON HOLD

Please direct any queries to:

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

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Acid Extractable metals in soil	On Hold
BH01-0.2					✓
BH01-0.5					✓
BH01-1.0					✓
BH01-3.0					✓
BH02-0.2					✓
BH02-0.5	✓	✓	✓	✓	
BH02-1.0					✓
BH02-2.0	✓	✓	✓	✓	
BH03-0.2	✓	✓	✓	✓	
BH03-0.5					✓
BH03-1.0	✓	✓	✓	✓	
BH03-2.0					✓
BH03-3.0					✓
BH04-0.2	✓	✓	✓	✓	
BH04-0.5	✓	✓	✓	✓	
BH04-1.0					✓
BH04-2.0					✓
BH05-0.2	✓	✓	✓	✓	
BH05-0.5	✓	✓	✓	✓	
BH05-1.0					✓
BH05-2.0					✓
BH06-0.2					✓
BH06-0.5	✓	✓	✓	✓	
BH06-1.0	✓	✓	✓	✓	
BH06-2.0 (0.2)					✓
QA01	✓	✓	✓	✓	
BH01-2.0	✓	✓	✓	✓	
BH04-1.5					✓

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

Additional Info

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

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

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

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

CERTIFICATE OF ANALYSIS 229767

Client Details

Client	ENV Solutions Pty Ltd
Attention	Jacques Chiomey
Address	45-65 Smith Drive, Ballina, NSW, 2478

Sample Details

Your Reference	19372 , Oxley Vale DSI
Number of Samples	28 SOIL
Date samples received	31/01/2019
Date completed instructions received	31/01/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

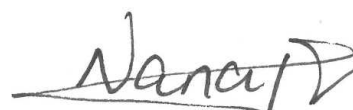
Report Details

Date results requested by	08/11/2019
Date of Issue	06/11/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Jaimie Loa-Kum-Cheung, Metals Supervisor
 Josh Williams, Senior Chemist

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		229767-6	229767-8	229767-9	229767-11	229767-14
Your Reference	UNITS	BH02	BH02	BH03	BH03	BH04
Depth		0.5	2.0	0.2	1.0	0.2
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	83	88	88	87	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		229767-15	229767-18	229767-19	229767-23	229767-24
Your Reference	UNITS	BH04	BH05	BH05	BH06	BH06
Depth		0.5	0.2	0.5	0.5	1.0
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	87	88	84	88	86

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		229767-26	229767-27
Your Reference	UNITS	QA01	BH01
Depth		-	2.0
Date Sampled		29/10/2019	29/10/2019
Type of sample		SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	85	85

svTRH (C10-C40) in Soil

Our Reference		229767-6	229767-8	229767-9	229767-11	229767-14
Your Reference	UNITS	BH02	BH02	BH03	BH03	BH04
Depth		0.5	2.0	0.2	1.0	0.2
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	140	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	180	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	180	<50	<50
Surrogate o-Terphenyl	%	98	97	100	97	110

svTRH (C10-C40) in Soil

Our Reference		229767-15	229767-18	229767-19	229767-23	229767-24
Your Reference	UNITS	BH04	BH05	BH05	BH06	BH06
Depth		0.5	0.2	0.5	0.5	1.0
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	107	96	95	99	96

svTRH (C10-C40) in Soil			
Our Reference		229767-26	229767-27
Your Reference	UNITS	QA01	BH01
Depth		-	2.0
Date Sampled		29/10/2019	29/10/2019
Type of sample		SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	95	109

PAHs in Soil						
Our Reference		229767-6	229767-8	229767-9	229767-11	229767-14
Your Reference	UNITS	BH02	BH02	BH03	BH03	BH04
Depth		0.5	2.0	0.2	1.0	0.2
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	0.2	<0.1	<0.1
Pyrene	mg/kg	0.2	<0.1	0.2	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	0.09	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.70	<0.05	0.60	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	100	100	105	102	104

PAHs in Soil						
Our Reference		229767-15	229767-18	229767-19	229767-23	229767-24
Your Reference	UNITS	BH04	BH05	BH05	BH06	BH06
Depth		0.5	0.2	0.5	0.5	1.0
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	104	101	98	102	101

PAHs in Soil			
Our Reference		229767-26	229767-27
Your Reference	UNITS	QA01	BH01
Depth		-	2.0
Date Sampled		29/10/2019	29/10/2019
Type of sample		SOIL	SOIL
Date extracted	-	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	99	100

Acid Extractable metals in soil

Our Reference		229767-6	229767-8	229767-9	229767-11	229767-14
Your Reference	UNITS	BH02	BH02	BH03	BH03	BH04
Depth		0.5	2.0	0.2	1.0	0.2
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	14	13	13	14
Copper	mg/kg	23	25	22	25	24
Lead	mg/kg	7	6	44	6	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	8	8	7	8
Zinc	mg/kg	50	60	92	58	61

Acid Extractable metals in soil

Our Reference		229767-15	229767-18	229767-19	229767-23	229767-24
Your Reference	UNITS	BH04	BH05	BH05	BH06	BH06
Depth		0.5	0.2	0.5	0.5	1.0
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	14	13	14	14
Copper	mg/kg	23	24	24	25	24
Lead	mg/kg	7	11	11	6	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	7	7	7	8
Zinc	mg/kg	55	74	68	55	55

Acid Extractable metals in soil			
Our Reference		229767-26	229767-27
Your Reference	UNITS	QA01	BH01
Depth		-	2.0
Date Sampled		29/10/2019	29/10/2019
Type of sample		SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019
Date analysed	-	04/11/2019	04/11/2019
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	11	14
Copper	mg/kg	21	25
Lead	mg/kg	6	6
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	7	7
Zinc	mg/kg	42	55

Moisture						
Our Reference		229767-6	229767-8	229767-9	229767-11	229767-14
Your Reference	UNITS	BH02	BH02	BH03	BH03	BH04
Depth		0.5	2.0	0.2	1.0	0.2
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Moisture	%	8.1	13	6.8	13	8.7

Moisture						
Our Reference		229767-15	229767-18	229767-19	229767-23	229767-24
Your Reference	UNITS	BH04	BH05	BH05	BH06	BH06
Depth		0.5	0.2	0.5	0.5	1.0
Date Sampled		29/10/2019	29/10/2019	29/10/2019	29/10/2019	29/10/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019	04/11/2019	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019	05/11/2019	05/11/2019	05/11/2019
Moisture	%	12	12	19	9.4	12

Moisture			
Our Reference		229767-26	229767-27
Your Reference	UNITS	QA01	BH01
Depth		-	2.0
Date Sampled		29/10/2019	29/10/2019
Type of sample		SOIL	SOIL
Date prepared	-	04/11/2019	04/11/2019
Date analysed	-	05/11/2019	05/11/2019
Moisture	%	10	16

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-016	<p>Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.</p> <p>Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.</p>

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	229767-19
Date extracted	-			04/11/2019	6	04/11/2019	04/11/2019		04/11/2019	04/11/2019
Date analysed	-			05/11/2019	6	05/11/2019	05/11/2019		05/11/2019	05/11/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	6	<25	<25	0	94	85
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	6	<25	<25	0	94	85
Benzene	mg/kg	0.2	Org-016	<0.2	6	<0.2	<0.2	0	98	87
Toluene	mg/kg	0.5	Org-016	<0.5	6	<0.5	<0.5	0	96	85
Ethylbenzene	mg/kg	1	Org-016	<1	6	<1	<1	0	94	87
m+p-xylene	mg/kg	2	Org-016	<2	6	<2	<2	0	91	84
o-Xylene	mg/kg	1	Org-016	<1	6	<1	<1	0	95	88
naphthalene	mg/kg	1	Org-014	<1	6	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	90	6	83	88	6	94	84

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/11/2019	04/11/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/11/2019	05/11/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	27	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	27	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	27	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	27	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	27	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	27	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	27	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	27	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	27	85	87	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	229767-19
Date extracted	-			04/11/2019	6	04/11/2019	04/11/2019		04/11/2019	04/11/2019
Date analysed	-			05/11/2019	6	05/11/2019	05/11/2019		05/11/2019	05/11/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	6	<50	<50	0	108	110
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	6	<100	<100	0	104	110
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	6	<100	<100	0	121	100
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	6	<50	<50	0	108	110
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	6	<100	<100	0	104	110
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	6	<100	<100	0	121	100
Surrogate o-Terphenyl	%		Org-003	101	6	98	98	0	106	108

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	27	04/11/2019	04/11/2019		[NT]	[NT]
Date analysed	-			[NT]	27	05/11/2019	05/11/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	27	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	27	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	27	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	27	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	27	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	27	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	27	109	95	14	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	229767-19
Date extracted	-			04/11/2019	6	04/11/2019	04/11/2019		04/11/2019	04/11/2019
Date analysed	-			05/11/2019	6	05/11/2019	05/11/2019		05/11/2019	05/11/2019
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	110	118
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	100	104
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	6	0.2	0.2	0	102	102
Anthracene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	6	0.2	0.2	0	102	98
Pyrene	mg/kg	0.1	Org-012/017	<0.1	6	0.2	0.3	40	106	99
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	102	102
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	6	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	6	0.06	0.09	40	104	102
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	6	0.1	0.2	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	104	6	100	102	2	110	109

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			[NT]	27	04/11/2019	04/11/2019		04/11/2019	[NT]
Date analysed	-			[NT]	27	05/11/2019	05/11/2019		05/11/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	108	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	98	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	102	[NT]
Anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	100	[NT]
Pyrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	102	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	102	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012/017	[NT]	27	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	[NT]	27	<0.05	<0.05	0	104	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	[NT]	27	100	97	3	107	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	229767-19
Date prepared	-			04/11/2019	6	04/11/2019	04/11/2019		04/11/2019	04/11/2019
Date analysed	-			04/11/2019	6	04/11/2019	04/11/2019		04/11/2019	04/11/2019
Arsenic	mg/kg	4	Metals-020	<4	6	<4	<4	0	105	#
Cadmium	mg/kg	0.4	Metals-020	<0.4	6	<0.4	<0.4	0	103	78
Chromium	mg/kg	1	Metals-020	<1	6	12	13	8	108	84
Copper	mg/kg	1	Metals-020	<1	6	23	25	8	103	101
Lead	mg/kg	1	Metals-020	<1	6	7	6	15	111	77
Mercury	mg/kg	0.1	Metals-021	<0.1	6	<0.1	<0.1	0	84	94
Nickel	mg/kg	1	Metals-020	<1	6	7	7	0	99	79
Zinc	mg/kg	1	Metals-020	<1	6	50	56	11	107	76

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	27	04/11/2019	04/11/2019		[NT]	[NT]
Date analysed	-			[NT]	27	04/11/2019	04/11/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	27	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	27	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	27	14	13	7	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	27	25	21	17	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	27	6	5	18	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	27	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	27	7	7	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	27	55	48	14	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the same sample will be re-analysed. When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Report Comments

Acid Extractable Metals in Soil - # Low spike recovery was obtained for this sample. Sample matrix interference is suspected. However, an acceptable recovery was obtained for the LCS



CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

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7a The Parade, Norwood, SA 5067
Ph 0406 350 705 / adelaide@envirolab.com.au

Client: ENV Solutions

Contact Person: Jacques Chomey, Ben Pieterse

Project Mgr: JC

Sampler: Jacques Chomey

Address: 45-65 Smith Drive, West Ballina, NSW, 2478

Client Project Name / Number / Site etc (ie report title):

Oxley Vale DSI, 19372

PO No.:

Envirolab Quote No.:

Date results required: Standard 5 day

Or choose: standard / same day / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required -
surcharges apply

Report format: esdat / equls /

Lab Comments:

Mob: 0430407023 (JC)

Email:

jacques@envsolutions.com.au; ben@envsolutions.com.au

Sample Information						Tests Required										Comments
Envirolab Sample ID	Building on site	Client Sample ID or Information	Depth	Date sampled	Type of sample	Combo s	Hold									Provide as much information about the sample as you can
1		BH01_0.2		29/10/2019	Soil		X									
2		BH01_0.3		29/10/2019	Soil	X										
3		BH01_0.5		29/10/2019	Soil		X									
4		BH01_1.0		29/10/2019	Soil		X									
5		BH01_2.0		29/10/2019	Soil	X										
6		BH01_3.0		29/10/2019	Soil		X									
7		BH02_0.2		29/10/2019	Soil		X									
8		BH02_0.5		29/10/2019	Soil	X										
9		BH02_1.0		29/10/2019	Soil		X									
10		BH02_2.0		29/10/2019	Soil	X										
11		BH03_0.2		29/10/2019	Soil		X									
12		BH03_0.5		29/10/2019	Soil		X									
13		BH03_1.0		29/10/2019	Soil	X										

Relinquished by (Company): ENV Solutions

Print Name: Jacques Chomey

Date & Time: 31/10/2019

Signature:

Received by (Company): ELS Syd

Print Name: K. Gore

Date & Time: 31.10.19 10:38 CDC:1300

Signature:

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: 15.1 (if applicable)

Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Page No:



Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 229767

Date Received: 31.10.19

Time Received: 1038 CDC:1300


Received by: KC

Temp: Cool/Ambient

Cooling: Ice/icepack

Security: Intact/Broken/None

Client ENVIROLAB SOLUTIONS		Sample Information		Tests Required		Comments	
Client ENVIROLAB SOLUTIONS Contact Person: Jacques Chomoy, Craig Helbig Project Mgr: CH Sample: Jacques Chomoy Address: 45-65 Smith Drive, West Ballina, NSW, 2478 Email: jacques@envirosolutions.com.au; craig@envirosolutions.com.au		Sample Information Client Sample ID or Building on site Sample ID		Tests Required Combo 3 Hold		Comments Provide as much information about the sample as you can	
ENVIROLAB GROUP - National phone number 1300 42 43 44		Client Project Name / Number / Site etc (ie report title): Hazellross Butler Street Upgrade, 19409		Envirolab Quote No.: PO No.:		Envirolab Lab - Envirolab Services 1A Dalmore Drive Scoresby VIC 3179 PH 03 9753 2500 / melbourne@envirolab.com.au Adelaide Office - Envirolab Services 209, 10-20 Depot St, Bonyo, QLD 4014 PH 07 3268 9332 / bonyo@envirolab.com.au Sydney Lab - Envirolab Services 12 Ashley St, Charswood, NSW 2027 PH 02 9910 6100 / sydney@envirolab.com.au Perth Lab - MPE Laboratories 16-18 Hayden Cr Myerew, WA 6154 PH 08 9317 2505 / lab@mpl.com.au	
Envirolab Lab - Envirolab Services 12 Ashley St, Charswood, NSW 2027 PH 02 9910 6100 / sydney@envirolab.com.au		Envirolab Lab - Envirolab Services 1A Dalmore Drive Scoresby VIC 3179 PH 03 9753 2500 / melbourne@envirolab.com.au Adelaide Office - Envirolab Services 209, 10-20 Depot St, Bonyo, QLD 4014 PH 07 3268 9332 / bonyo@envirolab.com.au Perth Lab - MPE Laboratories 16-18 Hayden Cr Myerew, WA 6154 PH 08 9317 2505 / lab@mpl.com.au		Envirolab Lab - Envirolab Services 1A Dalmore Drive Scoresby VIC 3179 PH 03 9753 2500 / melbourne@envirolab.com.au Adelaide Office - Envirolab Services 209, 10-20 Depot St, Bonyo, QLD 4014 PH 07 3268 9332 / bonyo@envirolab.com.au Perth Lab - MPE Laboratories 16-18 Hayden Cr Myerew, WA 6154 PH 08 9317 2505 / lab@mpl.com.au		Envirolab Lab - Envirolab Services 12 Ashley St, Charswood, NSW 2027 PH 02 9910 6100 / sydney@envirolab.com.au	



CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Client: ENV Solutions
Contact Person: Jacques Chomey, Ben Pieterse
Project Mgr: JC
Sampler: Jacques Chomey
Address: 45-65 Smith Drive, West Ballina, NSW, 2478
Mobi: 0430407023 (JC)
Email: jacques@envsolutions.com.au; ben@envsolutions.com.au

Sample Information		Tests Required				Comments
EnviroLab Building on site	Client Sample ID or Information	Depth	Date sampled	Type of sample	Combo 3	
1625	BH06.0.2	2.0m	29/10/2019	Soil	X	Provide as much information about the sample as you can.
1625	QA01		29/10/2019	Soil	X	
1625	QA02		29/10/2019	Soil	X	
1625	BH01-1.0	1.0m	29/10/2019	Soil	X	
1625	BH04-1.5	1.5m	29/10/2019	Soil	X	Please forward to Eurofins
1625	BH01-1.0	1.0m	29/10/2019	Soil	X	
1625	BH04-1.5	1.5m	29/10/2019	Soil	X	
1625	BH01-1.0	1.0m	29/10/2019	Soil	X	

ENVIROLAB - Sydney Services
 17 Ashby St, Chesham, NSW 2057
 Ph 02 9510 6200 / sydney@envirolab.com.au

ENVIROLAB - Perth Laboratories
 16-18 Hayden Crt Myaree, WA 6154
 Ph 08 9317 2505 / lab@mpl.com.au

ENVIROLAB - Melbourne Services
 1A Dalmore Drive Scoresby VIC 3179
 Ph 03 9763 2500 / melbourne@envirolab.com.au

ENVIROLAB - Brisbane Services
 20A, 10-20 Depot St, Bonyo, QLD 4014
 Ph 07 3268 9332 / brisbane@envirolab.com.au

ENVIROLAB - Adelaide Office - EnviroLab Services
 7A The Parade, Norwood, SA 5067

Lab use only:

Received by (Company): ENV Solutions

Print Name: Jacques Chomey

Date & Time: 31/10/2019

Signature: *[Signature]*

Transported by: Hand delivered / courier

Samples Received: Cool or Ambient (circle one) Cool

Temperature Received at: 15-1 (if applicable)

Lab use only:

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Page No: 229767

Sample Receipt Advice

Company name: **ENV Solutions Pty Ltd**
Contact name: Jacques Chiomey
Project name: OXLEY VALE DSI
Project ID: 19372
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Nov 1, 2019 2:10 PM
Eurofins reference: **685951**

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.
- ☐ Split sample sent to requested external lab.
- ☐ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Alena Bounkeua on Phone : or by e.mail: AlenaBounkeua@eurofins.com

Results will be delivered electronically via e.mail to Jacques Chiomey - Jacques@envsolutions.com.au.

Company Name: ENV Solutions Pty Ltd
Address: 1/35 North Creek Road
Ballina
NSW 2478

Project Name: OXLEY VALE DSI
Project ID: 19372

Order No.:
Report #: 685951
Phone: 0421 519 354
Fax:

Received: Nov 1, 2019 2:10 PM
Due: Nov 8, 2019
Priority: 5 Day
Contact Name: Jacques Chiomey

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Moisture Set	Eurofins mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						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	QA02	Oct 29, 2019		Soil	S19-No01947	X	X
Test Counts						1	1

ENV Solutions Pty Ltd
1/35 North Creek Road
Ballina
NSW 2478



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: **Jacques Chiomey**

Report **685951-S**
Project name **OXLEY VALE DSI**
Project ID **19372**
Received Date **Nov 01, 2019**

Client Sample ID			QA02
Sample Matrix			Soil
Eurofins Sample No.			S19-No01947
Date Sampled			Oct 29, 2019
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	%	73
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

Client Sample ID			QA02
Sample Matrix			Soil
Eurofins Sample No.			S19-No01947
Date Sampled			Oct 29, 2019
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
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	%	86
p-Terphenyl-d14 (surr.)	1	%	91
Heavy Metals			
Arsenic	2	mg/kg	7.5
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	21
Copper	5	mg/kg	31
Lead	5	mg/kg	8.9
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	14
Zinc	5	mg/kg	79
% Moisture	1	%	11

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results.

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 06, 2019	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 06, 2019	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 06, 2019	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Nov 06, 2019	
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Nov 06, 2019	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Nov 06, 2019	180 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Nov 01, 2019	14 Days

Company Name: ENV Solutions Pty Ltd
Address: 1/35 North Creek Road
Ballina
NSW 2478

Project Name: OXLEY VALE DSI
Project ID: 19372

Order No.:
Report #: 685951
Phone: 0421 519 354
Fax:

Received: Nov 1, 2019 2:10 PM
Due: Nov 8, 2019
Priority: 5 Day
Contact Name: Jacques Chiomey

Eurofins Analytical Services Manager : Alena Bounkeua

Sample Detail						Moisture Set	Eurofins mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						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	QA02	Oct 29, 2019		Soil	S19-No01947	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
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 - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C10-C14				%	83			70-130	Pass	
LCS - % Recovery										
BTEX										
Benzene			%	102				70-130	Pass	
Toluene			%	103				70-130	Pass	
Ethylbenzene			%	103				70-130	Pass	
m&p-Xylenes			%	107				70-130	Pass	
o-Xylene			%	105				70-130	Pass	
Xylenes - Total			%	107				70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene			%	99				70-130	Pass	
TRH C6-C10			%	90				70-130	Pass	
TRH >C10-C16			%	80				70-130	Pass	
LCS - % Recovery										
Polycyclic Aromatic Hydrocarbons										
Acenaphthene			%	107				70-130	Pass	
Acenaphthylene			%	109				70-130	Pass	
Anthracene			%	107				70-130	Pass	
Benz(a)anthracene			%	107				70-130	Pass	
Benzo(a)pyrene			%	112				70-130	Pass	
Benzo(b&j)fluoranthene			%	108				70-130	Pass	
Benzo(g.h.i)perylene			%	130				70-130	Pass	
Benzo(k)fluoranthene			%	112				70-130	Pass	
Chrysene			%	75				70-130	Pass	
Dibenz(a.h)anthracene			%	94				70-130	Pass	
Fluoranthene			%	115				70-130	Pass	
Fluorene			%	105				70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	118				70-130	Pass	
Naphthalene			%	113				70-130	Pass	
Phenanthrene			%	111				70-130	Pass	
Pyrene			%	115				70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic			%	86				70-130	Pass	
Cadmium			%	90				70-130	Pass	
Chromium			%	94				70-130	Pass	
Copper			%	96				70-130	Pass	
Lead			%	94				70-130	Pass	
Mercury			%	92				70-130	Pass	
Nickel			%	97				70-130	Pass	
Zinc			%	96				70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1						
TRH C6-C9	S19-Oc47434	NCP	%	82				70-130	Pass	
TRH C10-C14	S19-No06755	NCP	%	85				70-130	Pass	
Spike - % Recovery										
BTEX				Result 1						
Benzene	S19-Oc47434	NCP	%	91				70-130	Pass	
Toluene	S19-Oc47434	NCP	%	91				70-130	Pass	
Ethylbenzene	S19-Oc47434	NCP	%	90				70-130	Pass	
m&p-Xylenes	S19-Oc47434	NCP	%	94				70-130	Pass	
o-Xylene	S19-Oc47434	NCP	%	94				70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total	S19-Oc47434	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Oc47434	NCP	%	115			70-130	Pass	
TRH C6-C10	S19-Oc47434	NCP	%	78			70-130	Pass	
TRH >C10-C16	S19-No06755	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-No00309	NCP	%	108			70-130	Pass	
Cadmium	S19-No00309	NCP	%	108			70-130	Pass	
Chromium	S19-No00309	NCP	%	112			70-130	Pass	
Copper	S19-No00309	NCP	%	118			70-130	Pass	
Lead	S19-No06755	NCP	%	85			70-130	Pass	
Mercury	S19-No00309	NCP	%	114			70-130	Pass	
Nickel	S19-No00309	NCP	%	113			70-130	Pass	
Zinc	S19-No06755	NCP	%	89			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-No01947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S19-No01947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S19-No01947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S19-No01947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-No01947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-No01947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-No01947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-No01947	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-No01947	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-No01947	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-No01947	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S19-No01947	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S19-No01947	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S19-No01947	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Phenanthrene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S19-No01947	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S19-No00303	NCP	mg/kg	2.7	2.7	2.0	30%	Pass
Cadmium	S19-No00303	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S19-No00303	NCP	mg/kg	5.1	5.7	12	30%	Pass
Copper	S19-No00303	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	S19-No00303	NCP	mg/kg	12	11	6.0	30%	Pass
Mercury	S19-No00303	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S19-No00303	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S19-No00303	NCP	mg/kg	18	20	14	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S19-No01774	NCP	%	18	16	15	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-Metal (NSW)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

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

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

#685951

ENVIROLAB GROUP		CHAIN OF CUSTODY - Client		ENVIROLAB GROUP - National phone number 1300 42 43 44	
Client: ENV Solutions			Client Project Name / Number / Site etc (ie report title):		
Contact Person: Jacques Chiomey, Ben Pieterse			Oxley Vale DSI, 19372		
Project Mgr: JC			PO No.:		
Sampler: Jacques Chiomey			Envirolab Quote No.:		
Address: 45-65 Smith Drive, West Ballina, NSW, 2478			Date results required: Standard 5 day		
Mob: 0430407023 (JC)			Or choose: standard / same day / 1 day / 2 day / 3 day		
Email: jacques@envsolutions.com.au; ben@envsolutions.com.au			Note: Inform lab in advance if urgent turnaround is required -		
Report format: esdat / equis /			Lab Comments:		
Sydney Lab - Envirolab Services 12 Ashley St, Chatswood, NSW 2067 Ph 02 9910 6200 / sydney@envirolab.com.au			Perth Lab - MPL Laboratories 16-18 Hayden Crt Myaree, WA 6154 Ph 08 9317 2505 / lab@mpl.com.au		
Melbourne Lab - Envirolab Services 1A Dalmore Drive Scoresby VIC 3179 Ph 03 9763 2500 / melbourne@envirolab.com.au			Brisbane Office - Envirolab Services 20a, 10-20 Depot St, Banyo, QLD 4014 Ph 07 3266 9532 / brisbane@envirolab.com.au		
Adelaide Office - Envirolab Services 7a The Parade, Norwood, SA 5067					
Sample Information					
Envirolab Sample ID	Building on site	Client Sample ID or information	Depth	Date sampled	Type of sample
2623		BH06_0.2	2.0 on jcr	29/10/2019	Soil
2626		QA01		29/10/2019	Soil
		QA02		29/10/2019	Soil
2627		BH01-1.0	on jcr	19/3/19	
2628		BH04-1.5		29/10/19	
Tests Required					
Combo 3	Hold	B7 (Eurofins)	Comments		
	X		Provide as much information about the sample as you can		
X					
		X	Please forward to Eurofins		
Relinquished by (Company): ENV Solutions					
Print Name: Jacques Chiomey					
Date & Time: 31/10/2019					
Signature: [Signature]					
Received by (Company): ELS Syd					
Print Name: K. Gore					
Date & Time: 31-10-19 10:28 AM					
Signature: [Signature]					
Lab use only:					
Samples Received: Cool or Ambient (circle one)					
Temperature Received at: 15.1 (if applicable)					
Transported by: Hand delivered / courier					
White - Lab copy / Blue - Client copy / Pink - Retain in Book					

Relinquished by:

ELS Syd

S. Bolton

01/11/19 1159

[Signature]

229767

[Signature]

1/11/19 2:10PM

ATTACHMENT 5



Table 1 - Analytical Results Table

	Metals							
	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1	4	0.4	1	1	0.1	1	1
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay								
0-1m								
1-2m								
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind		160						
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil								
0-2m								
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	1,500	3,000	900		240,000	730	6,000	400,000

Lab Report Number	Field ID	Matrix Type	Date	Depth									
229767	BH01	soil	29/10/2019	2	6	<4	<0.4	14	25	<0.1	7	55	
229767	BH02	soil	29/10/2019	0.5	7	<4	<0.4	12	23	<0.1	7	50	
229767	BH02	soil	29/10/2019	2	6	<4	<0.4	14	25	<0.1	8	60	
229767	BH03	soil	29/10/2019	0.2	44	<4	<0.4	13	22	<0.1	8	92	
229767	BH03	soil	29/10/2019	1	6	<4	<0.4	13	25	<0.1	7	58	
229767	BH04	soil	29/10/2019	0.2	10	<4	<0.4	14	24	<0.1	8	61	
229767	BH04	soil	29/10/2019	0.5	7	<4	<0.4	13	23	<0.1	7	55	
229767	QA01	soil	29/10/2019	-	6	<4	<0.4	11	21	<0.1	7	42	
S19-No01947	QA02	soil	29/10/2019	-	8.9	7.5	<0.4	21	31	<0.1	14	79	
229767	BH05	soil	29/10/2019	0.2	11	<4	<0.4	14	24	<0.1	7	74	
229767	BH05	soil	29/10/2019	0.5	11	<4	<0.4	13	24	<0.1	7	68	
229767	BH06	soil	29/10/2019	0.5	6	<4	<0.4	14	25	<0.1	7	55	
229767	BH06	soil	29/10/2019	1	6	<4	<0.4	14	24	<0.1	8	55	

Environmental Standards

Notes/Abbreviations:

NEPM = National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)

NEMP = PFAS National Environmental Management Program (2018) - Heads of EPAs (HEPA)

HIL = Health Investigation Level (direct contact exposure pathways)

HSL = Health Screening Level (vapour intrusion)

EIL/ESL = Ecological Investigation/Screening Level; (0-2 m)

Table 1 - Analytical Results Table

	Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)						Total Petroleum Hydrocarbons (TPH) / Total Recoverable Hydrocarbons (TRH)											
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C9	C10-C14	C15-C28	C29-C36	C6-C10	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	F1 (C6-C9 minus BTEX)	F2 (>C10-C16 minus Naphthalene)	
	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	0.2	0.5	1	2	1	3	25	50	100	100	25	50	100	100	50	25	50	
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Clay																		
0-1m	4															310		
1-2m	6															480		
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind																		
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil																		
0-2m	95	135	185			95							2,500	6,600		215	170	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil																		

Lab Report Number	Field ID	Matrix Type	Date	Depth																	
229767	BH01	soil	29/10/2019	2	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH02	soil	29/10/2019	0.5	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH02	soil	29/10/2019	2	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH03	soil	29/10/2019	0.2	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	140	<25	<50	180	<100	180	<25	<50
229767	BH03	soil	29/10/2019	1	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH04	soil	29/10/2019	0.2	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH04	soil	29/10/2019	0.5	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	QA01	soil	29/10/2019	-	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
S19-No01947	QA02	soil	29/10/2019	-	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.3	<0.5	<20	<50	<50	<20	<50	<100	<100	<50	<20	<50
229767	BH05	soil	29/10/2019	0.2	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH05	soil	29/10/2019	0.5	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH06	soil	29/10/2019	0.5	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50
229767	BH06	soil	29/10/2019	1	<0.2	<0.5	<1	<2	<1	<3	<25	<50	<100	<100	<25	<50	<100	<100	<50	<25	<50

Environmental Standards

Notes/Abbreviations:

NEPM = National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)

NEMP = PFAS National Environmental Management Program (2018) - Heads of EPAs (HEPA)

HIL = Health Investigation Level (direct contact exposure pathways)

HSL = Health Screening Level (vapour intrusion)

EIL/ESL = Ecological Investigation/Screening Level; (0-2 m)



Table 2 - QA/QC Table

	Metals							
	Lead	Arsenic	Cadmium	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQI	1	4	0.4	1	1	0.1	1	1

Lab Report Number	Field ID	Matrix Type	Date								
229767	BH04_0.5	soil	29/10/2019	7	<4	<0.4	13	23	<0.1	7	55
229767	QA01	soil	29/10/2019	6	<4	<0.4	11	21	<0.1	7	42
RPD				15	0	0	17	9	0	0	27
229767	BH04_0.5	soil	29/10/2019	7	<4	<0.4	13	23	<0.1	7	55
S19-No01947	QA02	soil	29/10/2019	8.9	7.5	<0.4	21	31	<0.1	14	79
RPD				23.90	NA	0	47.06	29.63	0	66.67	35.82

Notes/Abbreviations:
RPD - Relative Percent Difference
NA - RPD not calculated (one or both concentrations <LOR).
RPDs > 50% shaded in grey
mg/kg - milligrams per kilogram
mg/L - milligrams per litre
mg/L - micrograms per litre

ENVIRONMENTAL ASBESTOS REMEDIATION RESOURCE RECOVERY Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)						Total Petroleum Hydrocarbons (TPH) / Total Recoverable Hydrocarbons (TRH)										
Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C9	C10-C14	C15-C28	C29-C36	C6-C10	C10-C16	C16-C34	C34-C40	C10-C40 (sum of total)	F1 (C6-C9 minus BTEX)	F2 (>C10-C16 minus Naphthalene)
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
0.2	0.5	1	2	1	3	25	50	100	100	25	50	100	100	50	25	50

[illegible]

[illegible][illegible]

ATTACHMENT 6



SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252

Customer Experience 13 10 50

ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D19/199017

8 October 2019

Jacques Chiomey
ENV Solutions
45-65 Smith Dr
West Ballina NSW 2478

Dear Mr Chiomey

RE SITE: 171 Manilla Road Oxley Vale NSW

I refer to your site search request received by SafeWork NSW on 26 September 2019 requesting information on Storage of Hazardous Chemicals for the above site.


Enclosed are copies of the documents that SafeWork NSW holds on record number 35/015449. relating to the storage of Hazardous Chemicals at the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely


Customer Service Officer
Customer Experience - Operations
SafeWork NSW

3


L. M. B. C.

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

(* delete whichever is not required)

FEE: \$15.00 per Depot for new licence.
\$15.00 for amendment or transfer.Name of Applicant in full (see Item
1 - Explanatory notes - page 4)N.P. *Stangleam Pty Ltd. (directors: John Patrick CULLEN
Anne Maree Saunders)*Trading name or occupier's
name (if any)*Oxley superette.*

Postal Address

171 Manilla Rd. Oxley Vale. Postcode *2340*Address of the premises to be
licensed. (Including Street No.)*171 Manilla Rd Oxley Vale.* Postcode *2340*Nature of premises (See Item 2 -
Explanatory notes - page 4)*Service Station*

Telephone number of applicant

STD Code *067* Number *618330*

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

Depot number	Type of depot (See item 3 - Explanatory notes - page 4)	Storage capacity	Dangerous goods	
			Product being stored	
1	3.1	2 x 4500.	Underground Tanks.	2.020.45X
2				2.020.45X
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Has site plan been approved by the
Dangerous Goods Branch?☒ Yes
☐ NoIf yes, no plans required.
If no, please attach site plan, or provide sketch plan overleaf.

Have premises previously been licensed?

☒ Yes
☐ No

If, yes, state name of previous occupier, and licence No. (if known).

Name of oil company supplying flammable liquid (if applicable).

Ampol.

Signature of applicant

*J. Cullen*Date *10.8.90*

For external explosives magazine(s), please fill in page 3.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

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

Signature of Inspector

Date

Department of Industrial Relations

DANGEROUS GOODS ACT, 1975



LICENCE No.

35 - 015449-2

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

(* delete whichever is not required)

FEE: \$15.00 per Depot for new licence.

\$15.00 for amendment or transfer.

350154492



Name of Applicant in full (see Item 1 - Explanatory notes - page 4) **NA/DORIS LYNETTE & REGINALD THOMAS GERMON** **\$30.00**

Trading name or occupier's name (if any) **OXLEY SUPERETTE**

Postal Address **171 MANILLA RD TAMWORTH** Postcode **2340**

Address of the premises to be licensed. (Including Street No.) **171 MANILLA RD TAMWORTH** Postcode **2340**

Nature of premises (See Item 2 - Explanatory notes - page 4) **SMALL SHOP**

Telephone number of applicant **STD Code 067** Number **6631510**

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

Depot number	Type of depot (See item 3 - Explanatory notes - page 4)	Storage capacity	Dangerous goods	C & C Office use only
			Product being stored	
1	U/E TANK	5000	FLAMMABLE LIQUID (PETROL)	
2	U/E TANK	5000	FLAMMABLE LIQUID (PETROL)	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

DATA ENTERED

- 6 OCT 1988

OPERATOR ONE

Has site plan been approved by the
Dangerous Goods Branch?Yes
~~No~~If yes, no plans required.
If no, please attach site plan, or provide sketch plan overleaf.

Have premises previously been licensed?

Yes
~~No~~

If, yes, state name of previous occupier, and licence No. (if known).

Name of oil company supplying flammable liquid (if applicable).

AMPON

Signature of applicant

Date 19.9.88

For external explosives magazine(s), please fill in page 3.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

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

Signature of Inspector

Date

Nestle Bk. (1)

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

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

DG: 80. 10. 0001 - 1581

(*delete whichever is not required)

FEE: \$10.00 per Depot

(2 depots)

Name of Applicant in full (see over)	Surname <u>CALLAGHAN</u>	Given Names <u>John Peter</u>
Trading name or occupier's name (if any)	<u>OXLEY SUPERETTE</u>	
Postal address	<u>171 MANILLA RD TAMWORTH</u>	Postcode <u>2340</u>
Telephone number of applicant	STD Code <u>067</u>	Number <u>663150</u>
Address of the premises in or on which the depot or depots are situated (including street number, if any)	<u>171-173 MANILLA RD TAMWORTH</u> Postcode <u>2340</u>	
Nature of premises (see over)	<u>GENERAL STORE</u>	

PLEASE ATTACH SITE PLAN

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time. 11002.020.2.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods	
			Product being stored	C & C Office use only
1	UNDERGROUND TANK	4500 LITRES	STANDARD PETROL	2 020 53
2	UNDERGROUND TANK	4500 LITRES	SUPER PETROL	2 020 53
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Name of company supplying flammable liquid (if any) AMPON PETROLEUM

Have premises previously been licensed? YES

If known, state name of previous occupier B & J KLEPZIG Licence No. 35-0154492

Signature of applicant J. R. Callaghan Date 13.10.80

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

FOR OFFICE USE ONLY
 CERTIFICATE OF INSPECTION

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

Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, No. 16 Grosvenor Street, Sydney (Box 48, G.P.O.), and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee £1 10s. 0d. p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, £3 5s. 0d. p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.

For the keeping of Dangerous Goods of Classes 3 and/or 4. (£7 10s. 0d. p.a.).

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier

2. Occupation

3. Locality of the premises in which the depot or depots are situated

4. Nature of premises (Dwelling, Garage, Store, etc.)

5. Will mineral spirit be kept in a prescribed underground tank depot?

ALLAN BLIFFORD WHARRETT
Storekeeper
Lot 72
Manilla Rd
Osley Vale
via Jamunath
N.S.W.

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots			Inflammable Liquid		Dangerous Goods			
	Walls	Roof	Floor	Mineral Spirit Gallons	Mineral Oil Gallons	Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Underground tank			1000					
2				1000					
3									
4									
5									
6									
7									
8									
9									
10									

Signature of Applicant

Date of Application 19

Postal Address

Keith R. Warboys
Place Jamunath.
27-5-65

CERTIFICATE OF INSPECTION

I, Keith R. Warboys being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Signature of Inspector

A. B. Wharrett
Osley Vale
via Jamunath

Department of Mines,
Explosives Department,
16-18 Grosvenor Street,
(Box 48, G.P.O.),
SYDNEY

Mr. M. Whackitt,
To: OXLEY VALE. NSW.

30th January, 1963.

Dear Sir,

Inflammable Liquid Act, 1915 as amended

I am informed that (2) 1,000 gallon BP AUSTRALIA
LTD. underground petrol storage tanks ~~was~~ were installed at your premises
~~XXXXXX~~ recently.

It will consequently be necessary for you to submit an application for Store License
under the above Act upon the form enclosed herewith, which should be filled in, signed and
returned to this office with:-

- (1) a prescribed fee in accordance with the schedule on Form "B", and (£3.5.0)
- (2) a lay-out plan of the premises showing the position of the (2) underground tanks
and the distances separating the tanks from (each other and) adjoining buildings.

Your immediate attention to this matter is requested.

Yours faithfully,

for Chief Inspector of Inflammable Liquids.

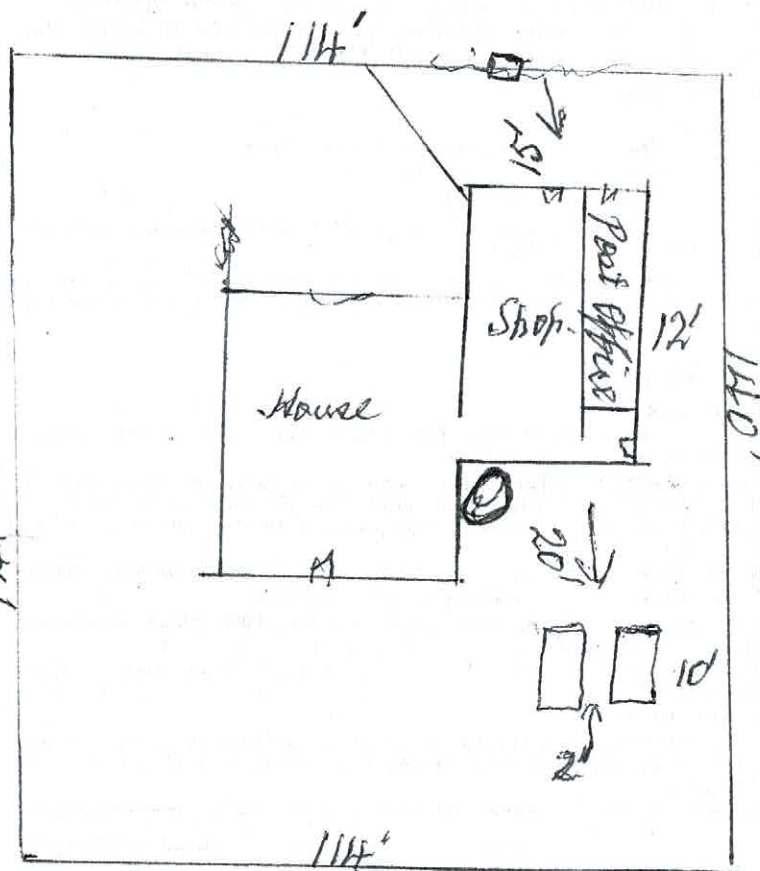
Encl.

Make Rough Sketches showing—

Ground plans of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings.

Sketch of depot or depots showing provision made for ventilation, also inside dimensions (length, width, and depth) of the pit or lower portion, designed to prevent outflow.

This sketch is not required for underground tanks.



TABLES SHOWING DISTANCES WHICH UNDER LICENSE MUST SEPARATE PROTECTED WORKS FROM DEPOTS

Table I.—Where Mineral Spirit and/or Dangerous Goods of Class 1 (with or without Mineral Oil and/or Dangerous Goods of Class 2) are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 500 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot, separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	Distance not less than—
Gallons	Gallons	Gallons	Feet
2,000	1,000	250	10
2,400	1,200	300	11
2,800	1,400	350	12
3,200	1,600	400	13
3,600	1,800	450	14
4,000	2,000	500	15
4,400	2,200	550	16
4,800	2,400	600	17
5,200	2,600	650	18
5,600	2,800	700	19
6,000	3,000	750	20
6,400	3,200	800	21
6,800	3,400	850	22
7,200	3,600	900	23
7,600	3,800	950	24
8,000	4,000	1,000	25
8,400	4,200	1,050	26
8,800	4,400	1,100	27
9,200	4,600	1,150	28
9,600	4,800	1,200	29
10,000	5,000	1,250	30
10,400	5,200	1,300	31
10,800	5,400	1,350	32
11,200	5,600	1,400	33
11,600	5,800	1,450	34
12,000	6,000	1,500	35
12,400	6,200	1,550	36
12,800	6,400	1,600	37
13,200	6,600	1,650	38
13,600	6,800	1,700	39
14,000	7,000	1,750	40
14,400	7,200	1,800	41
14,800	7,400	1,850	42
15,200	7,600	1,900	43
15,600	7,800	1,950	44
16,000	8,000	2,000	45
16,400	8,200	2,050	46
16,800	8,400	2,100	47
17,200	8,600	2,150	48
17,600	8,800	2,200	49
18,000	9,000	2,250	50
18,400	9,200	2,300	51
18,800	9,400	2,350	52
19,200	9,600	2,400	53
19,600	9,800	2,450	54
20,000	10,000	2,500	55
20,400	10,200	2,550	56
20,800	10,400	2,600	57
21,200	10,600	2,650	58
21,600	10,800	2,700	59
22,000	11,000	2,750	60
22,400	11,200	2,800	61
22,800	11,400	2,850	62
23,200	11,600	2,900	63
23,600	11,800	2,950	64
24,000	12,000	3,000	65
24,400	12,200	3,050	66
24,800	12,400	3,100	67
25,200	12,600	3,150	68
25,600	12,800	3,200	69
26,000	13,000	3,250	70
26,400	13,200	3,300	71
26,800	13,400	3,350	72
27,200	13,600	3,400	73
27,600	13,800	3,450	74
28,000	14,000	3,500	75
28,400	14,200	3,550	76
28,800	14,400	3,600	77
29,200	14,600	3,650	78
29,600	14,800	3,700	79
30,000	15,000	3,750	80
30,400	15,200	3,800	81
30,800	15,400	3,850	82
31,200	15,600	3,900	83
31,600	15,800	3,950	84
32,000	16,000	4,000	85
32,400	16,200	4,050	86
32,800	16,400	4,100	87
33,200	16,600	4,150	88
33,600	16,800	4,200	89
34,000	17,000	4,250	90
34,400	17,200	4,300	91
34,800	17,400	4,350	92
35,200	17,600	4,400	93
35,600	17,800	4,450	94
36,000	18,000	4,500	95
36,400	18,200	4,550	96
36,800	18,400	4,600	97
37,200	18,600	4,650	98
37,600	18,800	4,700	99
38,000	19,000	4,750	100
38,400	19,200	4,800	101
38,800	19,400	4,850	102
39,200	19,600	4,900	103
39,600	19,800	4,950	104
40,000	20,000	5,000	105
40,400	20,200	5,050	106
40,800	20,400	5,100	107
41,200	20,600	5,150	108
41,600	20,800	5,200	109
42,000	21,000	5,250	110
42,400	21,200	5,300	111
42,800	21,400	5,350	112
43,200	21,600	5,400	113
43,600	21,800	5,450	114
44,000	22,000	5,500	115
44,400	22,200	5,550	116
44,800	22,400	5,600	117
45,200	22,600	5,650	118
45,600	22,800	5,700	119
46,000	23,000	5,750	120
46,400	23,200	5,800	121
46,800	23,400	5,850	122
47,200	23,600	5,900	123
47,600	23,800	5,950	124
48,000	24,000	6,000	125
48,400	24,200	6,050	126
48,800	24,400	6,100	127
49,200	24,600	6,150	128
49,600	24,800	6,200	129
50,000	25,000	6,250	130
50,400	25,200	6,300	131
50,800	25,400	6,350	132
51,200	25,600	6,400	133
51,600	25,800	6,450	134
52,000	26,000	6,500	135
52,400	26,200	6,550	136
52,800	26,400	6,600	137
53,200	26,600	6,650	138
53,600	26,800	6,700	139
54,000	27,000	6,750	140
54,400	27,200	6,800	141
54,800	27,400	6,850	142
55,200	27,600	6,900	143
55,600	27,800	6,950	144
56,000	28,000	7,000	145
56,400	28,200	7,050	146
56,800	28,400	7,100	147
57,200	28,600	7,150	148
57,600	28,800	7,200	149
58,000	29,000	7,250	150
58,400	29,200	7,300	151
58,800	29,400	7,350	152
59,200	29,600	7,400	153
59,600	29,800	7,450	154
60,000	30,000	7,500	155
60,400	30,200	7,550	156
60,800	30,400	7,600	157
61,200	30,600	7,650	158
61,600	30,800	7,700	159
62,000	31,000	7,750	160
62,400	31,200	7,800	161
62,800	31,400	7,850	162
63,200	31,600	7,900	163
63,600	31,800	7,950	164
64,000	32,000	8,000	165
64,400	32,200	8,050	166
64,800	32,400	8,100	167
65,200	32,600	8,150	168
65,600	32,800	8,200	169
66,000	33,000	8,250	170
66,400	33,200	8,300	171
66,800	33,400	8,350	172
67,200	33,600	8,400	173
67,600	33,800	8,450	174
68,000	34,000	8,500	175
68,400	34,200	8,550	176
68,800	34,400	8,600	177
69,200	34,600	8,650	178
69,600	34,800	8,700	179
70,000	35,000	8,750	180
70,400	35,200	8,800	181
70,800	35,400	8,850	182
71,200	35,600	8,900	183
71,600	35,800	8,950	184
72,000	36,000	9,000	185
72,400	36,200	9,050	186
72,800	36,400	9,100	187
73,200	36,600	9,150	188
73,600	36,800	9,200	189
74,000	37,000	9,250	190
74,400	37,200	9,300	191
74,800	37,400	9,350	192
75,200	37,600	9,400	193
75,600	37,800	9,450	194
76,000	38,000	9,500	195
76,400	38,200	9,550	196
76,800	38,400	9,600	197
77,200	38,600	9,650	198
77,600	38,800	9,700	199
78,000	39,000	9,750	200
78,400	39,200	9,800	201
78,800	39,400	9,850	202
79,200	39,600	9,900	203
79,600	39,800	9,950	204
80,000	40,000	10,000	205
80,400	40,200	10,050	206
80,800	40,400	10,100	207
81,200	40,600	10,150	208
81,600	40,800	10,200	209
82,000	41,000	10,250	210
82,400	41,200	10,300	211
82,800	41,400	10,350	212
83,200	41,600	10,400	213
83,600	41,800	10,450	214
84,000	42,000	10,500	215
84,400	42,200	10,550	216
84,800	42,400	10,600	217
85,200	42,600	10,650	218
85,600	42,800	10,700	219
86,000	43,000	10,750	220
86,400	43,200	10,800	221
86,800	43,400	10,850	222
87,200	43,600	10,900	223
87,600	43,800	10,950	224
88,000	44,000	11,000	225
88,400	44,200	11,050	226
88,800	44,400	11,100	227
89,200	44,600	11,150	228
89,600	44,800	11,200	229
90,000	45,000	11,250	230
90,400	45,200	11,300	231
90,800	45,400	11,350	232
91,200	45,600	11,400	233
91,600	45,800	11,450	234
92,000	46,000	11,500	235
92,400	46,200	11,550	236
92,800	46,400	11,600	237
93,200	46,600	11,650	238
93,600	46,800	11,700	239
94,000	47,000	11,750	240
94,400	47,200	11,800	241
94,800	47,400	11,850	242
95,200	47,600	11,900	243
95,600	47,800	11,950	244
96,000	48,000	12,000	245
96,400	48,200	12,050	246
96,800	48,400	12,100	247
97,200	48,600	12,150	248
97,600	48,800	12,200	249
98,000	49,000	12,250	250
98,400	49,200	12,300	251
98,800	49,400	12,350	252
99,200	49,600	12,400	253
99,600	49,800	12,450	254
100,000 and over	320,000 and over	400,000 and over	150

INSPECTION RECORD

Licence No. A/5449

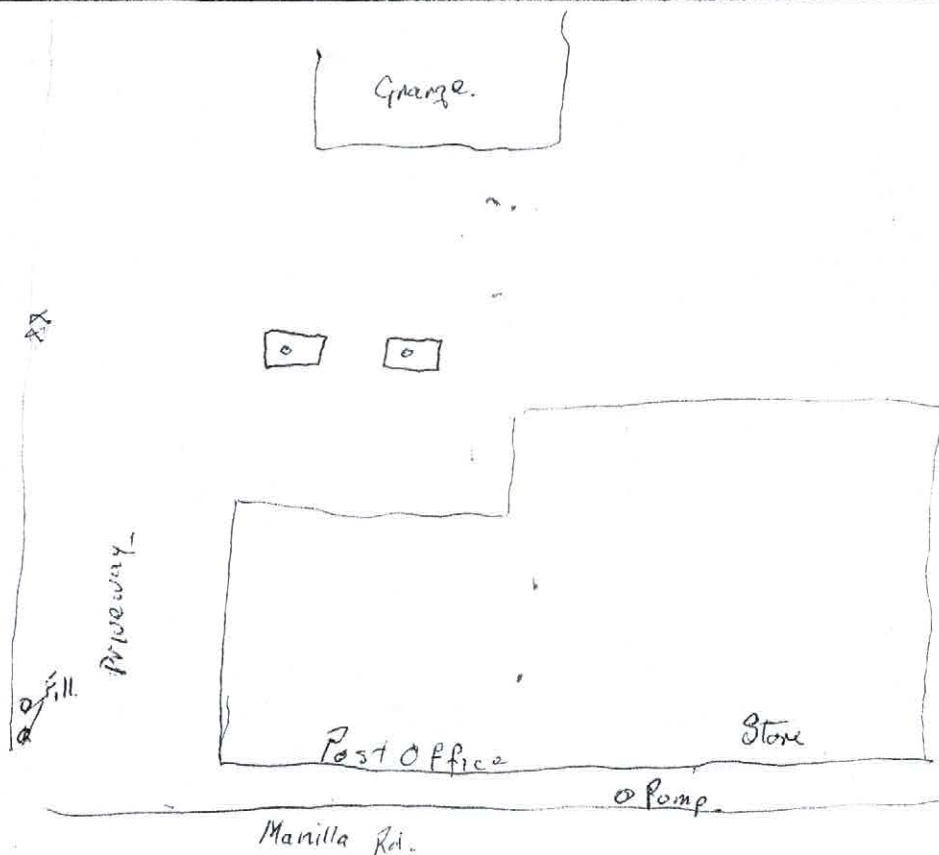
Licencee: Allen Clifford WHACKETT

Address: Oxley Vale TAMWORTH

Storage licensed: 2/1000

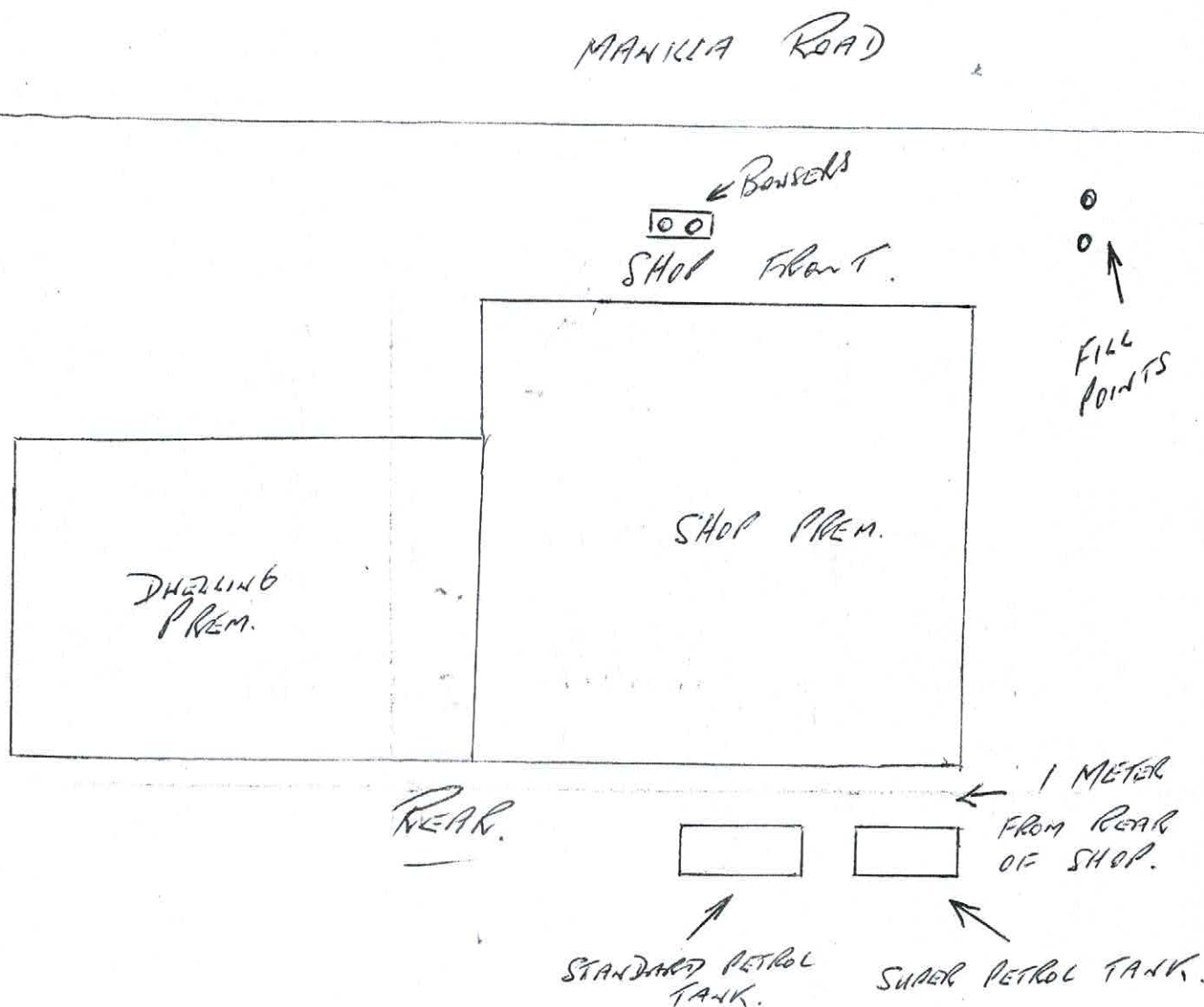
B.P.

Sketch of Premises (Dimensions of depot and distance of same from adjoining "protected works" to be shown).



Inspected	Initials	Requisitions made or state of depot
27-5-65	Shel.	O.K.
13.5.69.	H.C.	do.
8.3.72	H.C.	✓
15.2.73	Shel.	Shel.
13.5.75	Shel.	Shel.

Make rough sketch of ground layout of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings. If space insufficient, attach separate plan.



EXPLANATORY NOTES

NAME IN FULL OF OCCUPIER/S - Full name(s) of occupier(s) must be given. Trading name (if any) should also be shown.

NATURE OF PREMISES - State whether premises comprise of dwelling, service station, depot, etc.

CONSTRUCTION OF DEPOT - If storage is in an aboveground depot indicate the material of which the depot is constructed, e.g., brick, steel, concrete, and then the amount of inflammable liquid or dangerous goods and the type being stored, e.g., mineral spirit, kerosene, acetone, etc.