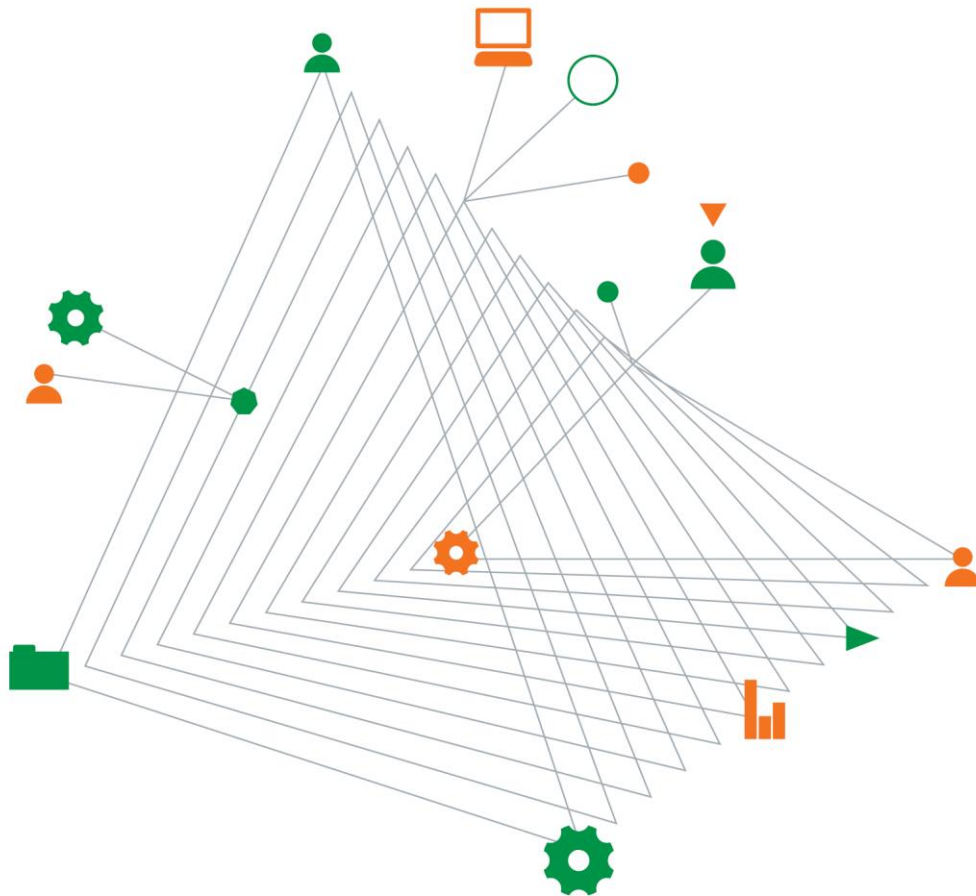


Norton Rose Fulbright Australia

Expert Witness Report of Mr Phil Sinclair

Re: Monash Planning Scheme Amendment C129

28 July 2017



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Expert Report of Mr Phillip Sinclair
Re: Monash Planning Scheme Amendment C129

Expert Witness Report of Mr Phil Sinclair

Re: Monash Planning Scheme Amendment C129

Prepared for
Norton Rose Fulbright Australia

Prepared by
Coffey Services Australia Pty Ltd
Level 1, 436 Johnston Street
Abbotsford VIC 3067 Australia
t: +61 3 9029 7000 f: +61 3 9029 7499
ABN: 55 139 460 521

28 July 2017

Reference: ENAUABTF00751AC-R01

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Abbreviations

B(a)P	benzo(a)pyrene
BPEM	Best practice environmental management
BTEX	benzene, toluene, ethylbenzene, xylenes
BTEXN	benzene, toluene, ethylbenzene, xylenes and naphthalene
COPC	Contaminants of potential concern
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
GME	Groundwater monitoring event
GQMP	Groundwater Quality Management Plan
GSV	Gas Screening Value
HIL	Health investigation level
LOR	Limit of Reporting
mbgs	Metres below ground surface
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
NHMRC	The National Health and Medical Research Council
PAH	Polycyclic Aromatic Hydrocarbon
SEPP	State Environment Protection Policy
SESP	Site Environmental Strategy Plan
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbon
TRH	Total Recoverable Hydrocarbon
µg/L	micrograms per litre

1. Introduction

On 20 July 2017, I, Phil Sinclair of Coffey Services Australia Pty Ltd (Coffey), Level 1 436 Johnston Street, Abbotsford, Victoria, 3067, was requested by Norton Rose Fulbright Australia (NRF) to prepare an expert report in relation to Amendment C129 of the Monash Planning Scheme, to rezone land at 1221 -1249 Centre Road, Oakleigh South, to the comprehensive development zone. NRF is acting on behalf of the proponent for the development of the property, Sterling Global.

The Planning Panel Victoria Directions (PPV) hearing of 6 July 2017, resulted in the panel providing directions to the parties involved in the hearing in its letter of 10 July 2017 (PPV 2017).

The PPV directed that an expert witness report reviewing previous contamination reports must be circulated by 2.00pm on Friday, 28 July 2017. This document is that expert report.

1.1. Summary of opinions expressed

It is my opinion that:

- The contamination status of soil at the site has been adequately assessed. I conclude that the main soil contaminants of concern with respect to the proposed uses of the site are arsenic, petroleum hydrocarbons and asbestos containing materials. While copper, nickel and zinc were reported to be widespread, they are not assessed to be contaminants likely to prevent proposed uses of the site.
- The contamination status of groundwater at the site has been adequately assessed to the extent necessary to support a Section 53X environmental audit of the site, subject to (i) completion of the groundwater assessment described in Section 3.2.4, which would complete the scope for the groundwater assessment endorsed by the Environmental Auditor and (ii) the following assessments which would be required to assess the potential for off-site impacts to the beneficial uses of groundwater:
 - The that clarification of the groundwater flow regime in the vicinity of BH18 and BH19 by way of installation of groundwater monitoring wells to the east of these locations and assessment of groundwater levels.
 - The assessment of potential groundwater contamination off-site to the east of BH19 for the petroleum hydrocarbon fraction C10-C40 and ammonia.
- The assessment of the occurrence of landfill gases on-site and beyond the boundary the site has been adequately assessed to the extent necessary to support a Section 53X environmental audit of the site; subject to completion of the additional landfill gas testing described in Section 3.2.4, which would complete the scope of the landfill gas assessment endorsed by the Environmental Auditor.
- Recent soil and groundwater analytical results are consistent with previous ESA findings and the soil and groundwater remediation strategy adopted in the SESP is appropriate, reasonable and practicable as a means of making the site suitable for sensitive land uses.
- With regards the landfill gas assessment, the Characteristic Situation reported during the August 2016 and March 2017 assessments is a level higher than reported in the SESP for parts of the site.

The assessment and remediation implementation process outlined in the SESP remains viable and appropriate; while the technical and design details for the gas mitigation measures require updating. Details of the design of the gas extraction system for residential development would need to be adjusted to take this increase in gas risk into account, as indicated in Appendix A, Figure 10B – 'Moderate to High' Concept Design. This is addressed in Section 4.4 below.

An alternative approach would be for less sensitive uses to be adopted for land on or adjacent to the areas of increased gas risk. Either approach would be consistent with the adopted comprehensive development plan for the site.

- Providing that careful consideration of the geotechnical and environmental conditions of the site is given in the design and implementation phases, it is considered that the remedial measures proposed in the SESP, with the amendments detailed Section 4.4 below, will allow the appropriate redevelopment of the site.
- It is appropriate and reasonable to delay the requirement for a Statement of Audit until after Amendment C129 is approved, this opinion is based on similar matters I have been involved in and on the practice adopted for similar sites of which I am aware.
- It is not necessary for the SESP and ESA to be approved by Council prior to the lodgement of any planning permit application. In my opinion, it is appropriate for Council to rely on the authority and experience of the EPA appointed environmental auditor for the approval of the SESP and ESA as an integral part of the completion of the environmental audit of the site.

If Council decides to review the ESA and SESP; it would be most appropriate to do so after lodgement of the planning application and prior to issuing of the planning permit as the review can then take into account related documents submitted to support the application.

1.2. Background

On 2 August 2016, Urbis Pty Ltd (Urbis), on behalf of Sterling Global, submitted a planning scheme amendment request to the City of Monash to rezone the land at 1221 - 1249 Centre Road, Oakleigh South (the site) from Special Use Zone - Schedule 2 and General Residential Zone - Schedule 2 to Comprehensive Development Zone - Schedule 2, and to add an incorporated document to the planning scheme in the form of a comprehensive development plan (Amendment C129).

1.3. Instructions

This report has been prepared at the request of NRF with the following scope of works (based on the letter of instruction provided by NRF to me dated 20 July 2017 and attached in **Appendix D**):

1. Review background materials enclosed in the brief from NRF;
2. Confer with instructing solicitors and counsel, Joanne Lardner, where necessary;
3. Prepare an Expert Report which addresses:
 - a. Site contamination issues including:
 - i. A summary of the historical use and development of the Land;
 - ii. A summary of any contamination issues associated with the Land, the environmental assessments undertaken to date and any recommendations made;

- iii. My opinion in regards to whether the Land can be made suitable to accommodate sensitive uses and, if so, what measures are required to be implemented;
 - iv. My opinion in regards to whether it is appropriate and reasonable to delay the requirement for a Statement of Audit until after Amendment C129, citing any relevant examples of similar matters I have been involved in;
 - v. My opinion in regards to whether it is appropriate or necessary for the SESP and ESA to be approved by Council prior to the lodgement of any planning permit application, citing any relevant similar examples I have been involved in; and
 - b. My understanding of the conclusions reached by Coffey Geotechnics concerning geotechnical issues on the site;
 - c. My response to the submissions of agencies and other parties to the Council in respect of the Amendment, as relevant to my area of expertise; and
4. My attendance at the Public Hearing of this matter on 9 August 2017 for the purpose of presenting my expert opinion concerning these matters and my subsequent attendance at a site inspection with the Panel on 10 August 2017.

1.4. Form of report

This Expert Report has been prepared in accordance with the PPV *'Guide to Expert Evidence'* (April 2017). In order to address the requirements of the guidance the following information has been included in the report and can be found in the section listed below:

- the name and address of the expert: Section 1
- the expert's qualifications and experience: Section 1.5 & Appendix E
- a statement identifying the expert's area of expertise to make the report: Section 1.5
- a statement identifying any other significant contributors to the report and where necessary outlining their expertise: Section 1.5
- all instructions that define the scope of the report (original and supplementary and whether in writing or oral): Section 1.3 and Appendix D
- the identity of the person who carried out any tests or experiments upon which the expert has relied on and the qualifications of that person: Section 1.6
- an unambiguous reference to the report, or reports that the expert relies upon: Section 1.6 and Section 10
- a statement identifying the role that the expert had in preparing or overseeing the exhibited report(s): Section 1.6
- a statement to the effect that the expert adopts the exhibited report and identifying:
 - any departure of the expert from the finding or opinions expressed in the exhibited report: Section 1.1 and Section 3 through Section 4
 - any questions falling outside the expert's expertise: Section 1.6 and Section 6
 - any key assumptions made in preparing the report: Section 3.2
 - whether the exhibited report is incomplete or inaccurate in any respect: Section 1.1 and Section 3 through Section 4
- expert declaration: Section 8

In order to address the instructions (refer Section 1.3) the following information has been reviewed and summarised in the following sections of my Expert Report:

- Section 2 provides a summary of historical use and development of the site;
- Section 3 provides a summary of the environmental assessments undertaken to date (including recent and on-going works) and contamination identified at the site;
- Section 4 provides a summary of the key contamination issues associated with the site, recommendations made in order to make the site suitable for sensitive uses and my opinion in this matter;
- Section 5 provides my opinion as to whether it is appropriate and reasonable to delay the requirement for a Statement of Audit until after Amendment C129 and whether it is appropriate or necessary for the SESP and ESA to be approved by Council prior to the lodgement of any planning permit;
- Section 6 summarises my understanding of the conclusions reached by Coffey Geotechnics concerning geotechnical issues on the site;
- Section 7 provides my response to the submissions of agencies and other parties to the Council in respect of the Amendment; and
- Section 8 contains my declaration with regards to the completeness of this Expert Report.

1.5. Qualifications and Experience

My tertiary educational qualifications are: Master of Applied Science from Chisholm University (now Monash) and a Bachelor of Science (Hons) Monash University. I have more than 40 years of experience in environmental management, assessment and investigation. My experience includes both environmental assessment and auditing of site impacts due to contamination of soil and groundwater, specifically addressing impacts to beneficial uses as identified in the Environment Protection Act 1970 and subsequent State Environmental Protection Policies (SEPPs). In my role at Coffey, I have 20 years of experience in contaminated site assessment and remediation.

I have been an appointed EPA Environmental Auditor (Contaminated Land) in Victoria since 1998, completing more than 100 environmental audits. I have also completed 18 audits of contaminated land in South Australia and am currently an appointed auditor in Queensland. A copy of my Curriculum Vitae has been provided as **Appendix E**.

I represent Coffey on the Australian Contaminated Land Consultant Association's (ACLCA) Regulatory Affairs and Audit Focus Group and Australasian Land and Groundwater Association (Vic), am a former member of the Executive Committee of the ACLCA (Vic) and am a member of the Victorian Planning and Environmental Law Association and Royal Australian Chemical Institute (Chartered Chemist).

Fifteen of the 100 plus audits I have completed involved assessment of former landfills for specific landuses or assessment of the potential impact from landfills on the use of nearby sites I was auditing. One of these 15 sites involved the proposed use of a former solid inert landfill for sensitive (residential) use in Cavanagh Street, Cheltenham. More than 200 houses have been built and are occupied on the Cavanagh Street property.

I have provided expert witness reports to planning panel hearings, disputes and courts cases in relation to contamination at or development of a number of contaminated sites. Examples include:

- Provision of expert advice to the planning panel for a former Leather Works in Gadd Street, Northcote (2009),
- Provision of expert advice to the planning panel related to the extension of a hospital onto land impacted by landfilling in Epping,

- Provision of expert advice to the legal representative of the owner of a former industrial manufacturing site in the City of Whittlesea (current)
- Provision of expert advice to the legal representative of a consulting company and its professional indemnity insurer involved in litigation with a construction company, including on the quality of work conducted and whether the environmental site assessment work was of a reasonable standard.
- While working with EPA (1989-1997) provided expert witness advice related to potential prosecutions.

In my opinion, the information and qualifications referred to above, identify my areas of expertise as contaminated site assessment and auditing, remediation of contaminated sites so they are suitable for a range of uses, assessment of risks posed by past land uses including former landfill to proposed land uses and the relationship between contaminated site assessment and contaminated site auditing and planning requirements.

As identified in Section 6, in my opinion I have sufficient experience and auditing expertise that I can provide comment on geotechnical and geo-environmental assessments to the extent that they impact on remediation and environmental management of contaminated sites, including landfills.

This report has been prepared in part and under my instruction by Mr Nicholas Woodford of Coffey. Mr Woodford is an environmental risk assessor with over 10 years of experience within the private sector. Mr Woodford's experience is in conducting human health, environmental and landfill gas risk assessments, developing risk management options as well as conducting landfill gas and vapour intrusion sampling, assessment and modelling. Mr Woodford assisted me in the preparation of the audit report and in post-audit verification of the boundary gas protection systems at the Cheltenham site.

1.6. Reference to reports relied upon

In preparation of this Expert Report, the following reports have been reviewed:

- **AMAL Black:**
 - AMAL Black Pty Ltd (10 May 2002a) *Preliminary Geochemical and Geotechnical Investigation, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC;*
 - AMAL Black Pty Ltd (September 2002b), *Geochemical Assessment of Environmental Embankments, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC;*
 - AMAL Black Pty Ltd (September 2002c), *Hydrogeological Assessment, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC;*
- **HLA:**
 - HLA-Envirosciences Pty Ltd (April 2004a) *Environmental Site Assessment, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC;*
 - HLA-Envirosciences Pty Ltd (July 2004b) *Environmental Site Assessment – Stage 2, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC;*
 - HLA-Envirosciences Pty Ltd (January 2005a) *Environmental Site Assessment – Phase 3, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC;*

- HLA-Envirosciences Pty Ltd (May 2005b) *Stockpile Sampling, Talbot Avenue Development, Oakleigh;*
- HLA-Envirosciences Pty Ltd (July 2005c) *Groundwater Numerical Modelling - Former Quarry, Talbot Avenue, Oakleigh;*
- HLA-Envirosciences Pty Ltd (January 2006) *Assessment of Risk Posed by Landfill Gas - Former Quarry, Talbot Avenue, Oakleigh;*
- **AECOM:**
 - AECOM Australia Pty Ltd (November 2010) *Landfill Gas Monitoring and Reporting - Former Quarry, Talbot Avenue, Oakleigh South;*
- **Lane Piper:**
 - Lane Piper Pty Ltd (November 2010a) *Landfill Gas Report of 1 November 2010 Talbot Avenue, Oakleigh South, Vic;*
 - Lane Piper Pty Ltd (November 2010b) *Environmental & Geotechnical Feasibility, Talbot Avenue, Oakleigh South, Vic;*
- **Tonkin and Taylor**
 - Tonkin and Taylor Ltd (May 2011) *In-situ Soil Classification Assessment, Talbot Avenue, Oakleigh South, Vic;*
- **Coffey (Environments):**
 - Coffey Environments Australia Pty Ltd (May 2014a) *Initial Site Investigation, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, VIC;*
 - Coffey Environments Australia Pty Ltd (May 2014b), *Remediation Options Report, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, VIC;*
 - Coffey Environments Australia Pty Ltd (June 2014c) *Issues Summary Report, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, VIC;*
 - Coffey Environments Australia Pty Ltd (June 2014d), *Huntingdale Estate Zone 4 Environmental Site Assessment – Soil, Sediment & Surface Water, Zone 4 of 1221 to 1249 Centre Road and 22 Talbot Avenue, Oakleigh South, VIC;*
 - Coffey Environments Australia Pty Ltd (July 2014e), *Huntingdale Estate Environmental Site Assessment: Soil, Groundwater and Landfill Gas Assessment, 1221 – 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria;*
 - Coffey Environments Australia Pty Ltd (September 2014f), *Fill Assessment in Zone 2 at 1221 – 1249 Centre Road, Oakleigh South, Victoria.*
 - Coffey Environments Australia Pty Ltd (November 2014g), *Huntingdale Estate: Site Environmental Strategy Plan, 1221 – 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria;*
 - Coffey Environments Australia Pty Ltd (Coffey, August 2015a) *Workplan for Supplementary Environmental Site Assessment, 1221 – 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria;*
 - Coffey Environments Australia Pty Ltd (September 2015b), *Site Backfilling Protocol, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria;*
 - Coffey Environments Australia Pty Ltd (September 2015c), *Construction Environmental Management Plan – Backfilling Works, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria;*

- **Coffey (Geotechnics):**

- Coffey Geotechnics Pty Ltd (December 2013) *Report on Geotechnical Investigations, Huntingdale Estate, 1221 – 1249 Centre Road, Oakleigh South;*
- Coffey Geotechnics Pty Ltd (June 2015a) *Zone 4 Backfill Design Report, Huntingdale Estate, Oakleigh South, VIC;*
- Coffey Geotechnics Pty Ltd (June 2015b) *Zone 4 Backfill Design Specification, Huntingdale Estate, Oakleigh South, VIC;*
- Coffey Geotechnics Pty Ltd (Coffey, November 2015c) *Zone 4 Construction Quality Assurance Plan, Huntingdale Estate, Oakleigh South, VIC;*

More than 15 current and former Coffey staff have been involved in preparation of the supporting reports, so they have not been named individually in this expert report. The names of the Coffey engineers and scientists who collected samples and interpreted test results under my or my senior colleagues instructions are listed at the front of each report and in field records contained in each report.

The majority of the ESA reporting was directed by former Coffey employee Mr Stephen Cambridge. Each ESA, Workplan and report was reviewed by me prior to it being issued.

A number of laboratories were used to provide contamination or other soil, groundwater or gas testing services. Only laboratories accredited by the National Association of Testing Authorities (NATA) were used. The identity of the laboratories are provided in each of the reports. Signatories of the NATA reports are identified in each certified laboratory report.

I advise that I have adopted the Coffey Environments reports, as listed above and except where indicated in this report, and have identified where there are departures from the findings expressed in Coffey (November 2014g) in Section 4.3 of this report.

In Section 6, I have identified that I am not a geotechnical expert and stated the extent of my knowledge in that discipline in providing comments on geotechnical matters. Former Coffey employee Mr David Annan project managed the majority of the geotechnical investigation and reporting under the direction of Mr Ian Pedler. Mr Ian Pedler has also been engaged by Sterling Global to prepare an Expert Report regarding the geotechnical aspects of the site.

The key assumptions made in preparing the Coffey Environments reports listed above are contained in each report.

In my opinion, the reports as listed above are complete and accurate except where identified in this expert report.

1.7. Environmental Site Assessment Framework

The environmental site assessment and remediation works completed at the site have been conducted in accordance with the regulatory framework and industry best practise as detailed in the following state, national and international policies and guidelines:

- State Environment Protection Policy (Prevention and Management of Contamination of Land);
- State Environment Protection Policy (Air Quality Management);
- State Environment Protection Policy (Ambient Air Quality);

- NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*;
- EPA Victoria (2015) Publication 788.3 *'BPEM, Siting, Design, Operation, and Rehabilitation with Landfills'*;
- EPA Victoria (2011) Publication 1323.2 *Landfill Licensing Guidelines'*;
- EPA Victoria (2000) Publication 722 *'Environmental Guidelines for Reducing Greenhouse Gas Emissions from Landfills and Wastewater Treatment Facilities'*.
- United Kingdom Environment Agency (2004) LFTGN 03 *'Guidance on the management of landfill gas'*;
- CIRIA (2007) Publication 665 *'Assessing risks posed by hazardous ground gases to buildings'*
- British Standard (2015) BS8484:2015 *'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*

The international guidance documents relating to the assessment of landfill gases have been adopted due to the lack of Australian guidance documents. This is considered industry best practice and these documents are referenced in EPA Victoria Publications.

1.8. Auditor endorsement

The site is currently the subject of a Section 53X Environmental Audit being conducted by a third party independent EPA Contaminated Land Auditor (Mr Ken Mival). Mr Ken Mival prepared correspondence titled *'Proposed Redevelopment of Talbot Road Landfill Sites at 1221 to 1249 Centre Road, Oakleigh, City of Monash, Victoria – Site Environmental Strategy Plan'* which he sent to Sinclair Brook on behalf of Sterling Global 28 November 2014 within which he stated the he has reviewed the following reports:

- Issues Summary Report (Coffey, June 2014c);
- Remediation Options Report (Coffey, May 2014b);
- Site Backfilling Protocol (Coffey, September 2015b);
- Environmental Site Assessments for Zone 4 (Coffey, June 2014d) / (Coffey, July 2014e);
- Workplan for Supplementary Site Assessment (Coffey, August 2015a); and
- Site Environmental Strategy Plan (Coffey, November 2014g).

Mr Ken Mival went on to provide the following endorsement of the SESP (Coffey, November 2014g):

Having considered the information available for the site up to November 2014, in our experience the remediation options being proposed by Coffey for this site in the Strategy Plan and the supporting documents listed in this letter, are consistent with similar approaches to remediation of these types of sites, and are considered to be feasible if implemented diligently and with due regard to the physical site properties and the materials used.

Provided that they are suitably implemented in accordance with the Plan, good practice, and any conditions required by a Statement of Environmental Audit when issued, we consider that there is no overriding issue that would prevent redevelopment of the site, or portions of the site, subject to the suitable completion of the remedial processes outlined in Coffey's Strategy Plan, and completion of the audit process with acceptance by EPA.

2. Site description and history

2.1. Site Description

General site information is presented in Table 2.1 below. A Site Locality Plan is included as **Figure 1, Appendix A**.

Table 2.1: General Site Information

Site Name	Huntingdale Estate, Talbot Avenue, Oakleigh South
Site Address	1221-1249 Centre Road and 22 Talbot Avenue, Oakleigh South, Victoria
Title Identification Details including Folio and Volume Numbers	Volume 63313, Folio 437 (Zone 3 & 5)
	Volume 3645, Folio 846 (Zone 2)
	Volume 8550, Folio 541 (Zone 4)
	Volume 8343, Folio 532 (Zone 1)
Approximate Total Site Area	19.09 Hectares
Current Zoning	Residential Zone 1 and Special Use Zone 2
Current site use	Vacant

The site is currently vacant and consists of generally unpaved undulating ground, including soil stockpiles in some parts of the site. There is also a large quarry void in the south-western portion of the site, which is partially filled with water. For the purposes of site investigations, the site has been divided into five zones, based on the previous quarrying and operational activities on the site. A site plan showing the current condition of the site and Zone boundaries is presented on **Figure 2, Appendix A**. The following provides a summary of each of the five zones across the site:

2.1.1. Zone 1 – Northwest portion of the site

Zone 1 comprises a former sand pit that has been used as landfill. Based on boreholes drilled during the environmental investigations conducted at the site, the subsurface conditions within Zone 1 generally comprise uncontrolled fill and landfill materials extending to depths of up to approximately 18m. The landfill appears to be capped with un-engineered fill between 1 to 5 m in thickness.

Borelogs indicate that the content and extent of refuse material varies across the zone with trace amounts of refuse (generally consisting of domestic waste, green waste, tyres, fabric, plastic) and foundry wastes (generally consisting of black sands with inclusions of scrap metal, plastic and fabrics) being encountered at depths from 0.4 m below ground surface. Soil with a higher proportion of foundry wastes have been encountered at depths starting at 1 to 1.5 m below ground surface (mbgs) with a higher proportion of refuse being encountered at depths starting at 5 mbgs.

Based on a review of aerial photographs of the site, landfilling was completed between 1970 and 1975. Information from EPA Victoria indicates that approximately 535,000 m³ of solid inert and putrescible waste was accepted during its operation as a municipal landfill. Gas measurements taken within this area indicate that the landfill continues to produce some landfill gas; however, the generation rates are expected to have reduced from when the landfill was established, due to the landfill being in the later stages of its gas generation lifecycle.

Landfill gas is being generated within the former landfill. Monitoring of gas bores indicates methane and carbon dioxide are present at significantly elevated concentrations and may be migrating off-site. Preliminary risk assessment works indicate the risk classification¹ for Zone 1 is Moderate to High, along the boundary of the Zone 1 the risk classification is low to the north and west (off-site) and moderate to the south and east.

Leachate from the former landfill has the potential to impact upon the beneficial uses of groundwater beneath the site.

2.1.2. Zone 4 – Southwest portion of the site

Zone 4 comprises an open former quarry pit approximately 15m deep. Some backfilling occurred in the north east portion of the pit using soil stockpiled in Zone 1. Some existing bunds, clay slimes and water are also present within parts of the pit. Surface water quality testing, as detailed in the *Zone 4 Soil, Sediment and Surface Water Report* (Coffey, June 2014d), indicated that the surface water is likely to be suitable for disposal to stormwater or sewer and for irrigation purposes; however, approval from the relevant authorities and land owners would be required before disposal or reuse can occur. The sediment in the base of Zone 4 quarry void is suitable for reuse on site, providing the soil meets the geotechnical requirements stipulated in the *Site Backfill Protocol* (Coffey, September 2015b), and the *Zone 4 Backfill Design Report* (Coffey, June 2015a).

Previously, dewatering of the pit occurred for several years with the water being used for irrigation on the neighbouring golf course. This has caused a groundwater depression in this area and although the dewatering activities have ceased, the groundwater depression remains. The quarry pit is proposed to be backfilled with engineered fill under Level 1 Geotechnical supervision, with soil quality required to meet the quality specified in the *Site Backfill Protocol* (Coffey, September 2015b).

As parts of Zone 4 is immediately next to areas previously backfilled with putrescible waste (i.e. Talbot Park, Zone 1 and possibly Zone 2), consideration of gas protection measures for Zone 4 northern and eastern boundaries has been undertaken. In addition, consideration of groundwater protection measures or remedial measures for the Zone 4 northern boundary is required due to the presence of the former landfill in Zone 1. This is addressed further in Section 7.

2.1.3. Zones 2, 3, and 5 – Eastern portion of the site

Zones 2 and 3 comprise former sand pits that have been backfilled with remnant slimes from the former sand mining operations. Historical information indicates that Zones 2 and 3 were backfilled predominantly with slimes in the 1990s. Slimes are a waste product generated when the fine sand, clay and silt fractions are washed from natural sands during sand mining operations. Typically, the slimes are stored in a saturated state in former quarry pits, and comprise very soft clays and silts and very loose sands. The slimes are highly compressible, with in-situ moisture contents higher than their liquid limit, giving the slimes fluid properties.

The subsurface conditions within Zones 2 and 3 generally comprise a 1m to 4m thick soil cover over slimes up to about 20m deep. Solid inert waste (building waste) and some foundry waste is also present in these Zones.

¹ Based on the 'Gas Screening Value (GSV) / Characteristic Situation' approach described in British Standard BS8485 (2015).

It is noted that the western portion of Zone 5 formerly supported the processing plant used as part of the sand mining operations, and such mining operations and slimes are more limited in this area. Uncontrolled fill up to 9m thick does exist within the western portion of Zone 5.

Based on the presence of methane gas within the Zone 2, there is potential for methane generating waste to also be present in Zone 2, although it appears that it is likely to be more limited than in Zone 1 and Talbot Park. Preliminary risk assessment works indicate the risk classification² for Zone 2 is Moderate to High in the north-eastern portion of Zone 2 on the boundary of Zone 5.

2.2. Adjacent land use

The adjacent land uses to the site include:

- North – Residential and athletics park (Davies Reserve)
- East – Residential
- South – Talbot Park, Residential and roadway.
- West – Roadway and Huntingdale Golf Course, with residential immediately adjacent to the north-west.

Further discussion on the Talbot Park site immediately adjacent to the southern boundary of Zone 2 is presented in the following section.

2.2.1. Talbot Park

Although Talbot Park is not part of the site, the ground conditions in Talbot Park are relevant to the development of the site due to historical landfill in this area. Talbot Park is underlain by a former municipal landfill and is located to the south of Zone 2. Information from EPA Victoria indicates that approximately 136,000m³ of solid inert and putrescible waste was accepted during its operation before it closed sometime between 1977 and 1978.

Previous landfill gas monitoring at Talbot Park in 2009 and 2010 (completed by others) indicate that the site was still producing methane. Similar to the landfill in Zone 1, the generation rates are expected to be reducing with the landfill being in the latter stage of its gas generating lifecycle.

Groundwater originating from Talbot Park is currently inferred to discharge to the quarry void in Zone 4, however it is predicted that following backfill of Zone 4, groundwater flow is likely to resume a flow direction to the south or south-west. Based on that assumption, leachate generated from Talbot Park would be unlikely to have a significant impact on the Zone 4 part of the site in future.

2.3. Site history overview

The following site history overview is based on information contained within the HLA Environmental Site Assessment report (April 2004a). The site was originally pastoral land and was developed as a poultry farm and for intensive agriculture including orchards and nurseries in the first half of the 1900s. From the late 1950s or early 1960s until the end of the century, the site was progressively quarried for sand. A foundry sand plant, concrete batching plant and associated infrastructure was

² Based on the 'Gas Screening Value (GSV) / Characteristic Situation' approach described in British Standard BS8485 (2015).

located on Zone 5 from the early 1960s until its removal in 1990s. Landfilling with refuse occurred in Zone 1 between 1972 and 1975. Zone 2 and Zone 3 were used as slime lagoon as was Talbot Park, to the south east of the site; filling of Zone 2 and Zone 3, predominantly with slimes, was completed by the 1990s. Talbot Park was filled with refuse between 1977 and 1978.

A summary of the historical use of the site, in chronological order is presented in the following Table with an overview of the site history timeline presented in **Figure 3, Appendix A**.

Table 2.2: Site History Summary

Year Range (approximate)	Site History Summary
Pre 1950s	Pastoral Land Agriculture Poultry and market gardens commenced mid 1940s
Late 1950s / early 1960s	Quarrying commenced on eastern and north western areas Foundry sand plant, concrete batching plant and associated infrastructure present on-site. Poultry Farm and market gardens still present in Zone 4
1960s to early 1970s	Bund wall constructed between Zone 2 and Talbot Park area. Zones 2, 3 and Talbot Park area used as slime lagoons Quarrying in Zone1 commenced
1972-1975	Zone 1 filled with refuse (putrescible and solid inert waste) Quarrying commenced in the northern section of Zone 4
1975-1978	Talbot Park filled with refuse (putrescible and solid inert waste)
1975-1993	Quarrying in Zone 4 progresses southwards and poultry farm removed Zone 2 being backfilled with wastes from concrete plant and other sand like materials and sands. Zone 2 appears to have been backfilled by 1991. Zone 3 backfilled with slimes and potentially other quarry wastes (undefined). Zone 3 appears to have been backfilled by 1993.
1993-1999	Foundry sand plant, concrete batching plant and associated infrastructure removed Quarrying completed. Filling completed in Zone 2, Zone 3 and Zone 5 Stockpiled material present in Zone 1
2008	Partial filling in Zone 4 north-eastern quadrant with to create fill platform from stockpiled material in Zone 1.
2008 - 2013	Water from Zone 4 quarry used for watering of Huntingdale Golf Course. This use ceased in 2012. No further activity on site

3. Site investigation history

3.1. Summary of historical assessment reports

A summary of previous environmental site assessment reports provided are included in the following table.

Table 3.1: Summary of Previous Assessment Works

Document Title	Summary of Investigations and Findings
<p><i>AMAL Black Pty Ltd (10 May 2002a) Preliminary Geochemical and Geotechnical Investigation, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC (Note: Appendix B and C, were missing from the copy of this report)</i></p>	<ul style="list-style-type: none"> • Purpose of the investigation was to provide the basis for a development plan for the site based on geotechnical constraints and soil and groundwater conditions. • The report summarises results from previous investigation conducted by: <ul style="list-style-type: none"> ■ Golder Associates in 2000 (4 boreholes to 20m depth). ■ Black Geotechnical in 2001 (21 test pits to maximum 8m depth). ■ AMAL Black February 2002 (5 boreholes to maximum 21.5m depth with 2 standpipes installed at each location (Bores 1A to 5B). ■ AMAL Black March 2002 (43 test-pits to maximum depth of 2.5m). • Site conditions indicated that leachate streams were emanating from the north and east batters of the Zone 4 quarry walls. <ul style="list-style-type: none"> ■ Groundwater was identified in four aquifers with flow towards the quarry lake in Zone 4: <ul style="list-style-type: none"> ■ Cover fill aquifer: limited to one bore (Bore 2A in Zone 1). ■ Slimes fill aquifer: acting as a confined aquifer under a pressure head. ■ Landfill aquifer: appeared to be a separate system in Zone 1 from the cover fill aquifer. ■ Natural soil aquifer: confined. • Soil results indicated arsenic, copper, lead, nickel and zinc above the adopted criteria; however the soil type, location and concentrations of the analyses were not available in the report reviewed (due to missing appendices). Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN), total petroleum hydrocarbons (TPH), pesticides, phenolics and cyanide were all below 'EPA Investigation Levels'. • The report concluded that the groundwater did not appear to have an adverse effect on the quality of the water in the lake. However the report considered it may be necessary to install a sub-soil leachate collection drain along the north and east sides of the quarry with subsequent leachate treatment. • With respect to soil, the report concluded that where contaminants in the surface layer (up to 1m) exceed the adopted criteria, the soil should be removed to an appropriate disposal site. Disposal of low level contaminated soil from the site into the existing quarry hole was considered possible, subject to hydrogeological assessment and EPA approvals. • It was recommended that the regrade of the site assumes a 0.5m thick cap of clean fill.
<p><i>AMAL Black Pty Ltd (September 2002b), Geochemical Assessment of Environmental Embankments, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC</i></p>	<ul style="list-style-type: none"> • Soil samples were collected from 21 test pits from the soil embankments in Zones 1, 2, 3 and 5. • Arsenic and zinc were found to be present at slightly elevated levels in a limited number of embankment samples. • The report concluded that 'follow up analysis of individual samples indicated that arsenic was not a concern in the embankment materials. It also indicated that zinc was elevated in two areas (test pits 1 and 2 located in the south-western area embankments of Zone 1), which may

Document Title	Summary of Investigations and Findings
<p><i>AMAL Black Pty Ltd (September 2002c), Hydrogeological Assessment, Ex Pioneer Quarry Property, Talbot Avenue, Oakleigh, VIC</i></p>	<p>have been explained by the presence of galvanised materials in those embankments.</p> <ul style="list-style-type: none"> • The objective was to define the hydrogeological systems and interactions at the site. • The scope included: <ul style="list-style-type: none"> ▪ Installation of 10 groundwater monitoring bores, including sampling of new and existing bores. ▪ Determine depth of water in the quarry lake, including sampling of quarry water and sediments. ▪ Sampling and analysis of leachate streams that were entering the northern end of the quarry lake. • Findings are summarised as follows: <ul style="list-style-type: none"> ▪ The average TDS in the Brighton Group aquifer was less than 1,000 mg/L. ▪ Arsenic and zinc were reported at concentrations above the adopted criteria, however were attributed to naturally occurring background concentrations. pH was also reported below the criteria range; however this was also attributed to background concentrations. ▪ Ammonia and nitrate were reported in various bores across the site and was attributed to the former landfilling activities in Zone 1 and Talbot Park. ▪ Leachate from the landfill was leaking through the fill sand between the landfill in Zone 1 and the quarry lake and discharging to the lake. ▪ Benzene, xylene and toluene were reported in groundwater within the Zone 1 landfill. ▪ The quarry water samples indicated that the quarry water was a mixture of the different groundwater units with only the slightly greater ammonia level, in comparison to the Brighton Group aquifer and clay slimes aquifer. ▪ The sediments collected from the bottom of the quarry lake indicated the presence of mercury, arsenic and organo-chlorine pesticides.
<p><i>HLA-Envirosciences Pty Ltd (April 2004) Environmental Site Assessment, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC</i></p>	<ul style="list-style-type: none"> • HLA conducted an Environmental Site Assessment involving the review of background documentation (including aerial photos and previous environmental report) and the installation and sampling of 13 groundwater monitoring bores and 31 landfill gas monitoring bores and selected sampling of sub-surface soils. Two further rounds of groundwater and landfill gas monitoring were planned. • The site was found to have been progressively quarried of the previous 50 years. • Soils: The site is underlain by the Sands of the Brighton Group Formation. Buried refuse was found in Zone 1 and in Talbot Park and buried reworked material (including fill materials and slimes) was found across the remainder of the site. <ul style="list-style-type: none"> ▪ EIL exceedances of metals were identified across the site, predominantly arsenic and mercury. Cadmium, vanadium, lead and zinc EIL exceedances were also noted in Zone 1 and along the eastern boundary of the site. ▪ HIL exceedances of beryllium and mercury were identified in Zone 1 and along the eastern boundary of the site. HIL exceedances of benzo(a)pyrene were identified along the boundary of Talbot Park. • Groundwater: Regional groundwater flow was expected to be to the southwest, with a depression at the lake in zone 4 and mounding around the landfill and slimes areas dominating the localised flow. TDS was found to fall within Segment A. • Ammonia, hydrocarbons and VFA's were found to be elevated across the site, predominantly in the vicinity of the landfill areas.

Document Title	Summary of Investigations and Findings
	<ul style="list-style-type: none"> Landfill Gas: Elevated landfill gas concentrations were identified, predominantly around zone 1 and Talbot Park, with some occurrence in the slimes in Zone 2 and 3.
<p><i>HLA-Envirosciences Pty Ltd (July 2004) Environmental Site Assessment – Stage 2, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC</i></p>	<ul style="list-style-type: none"> HLA conducted a supplementary ESA involving the measurement of groundwater levels across the site, the sampling of all groundwater bores and landfill gas bores. Groundwater levels were found to range from 0.46 mbtoc to 12.64 mbtoc, with the levels generally observed to have decreased since the previous measurements. Groundwater flow was to the south west with the hydrogeology being dominated by the depression at the quarry lake and the mounding in the slimes and landfill areas. It was considered likely that the groundwater would flow around the slimes area with the slimes materials being expected to have a low hydraulic conductivity. Elevated ammonia was detected across the site and was most evident in the landfill areas. Elevated metals were detected across the site with no obvious spatial correlation. Hydrocarbons were detected across the site and were most prevalent in the landfill areas and along the eastern boundary. Landfill gas results were generally consistent with the previous investigation.
<p><i>HLA-Envirosciences Pty Ltd (January 2005) Environmental Site Assessment – Phase 3, Former Pioneer Quarry, Talbot Avenue, Oakleigh, VIC</i></p>	<ul style="list-style-type: none"> HLA conducted a supplementary ESA involving the measurement of groundwater levels across the site, the sampling of all groundwater bores and landfill gas bores. Groundwater levels were found to range from 0.38 mbtoc to 12.69 mbtoc, with the levels generally observed to have decreased since the previous measurements. The groundwater contaminant status remained generally unchanged since the previous monitoring event. Surcharging and capping of Zone 1 was conducted prior to the third round of monitoring and landfill gas concentrations were seen to increase in the fill material and along the boundary of the site. In other areas, landfill gas results were generally consistent with the previous investigation.
<p><i>HLA-Envirosciences Pty Ltd (May 2005) Stockpile Sampling, Talbot Avenue Development, Oakleigh</i></p>	<ul style="list-style-type: none"> HLA conducted soil sampling and analysis of 20 test pit samples taken from the stockpiles present in Zone 1 and 1 sample from the fill in Zone 5. The samples were analysed for a range of metals and organic contaminants. Select samples were also analysed for cyanide, fluoride, sulphate and pH. The results indicated that the stockpiled soil did not contain any contaminants above the VIC EPA 'Clean Fill' or HIL A criteria.
<p><i>HLA-Envirosciences Pty Ltd (July 2005) Groundwater Numerical Modelling - Former Quarry, Talbot Avenue, Oakleigh</i></p>	<ul style="list-style-type: none"> HLA developed and calibrated a steady state numerical model of the hydrogeological conditions at the site using PMWIN (Processing MODFLOW for windows). The model was used to assess three different redevelopment scenarios for the former quarry void space in Zone 4. The scenarios assessed included a 'do nothing' scenario in which the void remained unfilled and pumping of lake water to the golf course continued, a scenario where the void was backfilled with low permeability material and a scenario where the void was backfilled with low permeability material and a high permeability sub-surface drainage layer and sump. The modelling predicted that:

Document Title	Summary of Investigations and Findings
	<ul style="list-style-type: none"> ■ Under the 'do nothing' scenario the quarry void would continue to act as a groundwater sink limiting the migration of groundwater contaminants off-site. ■ Under the low permeability backfill scenario mounding would occur across the Zone 4 area resulting in an increase in groundwater levels in the remainder of the site and the potential for off-site migration of groundwater contaminants. ■ The installation of a high permeability layer and a sump would assist in intercepting groundwater beneath the site. It was noted groundwater levels in the eastern and northern portions of the site could increase by up to 3m. The extent (if any) of potential groundwater contaminant migration off-site was not discussed.
<p><i>HLA-Envirosciences Pty Ltd (January 2006) Assessment of Risk Posed by Landfill Gas - Former Quarry, Talbot Avenue, Oakleigh</i></p>	<ul style="list-style-type: none"> • HLA conducted an assessment of risks related to landfill gas issues at the site which included modelling LFG generation rates using LandGEM; measuring methane emission rates by a fluxhood method; and a semi-quantitative and quantitative assessment of landfill gas risk. • The LandGEM model was run using a conservative and a reasonable set of input parameters and the models predicted emissions of methane of 238 Mg/year and 88Mg/year respectively for Zone 1 in 2013. • Methane flux sampling was conducted using a fluxhood method at eight locations in Zone 1. The maximum methane flux was found to be 3.7mg/m²/min. (It is noted that Coffey consider the number of fluxhood locations was insufficient to characterise the site adequately and the barometric conditions were not fully reported or likely to represent worse case.) • The semi-quantitative risk assessment identified that human health risks associated with asphyxiation in confined spaces, explosion, chronic health effects were unacceptable and required management. Aesthetic impacts were found to be acceptable. Environmental risks associated with greenhouse gas emissions were present but required further investigation and risks associated with phytotoxicity were unacceptable and required management. • A quantitative risk assessment was completed by modelling the potential indoor methane concentration based on the maximum fluxhood measurement. Whilst the estimated indoor air concentrations were found to be below the EPA trigger levels, the report noted that there was potential for the methane concentrations to approach the trigger level. (It is noted that Coffey consider the quantitative assessment to be flawed and could underestimate potential risks). • The report recommended a number of landfill gas management measures, such as a combination of capping, passive ventilation, biofiltration and the implementation of a management plan.
<p><i>AECOM Australia Pty Ltd (November 2010) Landfill Gas Monitoring and Reporting - Former Quarry, Talbot Avenue, Oakleigh South</i></p>	<ul style="list-style-type: none"> • AECOM conducted a round of landfill gas monitoring, including the monitoring of 43 landfill gas and groundwater bores along the perimeter of the site and 15 landfill gas and groundwater bores in the centre of the site. • Methane above the 1% trigger value was detected in 9 perimeter bores and 7 centrally located bores. • Carbon dioxide above the 1.5% trigger value was detected in all but 5 bores. • The report contains a summary of landfill gas results for the period between March 2009 and January 2010.
<p><i>Lane Piper Pty Ltd (November 2010) Landfill Gas Report of 1 November 2010 Talbot Avenue, Oakleigh South, Vic</i></p>	<ul style="list-style-type: none"> • Lane Piper conducted a review of landfill gas monitoring results from the AECOM investigations, noting: <ul style="list-style-type: none"> ■ Some carbon dioxide concentrations reported along the boundary may be indicative of background concentrations;

Document Title	Summary of Investigations and Findings
	<ul style="list-style-type: none"> ■ Gas bores with elevated methane concentrations that were reported as being representative of boundary conditions were not located on the boundary and in some cases bores installed closer to the boundary for delineation purposes were reported with low methane concentrations; ■ Groundwater bores used for gas monitoring were reported to have the potential to overestimate landfill gas results due to stratification of methane within the cased section of the well. • Sources of landfill gas were considered to be the Zone 1 landfill, Talbot Park landfill, and the northern area in Zone 2 where solid waste may have been placed. • Elevated methane concentrations of 95% at GB46 were above the concentrations expected in a landfill and required further investigation. • Landfill gas pressure measurements indicated that the landfill is in the last phase of gas generation. • Recommendations were made to locate missing bores; conduct maintenance on the existing bores, bore integrity tests, continuous monitoring, surface emission testing, install additional bores and conduct a landfill gas risk assessment.
<p><i>Lane Piper Pty Ltd (November 2010) Environmental & Geotechnical Feasibility, Talbot Avenue, Oakleigh South, Vic</i></p>	<ul style="list-style-type: none"> • Lane Piper conducted a study to investigate the feasibility of developing the site for mixed residential use. • Environmental aspects considered included: <ul style="list-style-type: none"> ■ Landfill Gas: Landfill gas detections correlating with municipal waste in Zone 1, Talbot Park and in Zone 2 required further investigation. Buildings would need gas mitigation measures such as gas ventilation and barriers. ■ Soil Contamination: Soil contamination was considered to be limited to areas of imported waste and could be managed by covering affected areas. ■ Groundwater Contamination: It was concluded that minor groundwater contamination may impact upon beneficial uses; however such uses were unlikely to be realised at the site. Changes in groundwater flow from the filling of Zone 4 would need to be assessed.
<p><i>Tonkin and Taylor Ltd (May 2011) In-situ Soil Classification Assessment, Talbot Avenue, Oakleigh South, Vic</i></p>	<ul style="list-style-type: none"> • The scope consisted of a soil assessment of the fill material that had been placed in the north-eastern portion of Zone 4 quarry void. The soil had been previously relocated from the stockpiled soil in Zone 1. Forty-two soil samples were collected. • One soil sample (Floor 23) reported lead and zinc above the adopted criteria. • The report concluded that the sample at Floor 23 would be approximately 8m below ground surface and 2 to 3m above groundwater (following development), and thus no contaminant exposure pathway was ever likely to be completed for this soil. • Soil materials did not have any aesthetic issues, however other areas in the pit did have excessive rubble, stained soils and metal wastes.
<p><i>Coffey (May 2014) Initial Site Investigation, 1221 to 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, VIC</i></p>	<ul style="list-style-type: none"> • Coffey completed a preliminary landfill gas, groundwater and surface water investigation. • 26 gas bores were sampled. Elevated methane concentrations were reported in several bores in Zones 1 and 2 and Talbot Park, with elevated carbon dioxide concentrations present in numerous bores across the site. Low flow rates were recorded in all bores. Gas Screening Value calculations were conducted, which resulted in a low risk classification for the site. • Groundwater gauging indicated that the groundwater flow directions were similar to those previously reported; with groundwater mounding in Zones

Document Title	Summary of Investigations and Findings
	<p>1 (landfill), 2 and 3 (slimes) and groundwater discharge into the quarry void of Zone 4.</p> <ul style="list-style-type: none"> • Surface water sampling and analysis of the quarry water in Zone 4 indicated that all analytes were either below the laboratory limit of reporting or below the adopted criteria for irrigation purposes.
<p><i>Coffey (June 2014) Huntingdale Estate Zone 4 Environmental Site Assessment – Soil, Sediment & Surface Water, Zone 4 of 1221 to 1249 Centre Road and 22 Talbot Avenue, Oakleigh South, VIC</i></p>	<ul style="list-style-type: none"> • Coffey completed an ESA in order to determine the suitability of sediments in Zone 4 and soils in the Zone 4 fill platform and Zone 1 Stockpile to be re-used on-site and to assess disposal or re-use options for the surface water in Zone 4. • Soil contained in the fill platform area in Zone 4 and the large stockpile in Zone 1 was found to be suitable for reuse on site, providing the soil met the geotechnical requirements. • The sediment in the base of Zone 4 quarry void was found to be suitable for reuse on site, providing the soil met the geotechnical requirements. • The surface water in Zone 4 quarry void was likely to be suitable for disposal to stormwater or sewer and suitable for irrigation use, however further consultation with the relevant authorities and land owners to obtain the necessary approvals would be required.
<p><i>Coffey (July 2014) Huntingdale Estate Environmental Site Assessment, Soil, Groundwater and Landfill Gas Assessment 1221 – 1249 Centre Road & 22 Talbot Avenue, Oakleigh South, Victoria</i></p>	<ul style="list-style-type: none"> • Coffey completed a landfill gas, groundwater and soil investigation which included the installation of seven groundwater bores and six landfill gas bores surrounding the Zone 4 quarry. • Fill material consisting of black fragments, ash, wood, metal, concrete, fabric, plastics and/or cobbles was intersected from as shallow as 0.5 mbgs. • Groundwater gauging reported the standing water level to range from 60.907 mAHD (BH28), in the north east corner of the site, to 45.515 mAHD (BH17) in the south west corner. The inferred groundwater flow direction across the site indicated discharge to the quarry lake in Zone 4 was most likely, with localised mounding observed within Zone 1. • Soil analytical results reported concentrations of total recoverable hydrocarbons (TRH) above the Environmental Investigation Levels (EILs) at two locations. • Utility pit monitoring reported no significant concentrations of methane. • Landfill gas bore monitoring reported elevated methane concentrations in several bores in Zones 1 and 2 and Talbot Park, with elevated carbon dioxide concentrations in a majority of bores across the site. Gas Screening Value calculations were conducted, which resulted in a low risk classification for the site
<p><i>Coffey (September 2014) Fill Assessment in Zone 2 at 1221 – 1249 Centre Road, Oakleigh South, Victoria</i></p>	<ul style="list-style-type: none"> • Coffey completed a soil investigation to define the lateral extent and type of waste observed within Zone 2. The assessment included test pitting at eight locations and excavating a 50m long trench. • Fill material was generally encountered at 1.0 mbgs, however, within one location, fill material was noted at 0.4 mbgs. The vertical extent of the fill material varied from 1.6 m to 4.5 m until the slimes/sands were reached. • In the trench, the depth to the fill material varied from at 0.5 mbgs to 2.0 mbgs. Slimes/ sands were encountered only at the western end of the trench at 3.0 mbgs • Odour indicative of landfill and putrescible waste was noted in the eastern portion of the excavation.

My opinion is that the environmental assessments of the site as summarised above, adequately document the historical use and development of the land to the extent necessary to support a Section 53X environmental audit of the site.

3.2. Current Environmental Site Assessment (ESA) works

Coffey has prepared a *Remediation Options Report* (Coffey, May 2014b) and a *Site Environmental Strategy Plan* (Coffey, November 2014g) (SESP) to address the remedial measures. The Remediation Options Report identified the remediation goals and presented a remediation technology screening assessment to identify and assess the performance and feasibility of the available remediation approaches.

The SESP included the suite of preferred remedial measures, the proposed validation works for the remediation, a broad outline for environmental issues management and a data gap assessment for information required to complete staged Section 53X Environmental Audits of the site. The SESP has been reviewed and endorsed by the Environmental Auditor (refer Section 1.8).

Based on the SESP, Coffey prepared a '*Workplan for Supplementary Environmental Site Assessment*' (Coffey, August 2015a) and is currently engaged to undertake ESA works at the site.

The following scope of works has been conducted in accordance with the Environmental Auditor approved Workplan (Coffey, August 2015a):

- **Grid Based Soil Sampling:** 52 Test Pits (TP25 – TP76) were excavated in a grid-based fashion across Zone 1 to 4mbgs and Zones 2, 3 and 5 to 2mbgs. Observations were recorded and soil samples were collected throughout the profile and analysed for contaminants of concern.
- **Sampling of Stockpiled Soil Mounds:** 29 Test Pits (SM1 – SM29) were excavated into previously stockpiled soil mounds across the site. Soil samples were collected throughout the profile of the soil mounds and analysed for contaminants of concern.
- **Drilling Works:** Drilling and installation of 10 groundwater monitoring wells and 28 landfill gas bores to complement the existing bore network and replace lost and damaged bores. Selected soil samples were collected from all onsite drilling works and analysed for contaminants of concern.
- **Landfill Gas monitoring:** Two landfill gas monitoring events were conducted, recording the gas flow rates and concentrations from all accessible landfill gas bores.
- **Surface Emission Monitoring:** Two events were conducted to monitor surface methane emissions across Zones 1, 2, 3 and 5 based on transects laid out in an approximate 20m grid.
- **Utility Pit Monitoring:** Two events were conducted involving the monitoring of gases in all identified utility pits surrounding the site using an extractive landfill gas analyser capable of measuring methane, carbon dioxide and oxygen to 0.1%, hydrogen sulphide and carbon monoxide to 1ppm as well as differential pressure and borehole flow rates.
- **Groundwater Monitoring:** Two groundwater monitoring events were conducted of monitoring wells, measuring the depth to water and collection of groundwater samples for analysis of contaminants of concern.

It is my opinion that the scope of works detailed in the Workplan is reasonable and appropriate to support the completion of the staged 53X Environmental Audits for the site.

I note that any assessment work may identify further environmental issues which need to be addressed and this is allowed for in the SESP. However, I consider that the level of assessment completed so far provides a high level of confidence that significant unexpected environmental impacts that may result in the site being completely unsuitable for sensitive uses are unlikely.

3.2.1. Summary of current soil investigations

Soil samples were analysed for a range of analytical suites in accordance with the Auditor approved Workplan (Coffey, August 2015a). The analytical results for all soil samples collected by Coffey are compiled in **Appendix B, Table 1** and key Contaminants of Potential Concern (COPCs) are shown in **Appendix A, Figures 5A to 5E**. Each contaminant reported above criteria is discussed below.

- **Hydrocarbons:**
 - Hydrocarbon concentrations were reported above the Human Health Guidelines in 4 of the 367 samples analysed for hydrocarbons: GB25A_5.0m, TP46_2.0m, TP46_3.0m and TP61_0.2m.
 - Hydrocarbon concentrations were reported above the Ecological Guidelines in 28 of the 367 samples analysed.
- **Metals:**
 - Arsenic was reported above the Human Health Guidelines in 3 samples: TP14_3.0m, TP47_2.0m and TP48_1.0m
 - Concentrations of Copper, Nickel and Zinc were reported above the Ecological Guidelines widespread throughout the site.
- **PAHs:**
 - Benzo(a)pyrene was reported above the ecological guidelines in one soil sample: SM24_2.0m.
- **pH:**
 - Soil pH was reported to be non-compliant with the Buildings and Structures guideline in 3 soil samples: GB67_0.5m, SM3_2.0m, SM16_0.2m
- **Asbestos:**
 - Asbestos in soil was detected in one soil sampling location TP35_0.2m shown in **Appendix A, Figures 5D**;
 - Fragments of Asbestos Containing Material were noted in the bore logs of the following test pits: TP29 (4.0 mbgs), TP35 (0.2 mbgs), TP55 (2.0 mbgs) and TP63 (5.0 mbgs).
 - Fragments of Asbestos Containing Materials were also noted to be scattered on the site surface at location TP61 and in the vicinity of SM19. Also, locations with suspected ACM on the site surface are referenced in **Appendix A, Figures 7A and 7B**. Observations were made during the surface emission monitoring events.

It is my opinion is that the contamination status of soil at the site has been adequately assessed. I conclude that the main soil contaminants of concern with respect to the proposed uses of the site are arsenic, petroleum hydrocarbons and asbestos containing materials. While copper, nickel and zinc were reported to be widespread, they are not assessed to be contaminants likely to prevent proposed uses of the site.

Additional information and opinion about these soil contaminants are provided in Table 4.1 and Section 4.3.1.

3.2.2. Summary of current groundwater investigations

Groundwater samples were analysed for a range of analytical suites in accordance with the Auditor-approved Workplan (Coffey, 2015). The laboratory results for all groundwater samples analysed by Coffey are compiled in **Appendix B, Tables 6 and 7** and key COPCs are shown in **Appendix A, Figures 9A to 9F**. Each contaminant reported above criteria is discussed below.

- **Hydrocarbons:**
 - Benzene concentrations were reported above the Potable Water Supply Guidelines in 4 of the 29 groundwater bores analysed for hydrocarbons: BH11A, BH12, BH26 and BH30. Benzene concentrations in BH30 (August 2016) were also reported above the Primary Contact and Recreation Guidelines.
 - Toluene concentrations were reported above the Potable Water Supply and Primary Contact and Recreation Guidelines (based on aesthetics) in 1 of the 29 groundwater bores analysed for hydrocarbons: BH30.
 - Hydrocarbons in the F2 fraction (carbon chain length fraction C10-C16 less naphthalene) were reported above the Human Health (vapour intrusion) Guideline in 1 of the 29 groundwater bores analysed for hydrocarbons: BH16A (March 2017 only).
- **Ammonia:**
 - Ammonia concentrations were reported above the Maintenance of Ecosystems Guidelines in 16 of the 29 groundwater bores analysed for hydrocarbons: BH04D, BH09A, BH11A, BH12, BH15, BH16A, BH19, BH22, BH25, BH28A, BH29, BH30, BH31, BH33, BH34 and BH35.
 - Ammonia concentrations were reported above the Potable Water Supply and Primary Contact and Recreation Guidelines (based on aesthetics) in 16 of the 29 groundwater bores analysed for hydrocarbons: BH04D, BH09A, BH11A, BH12, BH15, BH16A, BH19, BH22, BH25, BH28A, BH29, BH30, BH31, BH33, BH34 and BH35.
- **Metals:**
 - Metals concentrations exceed the Maintenance of Ecosystems Guidelines in 26 of the 29 groundwater bores sampled. Only bores BH11A, BH15 and BH35 reported no exceedances. Exceedances were reported for:
 - Boron in 2 bores: BH09A and BH25.
 - Cadmium in 2 bores: BH21A, BH30.
 - Copper in 10 bores: BH4D, BH07A, BH20, BH21A, BH26, BH28A, BH30, BH32D, BH37 and BH38.
 - Lead in 3 bores: BH20, BH30 and BH32D

- Nickel in 17 bores: BH06A, BH09A, BH11A, BH16A, BH18, BH20, BH21A, BH22, BH24A, BH26, BH30, BH31, BH32D, BH34, BH36, BH37 and BH38.
- Zinc in all bores except BH11A, BH15 and BH35.
- Metals concentrations exceed the Potable Water Supply Guidelines in 20 of the 29 groundwater bores sampled. Only bores BH11A, BH15 and BH35 reported no exceedances. Exceedances were reported for:
 - Arsenic in 12 bores: BH4D, BH06A, BH17, BH19, BH22, BH24A, BH26, BH29, BH30, BH31, BH33 and BH34.
 - Lead in 4 bores: BH29, BH30, BH32D and BH32D.
 - Manganese in 3 bores: BH09A, BH25 and BH36.
 - Nickel in 18 bores: BH06A, BH07A, BH09A, BH11A, BH16A, BH18, BH20, BH21A, BH22, BH24A, BH26, BH30, BH31, BH32D, BH34, BH36, BH37 and BH38.
- Metals concentrations exceeded the Agriculture Parks and Gardens Guidelines in 7 of the 29 groundwater bores sampled. Exceedances were reported for:
 - Arsenic in 3 bores: BH4D, BH30 and BH31.
 - Boron in 2 bores: BH09A and BH25.
 - Manganese in 3 bores: BH09A, BH25 and BH36.
 - Nickel in 1 bore: BH30.
- Metals concentrations exceeded the Primary Contact and Recreation Guidelines in 3 of the 29 groundwater bores sampled. Exceedances were reported for:
 - Nickel in 3 bores: BH09, BH21 and BH30.
- Metals concentrations exceeded the Stock Watering Guidelines in 2 of the 29 groundwater bores sampled. Exceedances were reported for:
 - Arsenic in BH31.
 - Lead in BH30.
- **pH:**
 - pH was reported to be non-compliant with the Buildings and Structures criteria in 9 of the 29 groundwater bores sampled.
 - The lowest pH was reported to be 3.87 in BH32D (March 2017). Based on AS2159 and a high permeability soil profile, this would classify groundwater as being very severely aggressive with regards to concrete piles and moderately aggressive with regards to steel piles.

My opinion is that the contamination status of groundwater at the site has been adequately assessed to the extent necessary to support a Section 53X environmental audit of the site, subject to (i) completion of the groundwater assessment described in Section 3.2.4, which would complete the scope for the groundwater assessment endorsed by the Environmental Auditor and (ii) the following assessments which would be required to assess the potential for off-site impacts to the beneficial uses of groundwater:

- Clarification of the groundwater flow regime in the vicinity of BH18 and BH19 by way of installation of groundwater monitoring wells to the east of these locations and assessment of groundwater levels.
- The assessment of potential groundwater contamination off-site to the east of BH19 for the petroleum hydrocarbon fraction C10-C40 and ammonia.

3.2.3. Summary of current landfill gas investigations

The critical points of the landfill gas monitoring events are summarised below:

- The landfill gas monitoring was conducted over:
 - 30-31 August 2016 during which period the atmospheric pressure fell over 6 mBar.
 - 20-21 March 2017 during which period the atmospheric pressure fell by more than 5 mBar over 30 hours.
- Elevated “flows” of landfill gas were recorded in several bores across the site, including in Zone 1, both centrally located and close to the northern boundary and for the first time in the north western portion of Zone 2.
- The maximum recorded flow rate of gas was 11.1 L/hr. Prior to the August 2016 monitoring event, flow rates had not been recorded greater than 1 L/hr. The maximum flow was recorded in Zone 2.
- Elevated concentrations of methane were recorded across Zone 1, parts of Zone 2 and on the boundary of the site with Talbot Park:
 - Notably methane concentrations were reported along the north western boundary at GB46A (maximum of 95% methane in August 2016 and reducing to 1.2% in March 2017) and at GB18A (maximum of 26.7% methane reducing to 0.0%). It is noted that Lane Piper (November 2010) reported what were considered unusually high methane levels at GB46 (also 95%), recommending further investigation and noting that the concentration was above that expected for a landfill. Coffey has completed additional LFG assessment around well GB46A which replaced well GB46 (refer Figure 4A).
 - Newly installed bores in Zone 2, GB71 and GB73, reported concentrations of up to 46.1% and 41.8% respectively.

The elevated flow rates in Zone 2 may also be an effect that is limited to the borehole volume rather than the soil formation around the bores. We would expect the soil in this area has limited permeability.

It is my opinion that the assessment of the occurrence of landfill gases on-site and beyond the boundary the site has been adequately assessed to the extent necessary to support a Section 53X environmental audit of the site; subject to completion of the additional landfill gas testing described in Section 3.2.4, which would complete the scope of the landfill gas assessment endorsed by the Environmental Auditor.

3.2.4. Remaining scope of works

The following scope of works remains to be conducted under the Workplan (Coffey, August 2015a) to complete the s53X Audit Report:

- Installation of three continuous logging landfill gas sensors for a period of 2 months in three selected gas bores.
- Analytical sampling of slimes that are proposed to be excavated from Zone 4 and dried on-site.
- One full site groundwater monitoring event.
- Two groundwater gauging events to be conducted during the filling of the quarry void in Zone 4.
- Four monitoring events involving assessment of all landfill gas bores, assessment of methane surface emissions and assessment of landfill gas in utility pits surrounding the site.

In addition to the works listed above Coffey has also been engaged by Sterling Global to conduct numerical groundwater modelling to assist in detailed design of groundwater remediation.

4. Suitability of site for sensitive uses

The site is intended to be redeveloped as a master planned residential development, consisting predominantly of medium density dwellings, with high density (apartments), retail and mixed use components also to be considered as part of the overall master plan.

Previous uses of the site present some challenges with respect to rehabilitation of the site to a condition that is suitable for more sensitive uses, including residential use and the site is subject to an Environmental Audit Overlay. Although not commonly conducted previously in Australia, there are numerous examples of successful development of former landfill sites internationally, including for residential land-use. In addition, recent development of a former landfill site at Cavanagh Street in Cheltenham, Victoria was successfully completed to allow residential landuse after issuing of a Statement of Environmental Audit by an EPA appointed Auditor.

The historic investigations conducted (refer Section 3.1), and those investigations currently being undertaken as proposed in the Workplan (Coffey, August 2015a) (refer Section 3.2) combined with detailed design of remedial measures, will be used as a basis for the rehabilitation and development of the site and to support the Certificate or Statement of Environmental Audit.

4.1. Remediation goals

The broad remediation goals associated with the site development are summarised as follows:

- Provide a final soil quality that is suitable for the proposed land uses.
- Ensure that landfill gas remedial measures are protective of future occupiers of the site, such as residents, and future users of the site, such as subsurface maintenance workers, whilst also being protective of off-site receptors such as neighbouring residents.
- Groundwater quality is protective of the likely beneficial uses of groundwater.
- Ensure sediment and surface water is of suitable quality to be retained / reused on-site or disposed / reused off-site in accordance with applicable regulations.
- Preferred remediation options adopted need to be and are proposed to be:
 - protective of future occupants of the site into the future;
 - practical and cost effective to implement;
 - have low ongoing maintenance and operating requirements; and
 - compliant with regulatory requirements.

4.2. Summary of key issues and proposed remediation strategy

The SESP outlines the process and technical details required to ensure that the site is rehabilitated to a standard which will allow staged Section 53X Environmental Audits to be completed and allow the redevelopment of the site in accordance with the proposed site uses under the masterplan. Upon completion of the staged Audits, it is likely that the Audits will contain conditions relating to the development of the site, and ongoing management and monitoring of site conditions. Ongoing management, such as groundwater and gas monitoring, would be conducted under Auditor-approved management plans, which would be the responsibility of the developer during the development phase and then devolved to the Owners' Corporation to implement as a condition of the Audit post development.

A summary of the key environmental issues and the proposed remedial approach is presented in Table 4.1.

It is my opinion that providing that careful consideration of the geotechnical and environmental conditions of the site is given in the design and implementation phases, the remedial measures proposed in the SESP, with the amendments detailed Section 4.4 below, will allow the appropriate redevelopment of the site.

Table 4.1: Summary of Environmental Issues

	Environmental Media	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Proposed Remedial Measures
Environmental Issues Identified	Soil	<p>Key Issues: surface soil quality and aesthetically unacceptable material</p> <p>Assessment of existing surface soils and current stockpiles indicate that the soil is generally suitable for the site development. Arsenic and TRH have been reported above health criteria. Asbestos has been identified in surface soils.</p> <p>The large stockpile in Zone 1 has been assessed as being suitable for reuse on site.</p> <p>Aesthetically unacceptable materials (building wastes, putrescible wastes) are present in the shallow soils.</p>	<p>Key Issues: surface soil quality and aesthetically unacceptable material</p> <p>Assessments of existing surface soils and current stockpiles indicate that the soil is generally suitable for the site development. Asbestos has been identified in fill material.</p> <p>Aesthetically unacceptable material (building wastes) may be present in the shallow soils.</p>	<p>Key Issues: surface soil quality and aesthetically unacceptable material</p> <p>Assessment of existing surface soils and current stockpiles indicate that the soil is generally suitable for the site development. Arsenic and benzene have been reported above health criteria.</p> <p>Aesthetically unacceptable material (building wastes) may be present in the shallow soils.</p>	<p>Key Issues: ensuring imported fill is suitable, or reused fill from site is suitable.</p> <p>Backfilling of quarry void required.</p>	<p>Key Issues: surface soil quality and aesthetically unacceptable material</p> <p>Assessment of existing surface soils and current stockpiles indicate that the soil is generally suitable for the site development. TRHs have been reported above health criteria. Asbestos has been identified in fill material and surface soils.</p> <p>Aesthetically unacceptable material (building wastes) may be present in the shallow soils.</p>	<ul style="list-style-type: none"> Covering of the site with hardstand, paths, paving, roads and buildings, which will prevent access to soils; Ensure soil of suitable environmental quality is present in unpaved areas of the site, such as gardens, retention basin areas and open space. Minimum soil cover of 0.5 m of suitable quality fill; Ensure soil conditions will not impact on the beneficial uses of buildings and structures by use of resistant building elements that penetrate soil; Where soil is not suitable for reuse on-site, conduct remediation works or dispose soil off-site; Implement the environmental management plan to ensure workers are protected during the site works; Implement Audit conditions and Owner's Corporation Rules prohibiting digging or excavation past a defined depth, depending upon residual contamination present.
	Landfill Gas	<p>Key Issues: landfill gas generation rates and protection of future residents and neighbours.</p> <p>Landfill gas generation from Zone 1 former landfilled waste is considered to be past its maximum gas generation potential phase. Nevertheless significant gas screening values have been reported.</p>	<p>Key Issues: landfill gas generation rates and protection of future residents and neighbours.</p> <p>Test pits conducted within Zone 2 in September 2014 confirmed the presence of building waste material in Zone 2.</p> <p>Significant gas screening values have been reported particularly in the north western portion of Zone 2.</p>	<p>Key Issues: prevention of landfill gas migration from adjacent Zone 1.</p> <p>Assessment has indicated that landfill gas is not being generated from Zone 3; however landfill gas may migrate from the adjacent Zone 1 into Zone 3.</p>	<p>Key Issues: prevention of landfill gas migration from adjacent Zone 1 and Talbot Park.</p> <p>Landfill gas may migrate from Zone 1 into the northern part of Zone 4, or from Zone 2 and Talbot Park into the eastern side of Zone 4.</p>	<p>Key Issues: prevention of landfill gas migration from adjacent Zones 1 and 2.</p> <p>Landfill gas may migrate from Zone 1 into the western part of Zone 5, or from Zone 2 into the southern part of Zone 5.</p>	<ul style="list-style-type: none"> Implementation of building mitigation measures in Zone 1 and Zone 2 including: <ul style="list-style-type: none"> Gas resistant membranes; Reinforced concrete cast in situ suspended slab; Sub-floor ventilation (passive or active depending on the risk profile); Use of open undercroft carparking in higher risk areas. Installation of horizontal pathway intervention above waste areas consisting of a gravel venting layer and clay cap. Installation of vertical pathway intervention surrounding waste areas consisting of a gravel venting bores or trenches. Removal of waste if identified in isolated pockets at shallow depths.

Environmental Media	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Proposed Remedial Measures
Groundwater	<p>Key Issues: leachate generation and migration, including historical movement and predicted future transport. Groundwater mounding in Zone 1 is also a key issue.</p> <p>Groundwater contamination is generally characterised by ammonia and nitrate which is likely to be due to the former landfill activities in Zone 1. TPH and BTEXN have been reported in Zone 1 bores.</p> <p>Leachate emanating from Zone 1 landfill may impact upon the beneficial uses of groundwater on-site and potentially impact upon groundwater conditions off-site following the completion of backfilling of Zone 4 quarry void and re-establishment of groundwater flow directions off-site to the south west. Leachate will require management to control lateral migration and reduce mounding of leachate.</p>	<p>Key Issues: the extent to which Zone 2 is a source of groundwater contamination, and likely future migration and impact on beneficial uses.</p> <p>Groundwater contamination is present in Zone 2, which may be due to former filling of Zone 2 with uncontrolled fill. Groundwater is currently discharging to the Zone 4 quarry lake, however once this quarry void is backfilled, groundwater is likely to move off-site to the south or south-west.</p> <p>Groundwater impacts may be migrating off-site to the east.</p>	<p>Key Issues: no significant issues identified.</p> <p>Some relatively low concentrations of groundwater contaminants are present in Zone 3, however based on current data; this Zone does not appear to be a source of significant groundwater contamination.</p>	<p>Key Issues: migration of leachate from Zone 1, and future groundwater elevations once the quarry is backfilled.</p> <p>Once the current quarry void is backfilled, contaminated groundwater from Zone 1 may migrate in groundwater into Zone 4. Contaminated groundwater from Zone 2 and Talbot Park may also migrate in groundwater into Zone 4, once the quarry void is backfilled and groundwater levels stabilise.</p>	<p>Key Issues: no significant issues identified.</p> <p>Some low concentrations of groundwater contaminants are present in Zone 5, however based on current data; this Zone does not appear to be a source of significant groundwater contamination.</p>	<ul style="list-style-type: none"> • Source zone control combined with monitored natural attenuation (MNA) in involving: <ul style="list-style-type: none"> ▪ Capping of landfill in Zone 1 to reduce leachate volume. ▪ Installation of a high permeability drainage layer within the Zone 4 quarry void backfill. ▪ Natural attenuation zone within Zone 4, where dispersion, dilution and denitrification of the primary contaminant of concern (ammonia) will occur. ▪ Implementation of a Groundwater Quality Management Plan (GQMP) including on-going monitoring of groundwater. • In addition, in the event that groundwater contamination does not naturally attenuate within Zone 4, leachate treatment or extraction wells will be installed within Zone 4 to manage potentially contaminated groundwater migration. • A Clean Up to the Extent Practicable (CUTEP) determination is likely to be required as part of the Audit for Zone 1 and Zone 2. This would include delineation and assessment of risk for any off-site impacts.
Quarry Sediment and Surface Water	No current issues identified.	No current issues identified.	No current issues identified.	<p>Key Issues: removal of sediment and surface water to allow backfilling.</p> <p>Surface water and sediment within the current quarry void would need to be removed to allow backfilling.</p>	No current issues identified.	<ul style="list-style-type: none"> • Surface water: <ul style="list-style-type: none"> ▪ Re-use for irrigation on golf course or Talbot Park, if acceptable to owner. ▪ Disposal to sewer under licence or stormwater where acceptable. • Sediment: <ul style="list-style-type: none"> ▪ Re-use for backfilling where acceptable ▪ On-site remediation and re-use ▪ Off-site disposal

4.3. Implications of current data on the SESP

The additional works conducted by Coffey and detailed in Section 3.2 fill a number of data gaps identified in the *Issues Summary Report* (Coffey, June 2014c) and the SESP (Coffey, November 2014g). The data is discussed in summary form below.

4.3.1. Soil

The majority of soil exceedances are associated with fill material and foundry waste with nickel and zinc being found in natural soils, slimes and sediments at concentrations above the adopted guideline values.

The distribution of the organic COPCs appears to be in isolated pockets in the fill material and does not indicate a significant source of organic or hydrocarbon-associated contamination is present. Copper and hydrocarbon exceedances (in the carbon chain length fraction; C16-C34) are most prevalent in the foundry waste; however, they are also present within other areas of fill.

As indicated above, minor exceedances of nickel and zinc were identified in natural soils, slimes and sediments, indicating that some of the elevated concentrations of nickel and zinc are likely to be naturally occurring. This is also consistent with the detection of zinc above the maintenance of ecosystems criteria in groundwater at BH36, the upgradient well.

Although 3 soil samples were reported with HIL-A exceedances of arsenic, these are not considered to be significant. Statistical analysis of the results indicates the 95% upper confidence limit (UCL) for the average concentration is 12 mg/kg, nearly an order of magnitude below the HIL-A criteria.

The occasional identification of asbestos / Asbestos Containing Materials is generally consistent with the presence of other building rubble in fill material at depth and in general waste across the surface of the site.

Ultimately soil exceedances from a health and maintenance of ecosystem perspective will be taken into account by placement of final soil cover. All imported or redistributed soil from the site will be assessed for compliance with health and maintenance of ecosystem criteria. The final soil placement (refer **Appendix A, Figures 10B to 10D**) which will make the exceedances reported here, of low or no relevance for the proposed site use. For example:

- The maintenance of ecosystem criteria are not relevant below 2m.
- Vapour intrusion exceedances may be placed at depths where they do not pose a risk or in areas that are proposed to include gas mitigation measures (refer 4.4);
- Arsenic, benzo(a)pyrene and ACM only occur at a limited number of locations (arsenic at 3 locations and benzo(a)pyrene at 1 location) or on specific parts of the site (ACM in Zones 1 and 3) which will be covered by engineered fill (i.e. 2m deep in Zone 1 or 0.5m deep in Zone 3).

4.3.2. Groundwater

Based on the observed exceedances of the adopted groundwater assessment criteria, groundwater use is considered to be precluded for one or more beneficial uses at each individual well. When groundwater at the site is taken as a whole, all identified beneficial uses are precluded somewhere on the site.

Volatile petroleum hydrocarbon impact is most predominant in Zone 1, in the area of the former landfill and immediately downgradient of it. Impact by heavier hydrocarbons (carbon chain length fraction >C16) has been reported at a number of locations spread across the entire site.

Ammonia impacted groundwater is prevalent across the site with the most significant concentrations located below and downgradient of the former landfill and on the boundary shared with the former Talbot Park landfill in the south east of the site. Significant concentrations were also identified at BH04D in Zone 2.

Metals exceedances were reported across the site, of the 29 wells:

- 26 reported Maintenance of ecosystems exceedances;
- 20 reported Potable Water Supply exceedances;
- 7 reported Agriculture Parks and Gardens exceedances;
- 3 reported Primary Contact and Recreation exceedances; and
- 2 reported Stock Watering exceedances.

Exceedances of adopted criteria were reported for arsenic, boron, cadmium, copper, lead, manganese, nickel and zinc. Based on the concentrations reported at up-gradient well BH36; arsenic, nickel and zinc are likely to be naturally occurring and may not constitute site contamination.

Low pH was also identified to occur in several wells and based on AS2159 and a high permeability soil profile, this would classify groundwater as being very severely aggressive with regards to concrete piles and moderately aggressive with regards to steel piles.

4.3.3. Landfill gas

Based on the August 2016 and March 2017 data, a tier 2 landfill gas risk assessment was conducted using the 'Gas Screening Value' approach detailed in British Standard 8485:2015. GSVs represent the hazardous gas flow rate from a borehole, and are calculated from the borehole flow rate multiplied by the concentration of hazardous gas being considered (methane or carbon dioxide). British Standard 8485:2015 provides a risk ranking and 'Characteristic Situation' score based on the GSVs as presented in Table 4.2.

Table 4.2: Characteristic Situations

Characteristic Situation	Hazard Potential	GSV	Additional Information
1	Very Low	<0.07	Typically <1% methane and or <5% carbon dioxide , otherwise consider increase to Characteristic Situation 2
2	Low	<0.07 to <0.7	Typically flow rate <70l/hr, otherwise consider increase to Characteristic Situation 3
3	Moderate	<0.7 to <3.6	
4	Moderate to High	<3.6 to <15	
5	High	<15 to <70	
6	Very High	>70	

The 'Characteristic Situation' determined is then used to define the general scope of gas protection measures required. In general terms, no special precautions would be likely to be required under 'Characteristic Situation 1'. Should the data reveal other 'Characteristic Situations' then further assessment and/or risk mitigation measures would be required for any development in the vicinity of the landfill.

Based on the August 2016 and March 2017 results, methane risk was reported to be:

- **Moderate to High** in Zone 1.
- **Low** in the vicinity of the residential properties to the north east;
- **Moderate to High** in the north western portion of Zone 2 and **low** across the rest of Zone 2;
- **Very low** in other areas of the site.

The recorded risk ratings show an increase in risk potential as compared to previous investigations. The increase in risk potential is interpreted to be most likely due to wetter than average conditions occurring across the latter half of 2016, then resulting in a less permeable cap and higher moisture / nutrient content in the waste material. This interpretation would predict a dual effect of increasing methane generation and reducing the amount of landfill gas that can escape through the cap, meaning higher gas concentrations and flows are measured at some of the gas monitoring wells.

4.3.4. Summary

My opinion is that:

- Soil and groundwater analytical results are consistent with previous ESA findings and the soil and groundwater remediation strategy adopted in the SESP is appropriate, reasonable and practicable as a means of making the site suitable for sensitive land uses.
- With regards the landfill gas assessment, the Characteristic Situation reported during the August 2016 and March 2017 assessments is a level higher than reported in the SESP for parts of the site.

The assessment and remediation implementation process outlined in the SESP remains viable and appropriate; while the technical and design details for the gas mitigation measures require updating. Details of the design of the gas extraction system for residential development would need to be adjusted to take this increase in gas risk into account, as indicated in Appendix A, Figure 10B – ‘Moderate to High’ Concept Design. This is addressed in Section 4.4 below

An alternative approach would be for less sensitive uses to be adopted for land on or adjacent to the areas of increased gas risk. Either approach would be consistent with the adopted comprehensive development plan for the site.

4.4. Remediation approach for current risk profile

At the time of preparation of the SESP, a preliminary gas risk assessment indicated that the former landfill areas represents a low gas hazard classification for the site, due to the observed low gas flow rates. The proposed landfill gas protection measures for Zone 1 included conceptual design for both a low and a moderate gas hazard classification, to provide assurance that a suitable design solution was feasible if there were an increase in the hazard rating from low to moderate. The most recent landfill gas data collected indicates that Zone 1 would fall into a ‘moderate to high’ risk category and as such, a higher level of gas protection measures for the proposed uses would be required.

It is also noted that the BS 8485 has been updated since the SESP was prepared and the current standard (BS 8485:2015) contains some modifications to the process in which the level of gas protection is selected. As such, the required mitigation measures for all three ‘Characteristic Situations’ have been reviewed and are discussed below for completeness.

In order to meet the requirements of the British Standard BS8485:2015, the following measures are proposed to be implemented for any future buildings or confined space construction to be constructed on site:

'Low Hazard Potential' Areas

- Passive sub-floor ventilation with 'Good' performance as defined within BS8485:2015;
- Reinforced concrete cast in situ suspended slab with minimal service penetrations; and
- Gas resistant membrane meeting the requirements of BS8485:2015³

For privately owned residential dwellings under the previous BS8485:2007 this would achieve a gas protection score of 4.5 points with a requirement of at least 3 points. Under the BS8485:2015 this would achieve a gas protection score of 5 points with a requirement of at least 3.5 points.

'Moderate Hazard Potential' Areas:

- As for 'Low Hazard Potential', plus
- Pathway intervention of landfill gas by installing a clay cap with horizontal venting layer connected to passive vertical venting barrier.

For privately owned residential dwellings under the previous BS8485:2007 this would achieve a gas protection score of 4.5 points with a requirement of at least 4 points. Under the BS8485:2015 this would achieve a gas protection score of 5 points with a requirement of at least 4.5 points. Similarly the pathway intervention is not scored.

It is noted that BS8485 does not provide a scoring system for pathway intervention. The proposed pathway intervention system would significantly reduce the risk of gas migration; as such, the actual level of protection provided by the conceptual design is considered to be higher than what is described above and has multiple redundancies.

'Moderate to High Hazard Potential' Areas:

- As for 'Moderate Hazard Potential', plus
- Sub-floor ventilation to be of 'Very Good' performance OR occupied areas of the building to be above a ventilated car-park (i.e. undercroft parking on ground floor)

³ Requirements of Gas resistant membrane under BS8485:2015

- Sufficiently impervious to the gases (methane and carbon dioxide) with a methane transmission rate <40.0 mL/day/m²/atm (average) for sheets and joints (tested in accordance with BS SIO 15105-1 manometric method);
- Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions;
- Sufficiently strong to withstand in-service stresses (e.g. settlement if placed below a floor slab)
- Sufficiently strong to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc.);
- Capable, after installation, of providing a complete barrier to the entry of relevant gas; and
- Verified in accordance with CIRIA 735

- Buildings should be centrally managed and management should have control over any building alterations and maintenance. A sustainable management plan should be in place to ensure the maintenance the gas protection system.

For managed building under the both the BS8485:2007 and the BS8485:2015 this would achieve a gas protection score of 6 points (Sub-floor ventilation to be of 'Very Good' performance) or 7.5 points (undercroft carparking) with a requirement of at least 5 points.

As described above, the pathway intervention provides additional protection and redundancy over and above the building mitigation measures.

Summary

The proposed remedial options are outlined in the SESP are presented on **Figures 10A to 10D, Appendix A** as follows:

- **Figure 10A:** This figure shows the architectural Master Plan layout with the remediation approach for landfill gas mitigation and for leachate remediation.
- **Figure 10B:** shows the conceptual design for Zone 1 for landfill gas remediation including a boundary venting system and gas protection beneath individual buildings, combined with a capping system and horizontal venting system.
- **Figure 10C:** Shows the conceptual design option for landfill gas management in the eastern portion of the site. It should be noted that the north western portion of Zone 2 would require a higher level of protection than the remainder of Zone 2, 3 and 5.
- **Figure 10D:** The preferred option for leachate management (from Zone 1) is to cap Zone 1 in accordance with EPA guidelines and implement a program of monitored natural attenuation and contingency bores for active treatment of leachate from Zone 1.

A summary of the gas protection measures proposed are presented in the following table.

Table 7.1 –Proposed Gas Protection Measures

Risk Category	Zone	Proposed Gas Protection Measures
Moderate to High	Zone 1 Zone 2 (Northwest portion)	<ul style="list-style-type: none"> • Capping and horizontal venting layer • Boundary gas venting barrier to perimeter boundary • Gas resistant membrane and high performance venting system or undercroft car park under buildings. • Reinforced concrete cast in situ suspended slab
Low	Zones 3, 4 and 5	<p>Where these zones border Zones 1, 2 or Talbot park, the following gas protection measures are proposed for dwelling immediately adjacent to these boundaries:</p> <ul style="list-style-type: none"> • Gas resistant membrane • Reinforced concrete cast in situ suspended slab <p>(Note: level of gas protection (if any) will be dependent upon residual gas screening levels following the installation of the boundary venting barrier).</p>

It is my opinion that:

- By adopting the suggested amendments to the landfill gas mitigation measures in the development design, the site can be made suitable for sensitive land uses.
- All the proposed options for the management of landfill gas provide additional points of protection than required under the BS8485:2015. In addition, pathway intervention is proposed for the 'moderate' and 'moderate to high' risk areas which provides an additional level of protection and redundancy, significantly reducing the risk to any sensitive land uses built over these areas.

5. Timing of Audit and Review of ESA and SESP

5.1. Timing of Audit and Planning Amendment

There are benefits associated with completing the auditing after planning amendment approval. An example I have been involved where the audit was completed after the planning amendment decision was made was an Environmental Audit I completed in Cavanagh Street, Cheltenham.

Other similar situations I am aware of include:

- The Tooronga Village Development (Planning Scheme Amendment C188 2014 - City of Boroondara). The audit was completed subsequently.
- The former Daniel Robertson Brickworks located at 56 and 58-74 Station Street, Nunawading (Planning Scheme Amendment C155 – 2015 City of Whitehorse). This site was rezoned to allow part Mixed Use Zone and part Residential Zone, subject to a Site Remediation Strategy demonstrating the site is capable of being remediated to a standard required for the proposed residential use and development in accordance with EPA guidelines. The audit was completed subsequently.

In my opinion, it is appropriate and reasonable to delay the requirement for a Statement of Audit until after Amendment C129 is approved.

5.2. Review of SESP and ESA

I acknowledge that Council is responsible to ensure that any planning decision it makes must take into account whether the environment at the site is suitable for the development and the development is suitable for (will not impact on) the environment.

As indicated by some of the examples referred to above, planning amendment decisions for significantly contaminated sites, have been and are being made in Victoria, without the responsible authority approving the SESP (also sometimes referred to as a Remediation Strategy Plan) or the Environmental Site Assessment report on which an environmental audit report is based. An EPA appointed environmental auditor most commonly provides these approvals or endorsements.

The environmental audit system was developed by EPA to be a means of ensuring that planning and environmental decisions were made based on the opinion of highly experienced EPA-appointed environmental auditors.

For this site, Mr Ken Mival of EHS Support Pty Ltd has:

- provided his endorsement (refer Section 1.8) of the SESP; reviewing Coffey's ESA prepared in 2014 as part of the endorsement process; and
- endorsed the additional assessment steps which he believed should enable the completion of staged environmental audits of the site.

While, I am not in a position to speak for or predict Mr Mival's view of the additional assessment items recommended in this expert report, I think it is likely that these would be supported.

If Council decides to review the ESA and SESP; in my opinion it would be most appropriate to do so at the time that other related documents; such as likely statement of environmental audit conditions, environmental management plans and detailed design documents were submitted to support the issuing of a planning permit. Assuming that the ESA and SESP are endorsed by the auditor-, this Council would then have a high level of confidence that it is making soundly-based planning decisions.

To the best of my knowledge, when Kingston City Council prepared the planning permit conditions for the Cavanagh Street, Cheltenham site, it relied on advice from me as auditor and that of the developer's environmental assessment consultant and did conduct its own review.

In my opinion, it is not necessary for the SESP and ESA to be approved by Council prior to the lodgement of any planning permit application. In my opinion, it is appropriate for Council to rely on the authority and experience of the EPA appointed environmental auditor for the approval of the SESP and ESA as an integral part of the completion of the environmental audit of the site.

If Council decides to review the ESA and SESP; in my opinion it would be most appropriate to do so after lodgement of the planning application and prior to issuing of the planning permit as the review can take into account related documents submitted to support the application.

6. Geotechnical issues

While I am not a geotechnical expert, I have been involved in more than 50 projects where integrated geotechnical investigations and environmental site assessments have been conducted, I have regularly liaised with and briefed Coffey geotechnically-qualified staff, including geotechnical experts to support me in both contaminated site assessment and environmental auditing work. The ability and experience to be able to do this is considered an essential part of gaining and maintaining my EPA appointed environmental auditor status.

These projects have included the review and provision of advice on containment systems at landfills, waste repositories, capping systems and excavation backfilling works. Specific examples include a then state-of-the-art waste repository at the former Albion Explosives Factory, landfill rehabilitation works at that site, rehabilitation of two inner urban pug holes (clay pits) containing inert industrial waste in inner Adelaide and a landfill at the former Kodak Distribution site, demolition-related investigations at the Ravenhall Prison Project and on many audit sites, due diligence assessments for land adjacent to a closed landfill for an airport operator and many preliminary site investigations where multi-storey buildings were proposed to be constructed.

Based on my experience, it is my opinion that the geotechnical investigations completed, conceptual designs prepared and conclusions reached by Coffey Geotechnics concerning geotechnical issues on the site are sufficient, appropriate and adequate to support the remediation of the site, such that the site can be made suitable for the proposed mixed and sensitive uses.

7. Response to other submissions

It is understood the following submissions have been made to council which fall within my area of expertise:

7.1. VPA submission

In its letter to Council dated 3 March 2017, the Victorian Planning Authority stated:

The VPA supports a staged approach to planning and developing the site to manage the complexities and issues associated with contaminated land. From a process point of view the VPA submits that the following approaches may enhance the function of the draft provisions and achieve a coordinated approach.

The VPA submission then went on to say that the Overall Development Plan (ODP) should be developed in a particular way and with recommended timing.

... The Site Environmental Strategy Plan (SESP) and the Environmental Site Assessment (ESA) should be conducted prior to the planning permit application stage. All references to 'applications' or 'planning applications' within sub-clause 3.2 should be amended so that the text refers to 'the Overall Development Plan...

The VPA revised this recommendation in its letter of advice to Council dated 21 April 2017. The position stated with respect to the timing of the SESP and ESA, as a part of the ODP, on 21 April 2017, was as follows:

It makes sense to exhibit to the community both the draft Outline Development Plan and first planning permit application concurrently because this will provide greater clarity and context for surrounding property owners and occupiers.

Therefore the VPA submission suggesting that 'the ODP must be approved prior to lodging an application for planning permit' should be disregarded. Instead, it is suggested that Council should have considered the content of the ODP and resolved any initial issues in relation to the plan prior to giving notice of the ODP and permit application. This will enable the ODP and permit application to be advertised to the community concurrently.

It is my opinion that I agree with the VPA submission of 21 April 2017 that review of the SESP and ESA is not required prior to the planning permit application stage.

7.2. EPA submission

In its letter to Council dated 10 March 2017, the Environment Protection Authority stated:

The site at 1221-1249 Centre Road, Oakleigh South was formerly used as a quarry and a landfill and therefore is considerably contaminated. Council previously commissioned a Review of Environmental Matters at the site prepared by Senversa to provide an assessment of the environmental reports and arrangements to date. This report provides a useful overview to demonstrate the environmental risks of the development. The report highlights a number of environmental risks and longer term logistical risks at the site. These being and not limited to:

- *In-ground infrastructure to manage landfill gas and leachate and the responsibility and payment for the ongoing management of these*
- *Restrictions suggested managing risks to residents vs Housing density plans (i.e. limiting digging past a defined depth).*

EPA emphasises to Council that this land rezoning proposal presents the above risks. It is imperative that these risks associated with development of landfill sites are appropriately managed through the rezoning and development approvals to protect future land uses, human health and safety.

EPA understands that the proposed amendment will apply the existing Environmental Audit Overlay to incorporate the whole of the land within the Overlay and includes the land shown in the 'Former Talbot Quarry and Landfill Comprehensive Development Plan 2016' map as exhibited as an Incorporated Document within the Monash Planning Scheme.

The EPA advises Council that it is generally supportive of the proposed Planning Scheme Amendment and application of the Comprehensive Development Zone (COZ) applied to 1221-1249 Centre Road, Oakleigh South.

EPA supports the staged approach to the environmental audit of the Development Site, allowing the site to be rezoned with the support of an Environmental Site Assessment (ESA) and Site Environmental Strategy Plan (SESP), and requiring a section 53X Audit as a condition of any future planning permit for a sensitive use.

However, EPA wishes to advise Council that this approach may send a false message to Developers/Land Owners that contaminated land sites can eventually be developed for a sensitive use, which may not be the case depending on the findings of the section 53X audit. EPA reinforces this message to Council to ensure that the COZ does allow for consideration of a range of commercial and other non-sensitive uses, as Council proposes.

Application of Ministerial Direction No. 1:

It is EPA's view that addressing the requirements of Ministerial Direction No. 1 through a staged approach of applying the CDZ through a land rezoning process is appropriate, on the basis that a section 53X audit will be required as part of any future planning permit condition allowing sensitive uses on the Development Site.

As this approach is not strictly in accordance with Ministerial Direction No. 1, EPA wishes to emphasise to Council that the General Practice Note requires responsible authorities to be satisfied that the level of contamination will not prevent the use of the site, if they make the decision to not require an environmental audit as early as possible in the planning process.

My interpretation of EPA's position is that the planning amendment needs to be supported by the ESA's conducted at the site and the SESP. The various ESA reports and the SESP (Coffey, November 2014g) have been reviewed by the EPA appointed auditor and the auditor has endorsed the SESP (URS, November 2014), refer Section 1.8.

It is my opinion that:

The auditor's review of the Environmental Site Assessments (conducted by Coffey and other consultants) and the endorsement of the SESP (URS, November 2014) when supported by this expert report, form a sufficient basis for approval of the planning amendment in a manner that is consistent with EPA's advice to Council.

7.3. Valente Submission

In its letter to Council dated 3 March 2017, A & S Valente And Associates Pty Ltd stated:

2. THE LAND CURRENTLY ZONED GRZ2 SHOULD NOT BE REZONED

That part of the land zoned General Residential Zone Schedule 2 should not be rezoned as Comprehensive Development Zone. The current zoning already allows residential uses provided that an environmental audit certifies that it is permissible. As can be seen from the adjoining property at 1213-1217 Centre Road Oakleigh South, Council has already issued a planning permit for a multi-level apartment building in the same zoning namely GRZ2.

Accordingly, there is no planning impediment for residential development on this part of the land, as long as the last open quarry pit situated on the south west side of the site, (currently filled with water), being remediated and filled and then signed off by the Environmental Auditor.

The owner of the land already has a planning permit issued in May 2015 for remediation works for the land. The owner's representative consulted with the community extensively at that time and published a brochure that it delivered to all the households in the area which gave undertakings that the remediation works would commence in 2015 and finish within 24 months by the end of 2017. However, from our understanding, the owner has not even commenced the remediation works.

The Planning Officer's report to Council at its meeting on 27 September 2016 supporting this Amendment application stated that:

"However, the owner has indicated that undertaking an audit prior to the rezoning does not provide sufficient certainty to warrant the expense and effort of remediating the site and is not the process undertaken for rezoning more recently for several sites in metropolitan Melbourne, including the Amcor paper mill site in Alphington".

We have the following concerns with the above comment and the Planning Officer's Report:-

- the Amcor paper mill site is not a former sand quarry and therefore the analogy to this land is not relevant;*
- the above comment suggests to us that the owner of the land is exercising undue influence on the Council by stating that it will not remediate the land unless it obtains the rezoning;*

- *the Planning Officer's report to Council did not inform the Councillors nor the community that the s.173 Agreement was registered on the titles to the land to protect the interests of the local community.*

Even if the rezoning were to be approved by the Minister, there is a real risk that the current owner will simply obtain planning permits for high density residential development and Mixed Use development and then sell the property with lucrative planning permits without undertaking any remediation of the land. They will waste the time of the Council and the community with more consultations regarding planning permit applications without any certainty regarding whether the remediation works will be undertaken nor whether an Environmental Auditor after remediation will allow the type of residential development proposed.

Our view is that given that the current owner has not remediated the land in accordance with the current planning permits, that Council should be pro-active and exercise the power that is has pursuant to clause 4.2.11 of the s.173 agreement to allow the clean fill of the last open quarry pit so that this blight on the neighbourhood can be removed. As previously stated, the Council should also consider purchasing the whole site and allow the establishment of a number of sporting facilities all in the one area.

Another reason why this land should not be rezoned to CDZ to accommodate high density development is because three quarters of this land has already been filled with non-engineered fill. The one quarter that remains to be filled is now bounded to the south by a new multi-level apartment building which is currently under construction. The community should not be exposed to any level of risk whether from embankment failure or exposure to waste material through the remediation of land other than by allowing clean fill of the last open quarry pit.

The community has already experienced land slip and subsidence issues impacting adjoining properties recently at 170-174 Highbury Road Mount Waverley. In addition, a major land slip of a former clay quarry also occurred after dwellings were constructed at "Sienna Falls" in Highbury Road Glen Waverley.

Unlike the Highbury Road sites which have clay soils, the stability of soil batters are more critical in sandy soils such as this old sand quarry site.

Therefore it is vitally important that the total history of this site is considered in any decision being made regarding the rezoning of the land by a Planning Panel and ultimately the Minister for Planning. The history of the land culminating with the registration on all the titles of this land with the s.173 Agreement has not been advertised with Amendment C 129 nor was it brought to the attention of the Councillors in the Planners Report to Council on 21h September 2016.

Finally, it should be noted that the majority of the old sand quarry sites in the City of Kingston were filled and then either converted to public open space or rezoned from SUZ to the Green Wedge Zone which only permits low density use. In our view, should the Council not seriously consider purchasing this land, then the most appropriate zone should be Green Wedge Zone. This zoning would protect future generations from constructing buildings on this problematic land, which may result in future sink holes or land slips.

With respect to Mr Valente's understanding that remediation has not commenced, this is not correct. Importation of suitable fill commenced in the first quarter of 2017, after a tender process was completed by the developer to engage a civil contractor.

Where large sites are proposed to be developed, it is relatively common for rezoning to occur prior to costly rehabilitation and remediation commencing. While the Amcor site may not be in an identical contamination category as the land subject to the amendment, the same principle applies. As

addressed in Section 5 of this report, planning amendments regularly occur prior to completion of ESA assessment, reporting and endorsement and SESP finalisation and endorsement.

I also note that in October 2014, EPA advised the appointed environmental auditor of the site as follows:

EPA support in principle the staged audit approach. We have precedents for adopting this approach as a means to promote clean up and remediation of large sites by supporting financial viability of development proposals.

With respect to Mr Valente's comment that land stability is an important issue for the amendment site, I agree. The design of the remediation takes into account the geotechnical conditions at the site and when implemented, land slip and stability issues will be addressed. It is more likely that land stability issues will continue if the site remains undeveloped or only slowly developed under public ownership.

It is my opinion that:

Mr Valente's concerns regarding commencement of remediation and the planning amendment proceeding prior to completion of remediation are not well founded for the reasons stated above.

Mr Valente's concern regarding land stability is well founded and is addressed by the conceptual design for the development of the site. Land stability issues are more likely to be addressed if the amendment is approved than under nominated alternative approaches.

8. Expert declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

This expert report is based on application of environmental policies, guidelines and standards which are commonly adopted by site contamination practitioners as the basis of environmental site assessment and reporting.



Phil Sinclair

Principal Environmental Scientist

9. Statement of Uncertainties

This report represents a review of and expert opinion about data and information (together, "Information") relating to the property which is the subject of this report. Some of the Information was obtained not by the expert or Coffey Environments but from other sources and contacts, some of whom may be noted in the report. I and Coffey have conducted reasonable checks as to the adequacy of the information provided and are satisfied that it is suitable for the purpose of preparing this report. However, it is noted that, inherent in any assessment approach, is the fact that information is based on a number of "spot" tests and that conditions may vary between those locations.

The analyses, evaluations, opinions and conclusions presented in this report are based on the information provided, and they could change if the information is, in fact, found to be unrepresentative of conditions between sampling and analysis locations.

10. References

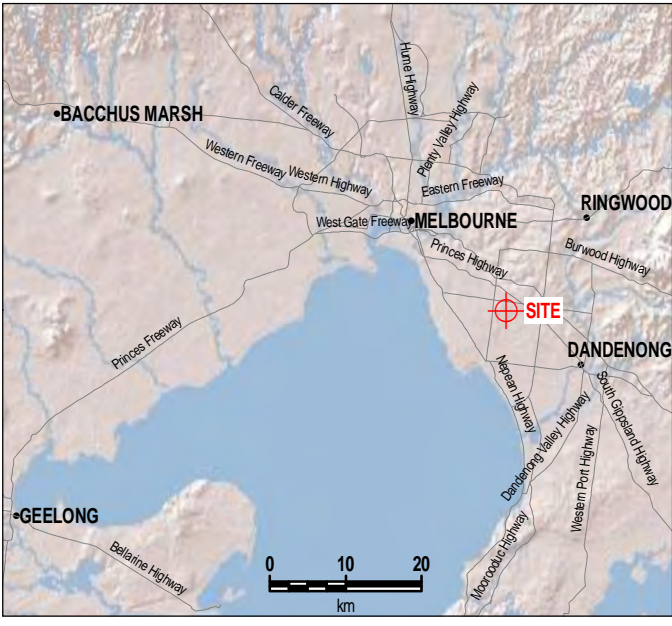
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Expert Report of Mr Phillip Sinclair
Re: Monash Planning Scheme Amendment C129

URS. (November 2014). *Proposed Redevelopment of Talbot Road Landfill Sites at 1221 to 1249 Centre Road, Oakleigh, City of Monash, Victoria – Site Environmental Strategy Plan*. URS Australia Pty Ltd.

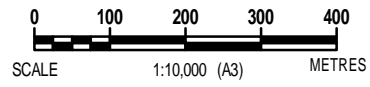
Appendix A – Figures



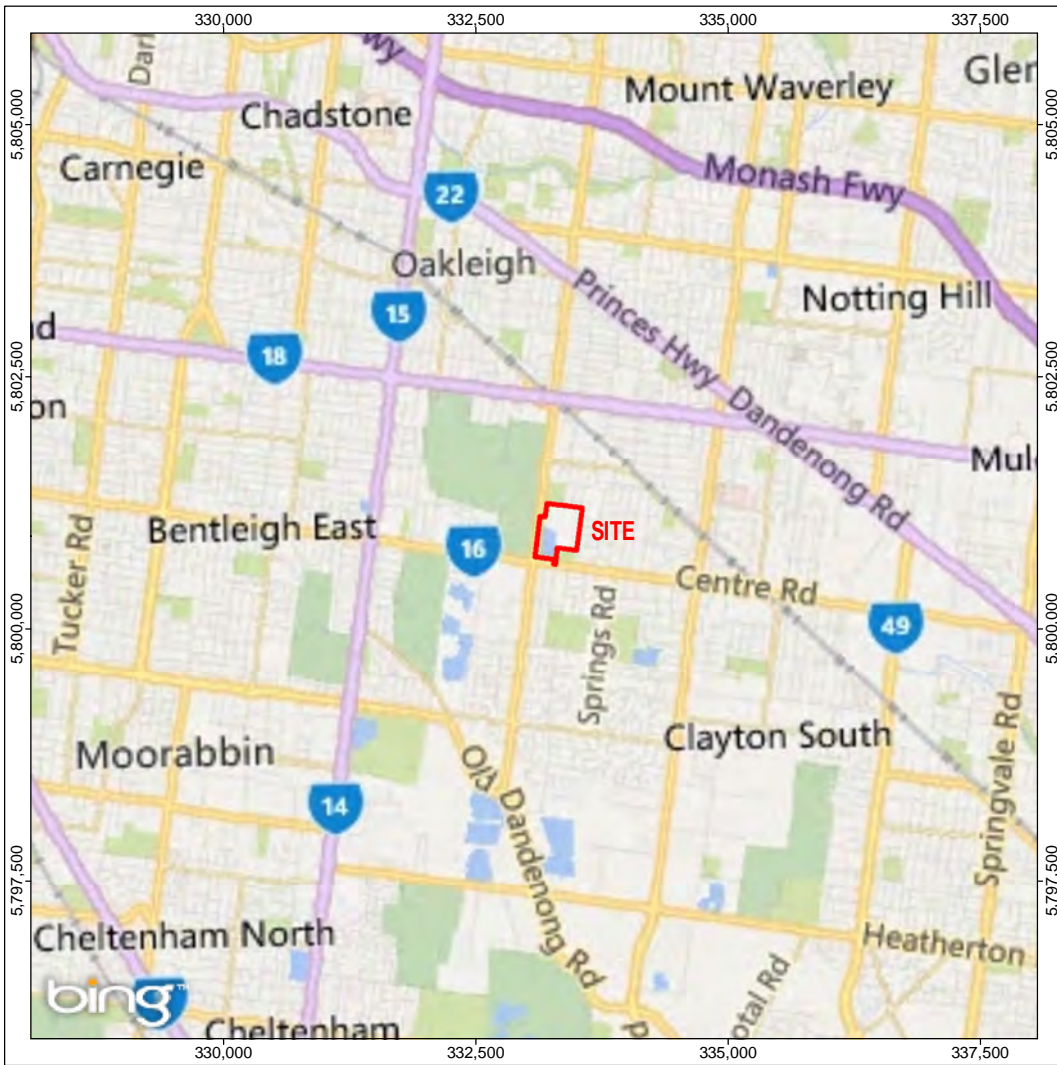
GENERAL AREA MAP



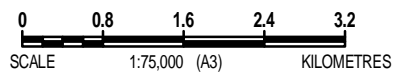
LOCAL



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REGIONAL



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revision	no.	description	drawn	approved	date
A		ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND	
	Site boundary

IMAGERY SOURCE: DEPI (DECEMBER 2011)



Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:10,000
original size	A3



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	SITE LOCALITY PLAN		
project no:	ENAUABTF00751AC	figure no:	FIGURE 1
rev:	A		



IMAGERY SOURCE: DEPI (DECEMBER 2011)

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Fence
- Site boundary
- Cadastre
- Former Talbot Road landfill

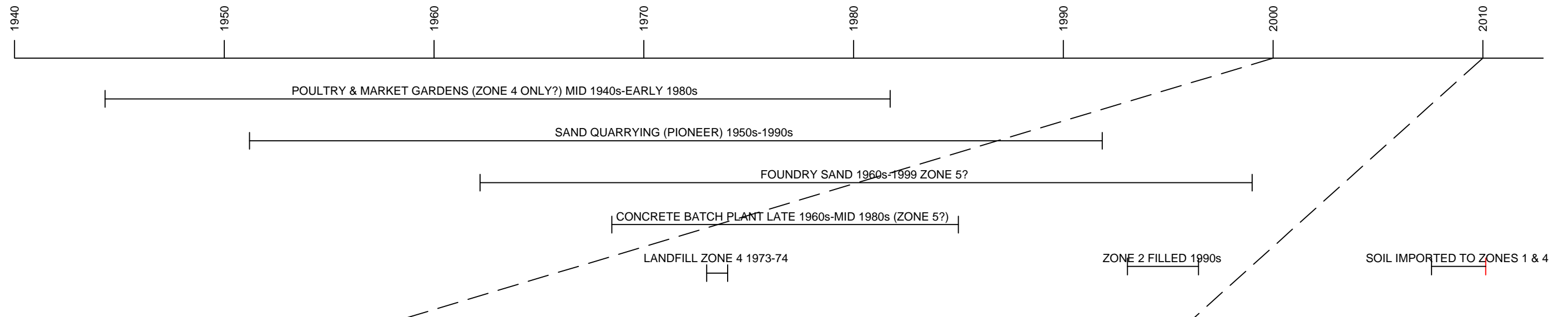
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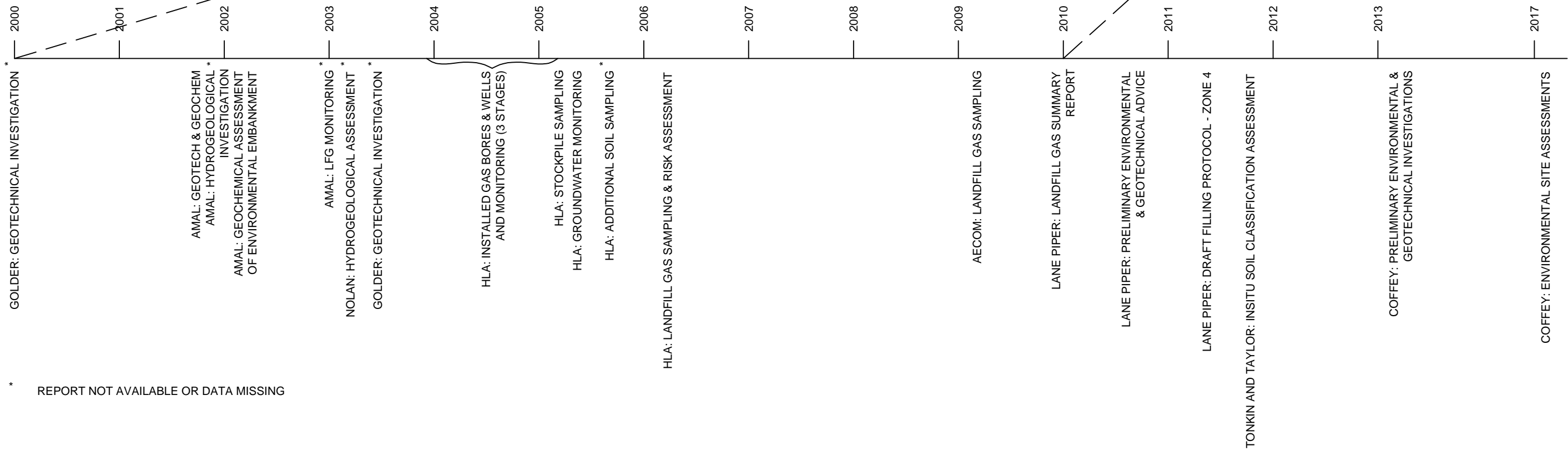
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SITE USE HISTORY



INVESTIGATION TIMELINE



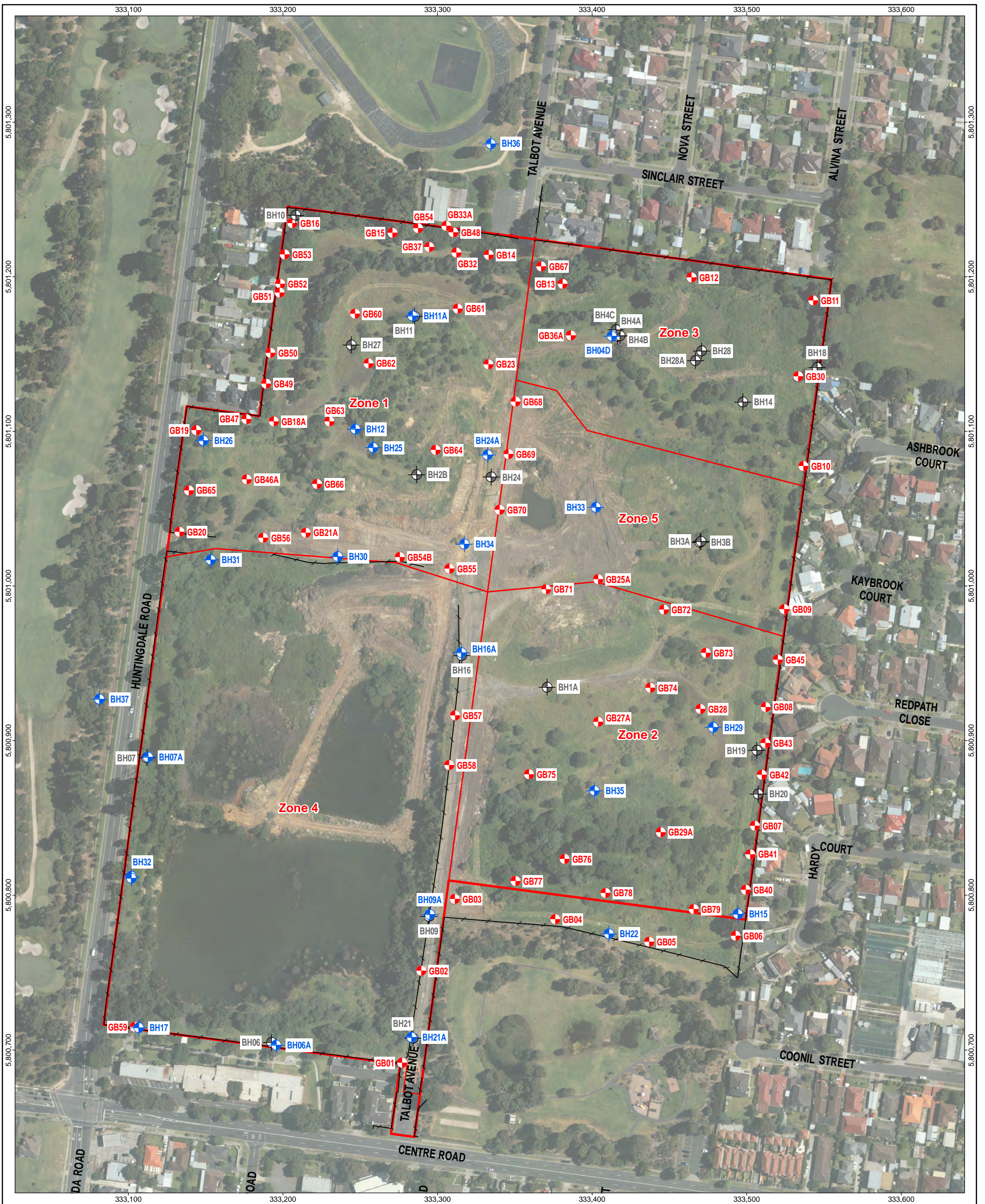
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revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	HU	NW/PS	25/07/2017

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approved	NW/PS
date	25/07/2017
scale	N/A
original size	A3



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	TIMELINE OF SITE HISTORY & SITE INVESTIGATIONS		
project no:	ENAUABTF00751AC-R01	figure no:	FIGURE 3
		rev:	A



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Monitoring well
- Monitoring well - lost/destroyed
- Gas bore
- Fence
- Site boundary

IMAGERY SOURCE: DEPI (DECEMBER 2011)

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SCALE 1:2,250 (A3) METRES

Projection: GDA 1994 MGA Zone 55

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coffey
A TETRA TECH COMPANY

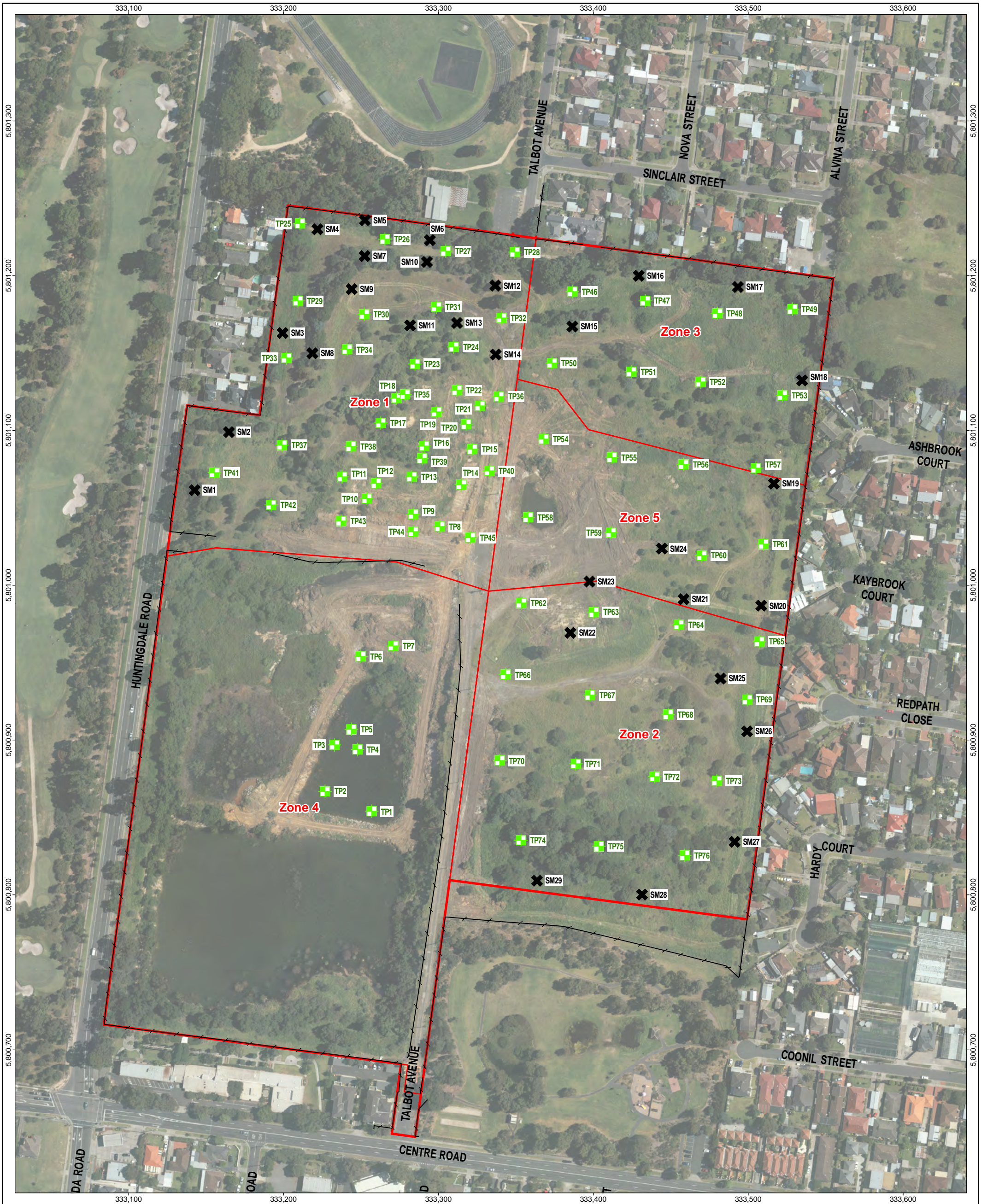
client: NORTON ROSE FULBRIGHT AUSTRALIA

project: EXPERT REPORT OF MR PHIL SINCLAIR
MONASH PLANNING SCHEME AMENDMENT C129

title: GROUNDWATER WELL AND GAS BORE LOCATION PLAN

project no: ENAUABTF00751AC figure no: FIGURE 4A rev: A

M:\D\Templates\Reference: ENAUABTF00751AC_R01_GIS004A_v0_1



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

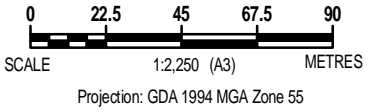
revision	description	drawn	approved	date

LEGEND

- Test pit
- ✕ Soil mound sample
- Fence
- Site boundary

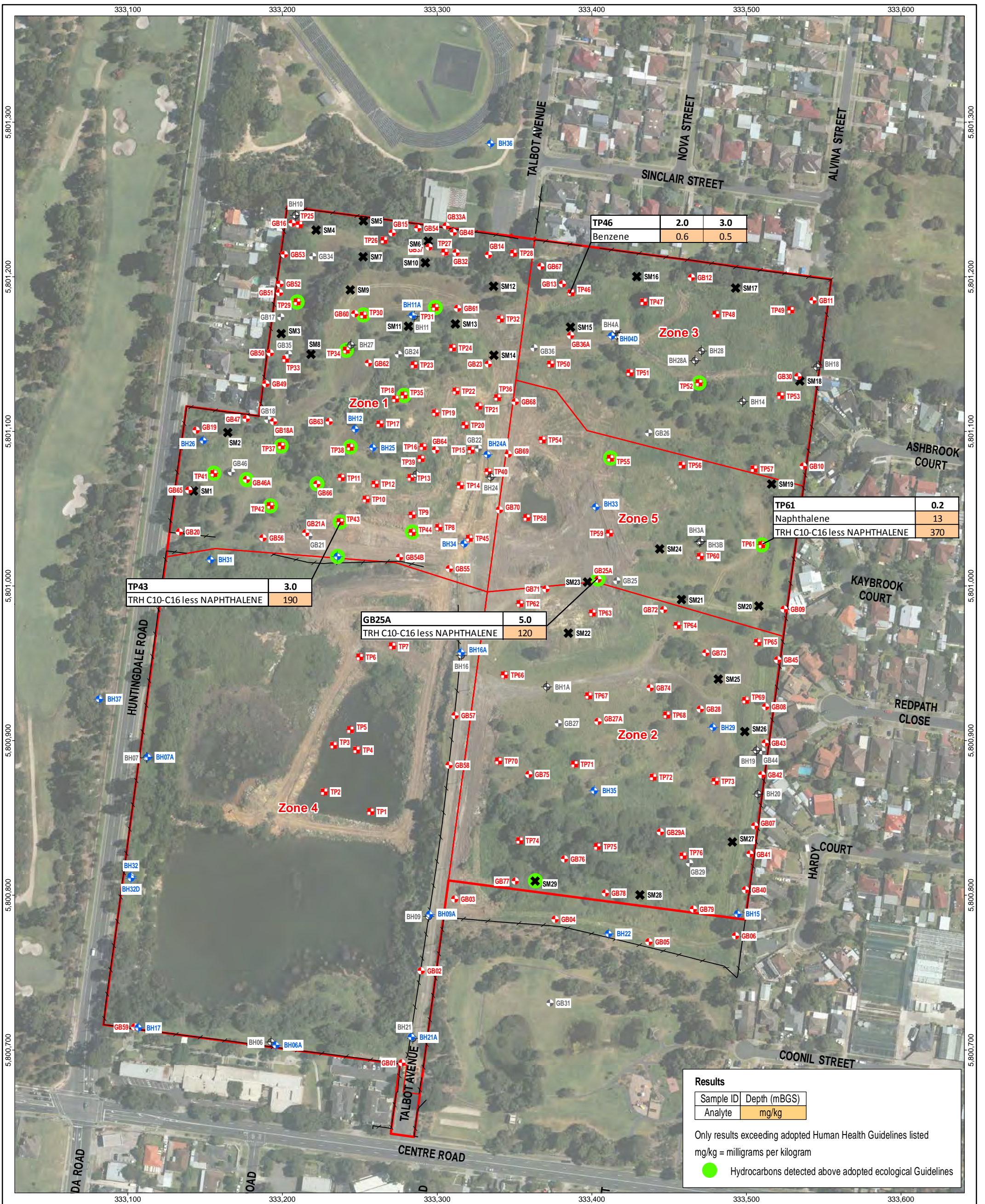


client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	TEST PIT LOCATION PLAN		
project no:	ENAUABTF00751AC	figure no:	FIGURE 4B
rev:	A		



MID Template Reference: ENAUABTF00751AC_R01_GIS0048_v0.1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

LEGEND


- Monitoring well
- Monitoring well - lost/destroyed
- Test pit
- Gas bore
- Gas bore - lost/destroyed
- Soil mound sample
- Fence
- Site boundary

client: NORTON ROSE FULBRIGHT AUSTRALIA

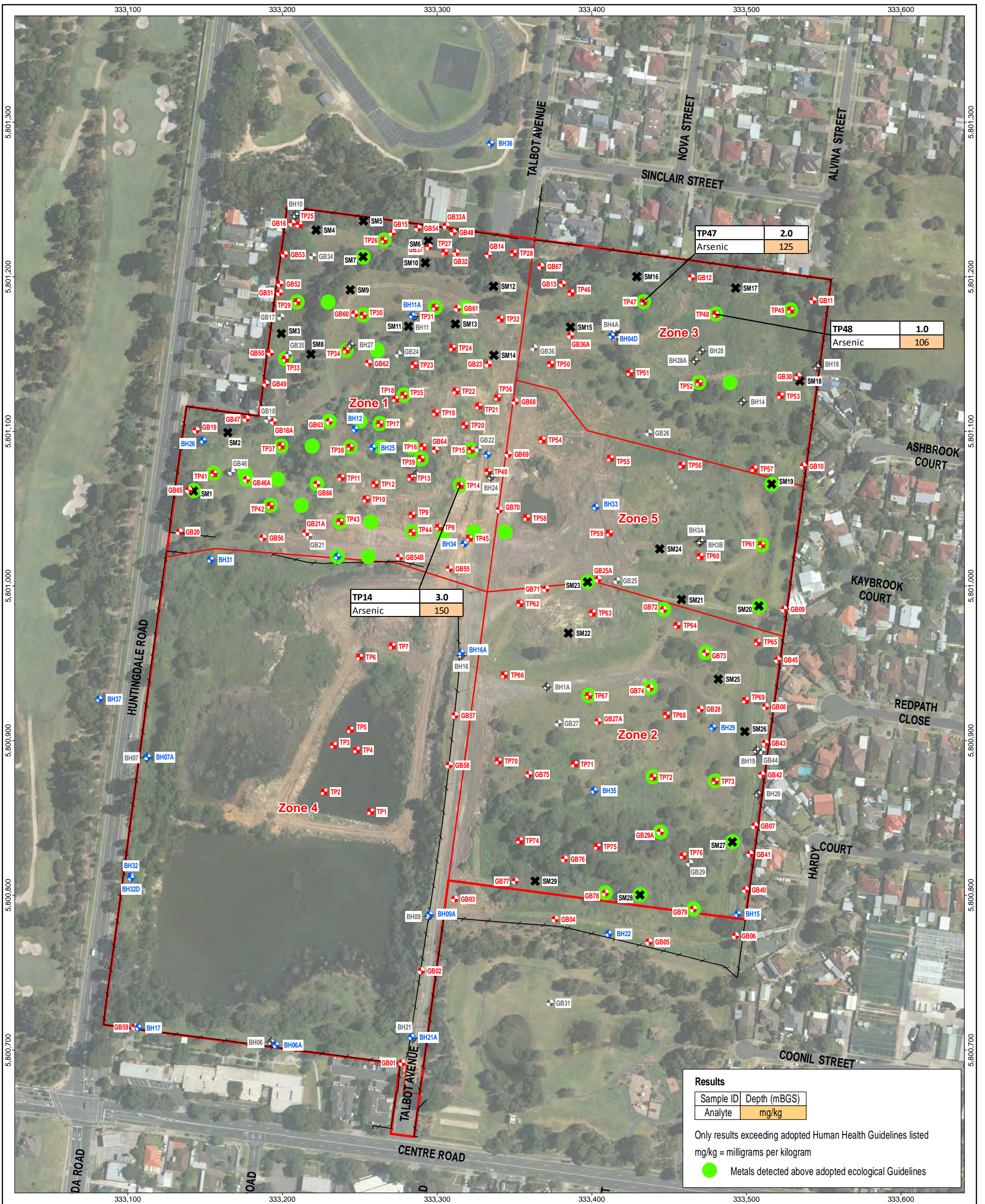
project: EXPERT REPORT OF MR PHIL SINCLAIR
MONASH PLANNING SCHEME AMENDMENT C129

title: SOIL ANALYTICAL RESULTS (HYDROCARBONS)

project no: ENAUABTF00751AC **figure no:** FIGURE 5A **rev:** A



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no.	description	drawn	approved	date
revision				
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17
		drawn	HU	
		approved	NW/PS	
		date	25.07.2017	
		scale	1:2,250	
		original size	A3	

LEGEND

- Monitoring well
- Monitoring well - lost/destroyed
- Test pit
- Gas bore
- Gas bore - lost/destroyed
- Soil mound sample
- Fence
- Site boundary

Results

Sample ID	Depth (mBGS)
Analyte	mg/kg

Only results exceeding adopted Human Health Guidelines listed
mg/kg = milligrams per kilogram

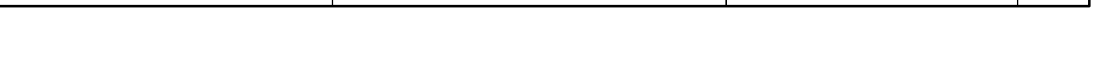
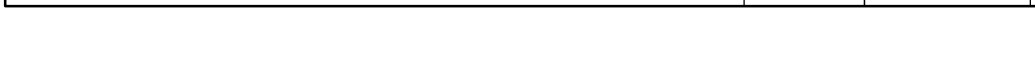
Metals detected above adopted ecological Guidelines

client: NORTON ROSE FULBRIGHT AUSTRALIA

project: EXPERT REPORT OF MR PHIL SINCLAIR
MONASH PLANNING SCHEME AMENDMENT C129

title: SOIL ANALYTICAL RESULTS (METALS)

project no: ENAUABTF00751AC **figure no:** FIGURE 5B **rev:** A




MID Template Reference: ENAUABTF00751AC_R01_GSD068_v0.1

IMAGERY SOURCE: DEPI (DECEMBER 2011)




no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND
 - Fence
 - Site boundary



0 22.5 45 67.5 90
 SCALE 1:2,250 (A3) METRES
 Projection: GDA 1994 MGA Zone 55

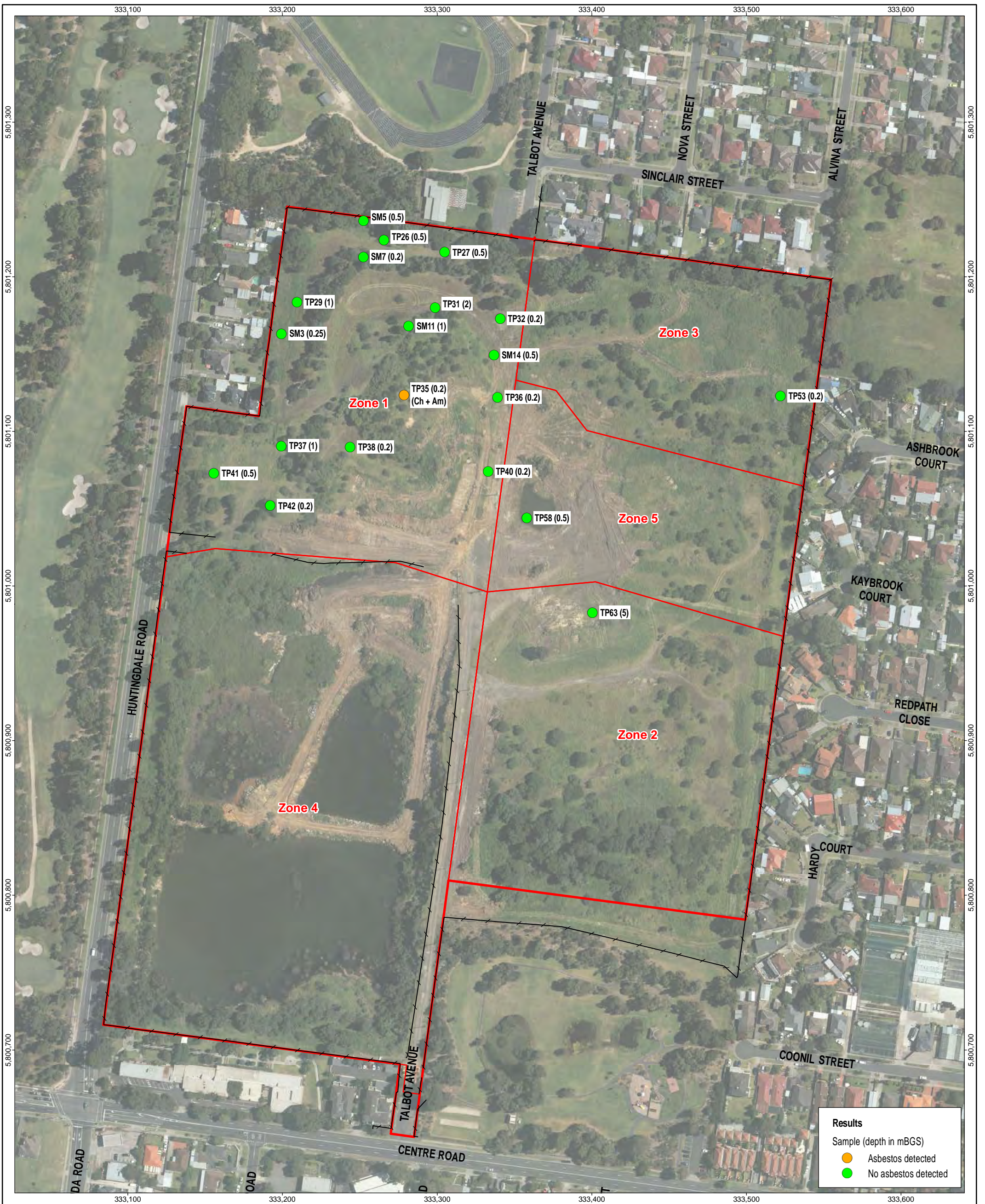
drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3



A TETRA TECH COMPANY

client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	SOIL ANALYTICAL RESULTS (POLYCYCLIC AROMATIC HYDROCARBONS)		
project no:	ENAUABTF00751AC	figure no:	FIGURE 5C
rev:	A		

MID Template Reference: ENAUABTF00751AC_R01_GIS/ABC_v0_1



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

revision	description	drawn	approved	date

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

client:	NORTON ROSE FULBRIGHT AUSTRALIA
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129
title:	SOIL ANALYTICAL RESULTS (ASBESTOS IN SOILS)
project no:	ENAUABTF00751AC
figure no:	FIGURE 5D
rev:	A

SCALE 1:2,250 (A3) METRES

Projection: GDA 1994 MGA Zone 55

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no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND
 Fence
 Site boundary

IMAGERY SOURCE: DEPI (DECEMBER 2011)

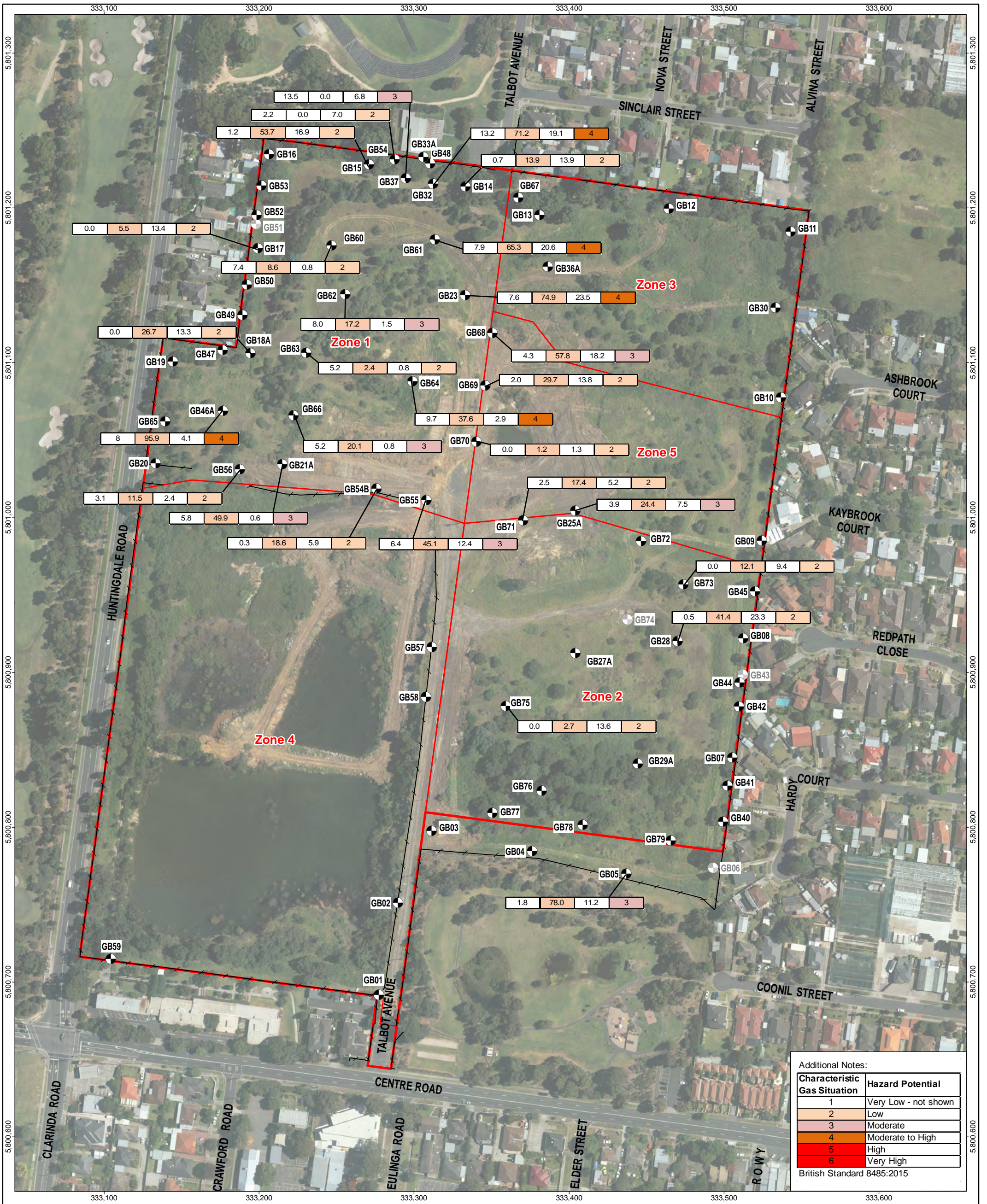
SCALE 1:2,250 (A3)

Projection: GDA 1994 MGA Zone 55



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	SOIL ANALYTICAL RESULTS (pH)		
project no:	ENAUABTF00751AC	figure no:	FIGURE 5E
rev:	A		

MID Template Reference: ENAUABTF00751AC_R01_GSD000E_v0.1



Additional Notes:

Characteristic Gas Situation	Hazard Potential
1	Very Low - not shown
2	Low
3	Moderate
4	Moderate to High
5	High
6	Very High

British Standard 8485:2015

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Gas bore (with symbol)
- Gas bore (not sampled) (with symbol)
- Fence (with symbol)
- Site boundary (with symbol)

IMAGERY SOURCE: DEPI (DECEMBER 2011)

NOTE: Results for locations with a characteristic gas situation value of 1 not shown

revision

no. description drawn approved date

A ORIGINAL ISSUE HU NW/PS 25.07.17

drawn HU

approved NW/PS

date 25.07.2017

scale 1:2,250

original size A3

Projection: GDA 1994 MGA Zone 55

SCALE 0 22.5 45 67.5 90 METRES

client: NORTON ROSE FULBRIGHT AUSTRALIA

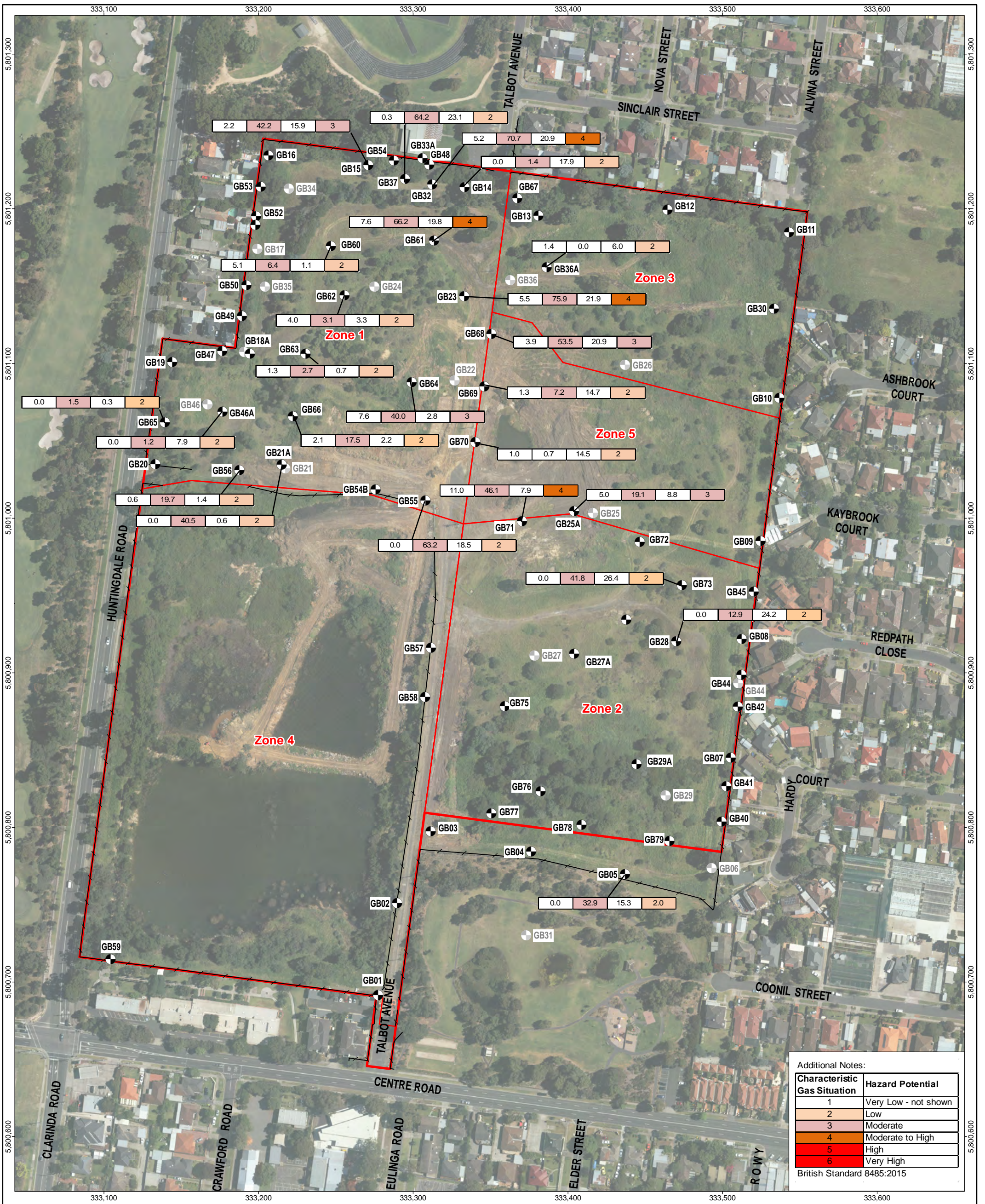
project: EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129

title: GAS BORE MONITORING RESULTS (AUGUST 2016)

project no: ENAUABTF00751AC **figure no:** FIGURE 6A **rev:** A

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MDO Template Reference: ENAUABTF00751AC_R01_GIS006A_v0.2



Additional Notes:

Characteristic Gas Situation	Hazard Potential
1	Very Low - not shown
2	Low
3	Moderate
4	Moderate to High
5	High
6	Very High

British Standard 8485:2015

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Gas bore
- Gas bore (not sampled)
- Fence
- Site boundary

Stable Flow (L/hr)	Peak Methane (% v/v)	Carbon Dioxide (% v/v)	Characteristic Gas Situation
0.0	1.5	0.3	2
0.6	19.7	1.4	2
0.0	40.5	0.6	2
0.0	63.2	18.5	2
0.0	41.8	26.4	2
0.0	12.9	24.2	2
0.0	32.9	15.3	2.0

NOTE: Results for locations with a characteristic gas situation value of 1 not shown

IMAGERY SOURCE: DEPI (DECEMBER 2011)

revision

no. description drawn approved date

A ORIGINAL ISSUE HU NW/PS 25.07.17

drawn HU

approved NW/PS

date 25.07.2017

scale 1:2,250

original size A3

Projection: GDA 1994 MGA Zone 55

SCALE 0 22.5 45 67.5 90 METRES

coffey
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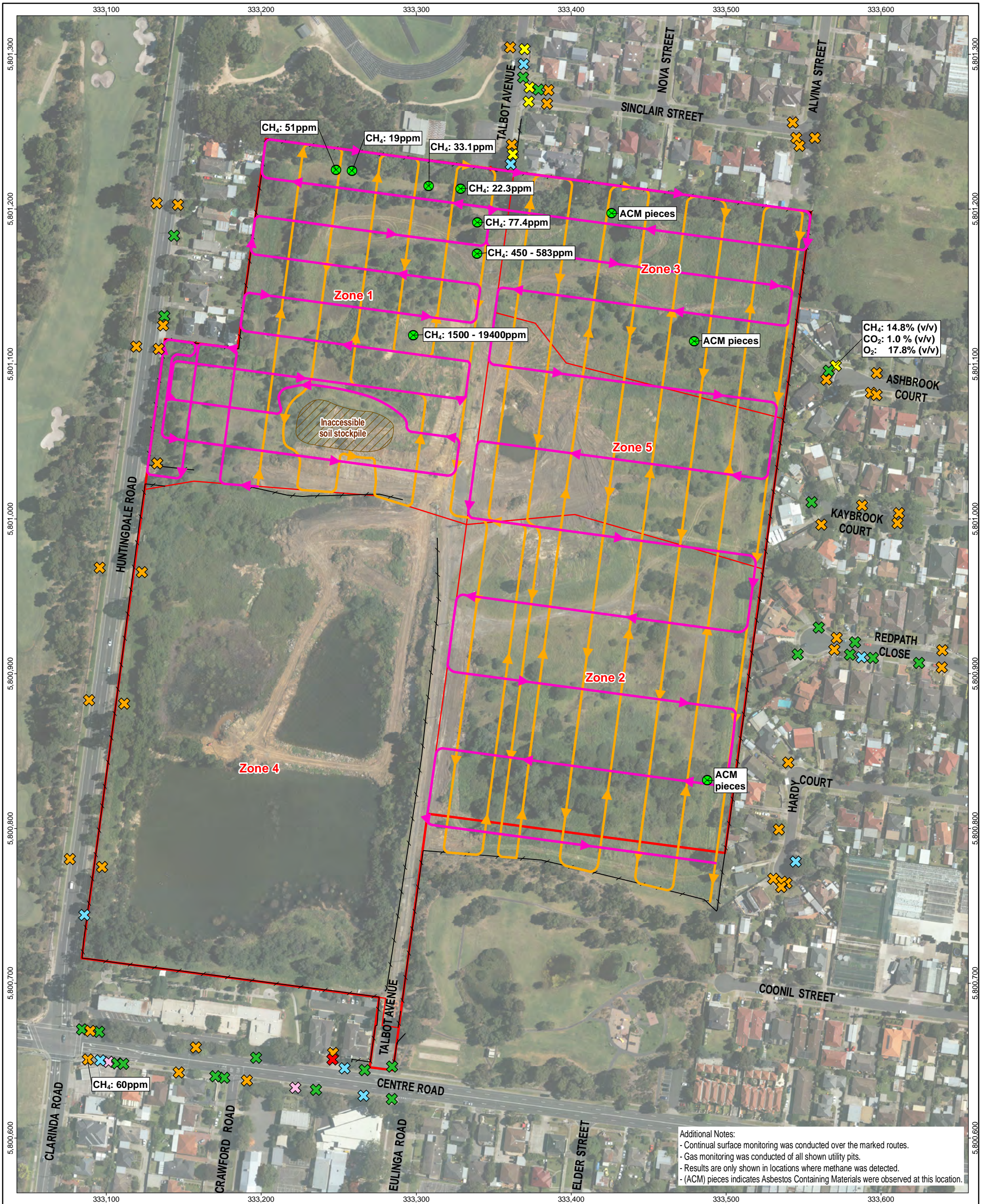
client: NORTON ROSE FULBRIGHT AUSTRALIA

project: EXPERT REPORT OF MR PHIL SINCLAIR
MONASH PLANNING SCHEME AMENDMENT C129

title: GAS BORE MONITORING RESULTS (MARCH 2017)

project no: ENAUABTF00751AC figure no: FIGURE 6B rev: A

M:\D Templates Reference: ENAUABTF00751AC_R01_GIS006B_v0.3



revision	no.	description	drawn	approved	date
A	1	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND		IMAGERY SOURCE: DEPI (DECEMBER 2011)	
	Stormwater pit		Electrical pit
	Telstra pit		Fire hydrant
	Optus pit		Unknown
	Monitoring location		Site boundary
	30 August 2016		1 September 2016
	Fence		Surface monitoring route

SCALE 1:2,250 (A3)

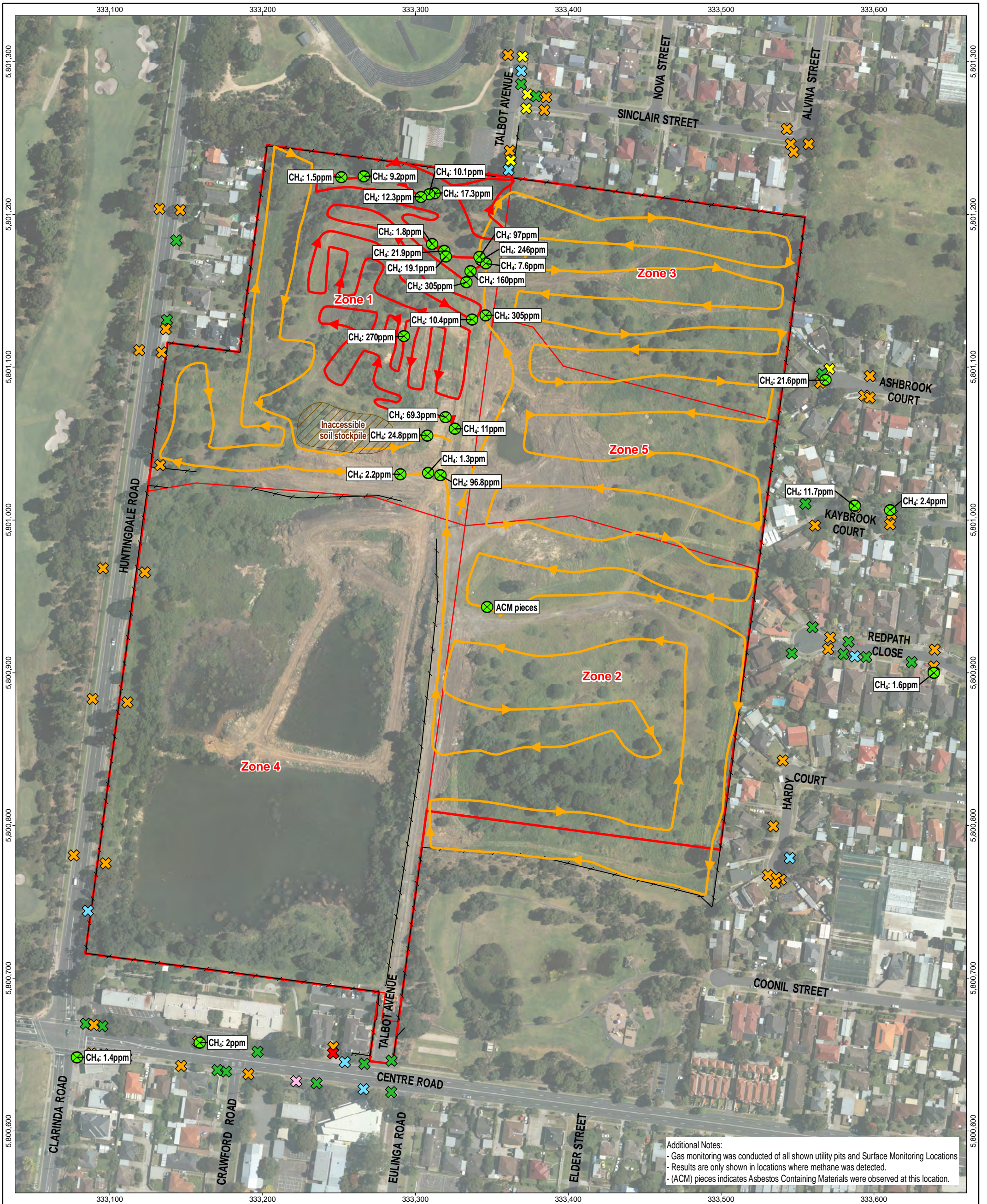
Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

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client:	NORTON ROSE FULBRIGHT AUSTRALIA
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129
title:	SURFACE AND UTILITY PIT MONITORING (AUGUST 2016)
project no:	ENAUABTF00751AC
figure no:	FIGURE 7A
rev:	A

MID Template Reference: ENAUABTF0751AC_R01_GIS007A_v0.2



Additional Notes:
 - Gas monitoring was conducted of all shown utility pits and Surface Monitoring Locations
 - Results are only shown in locations where methane was detected.
 - (ACM) pieces indicates Asbestos Containing Materials were observed at this location.

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND		IMAGERY SOURCE: DEPI (DECEMBER 2011)	
	Stormwater pit		Electrical pit
	Telstra pit		Fire hydrant
	Optus pit		Unknown
	Surface monitoring location		Fence
	20 March 2017		21 March 2017
	Site boundary		

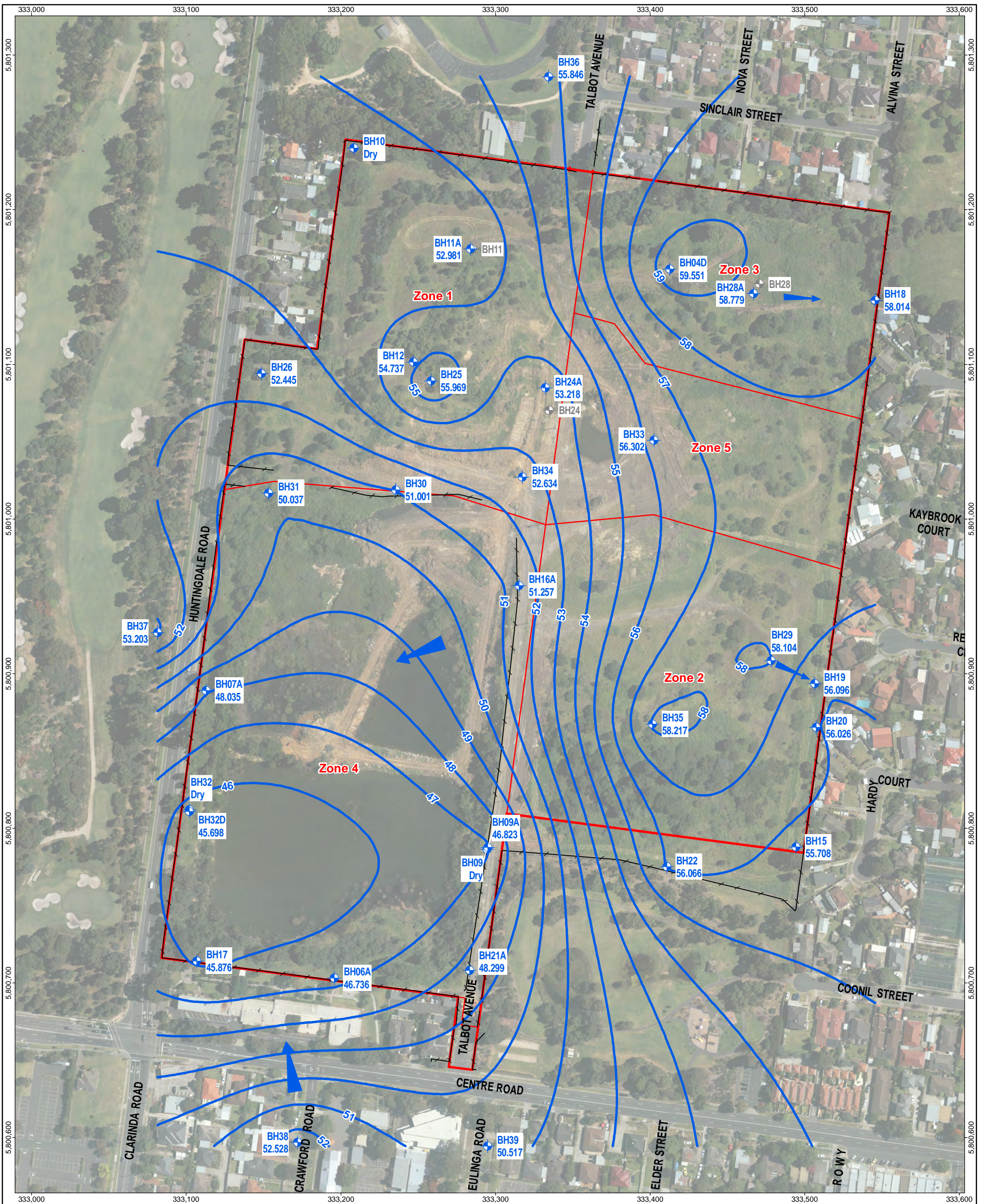
SCALE 1:2,280 (A3) METRES

Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,280
original size	A3

client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	SURFACE AND UTILITY PIT MONITORING (MARCH 2017)		
project no:	ENAUABTF00751AC	figure no:	FIGURE 7B
rev:	A		

MID Template Reference: ENAUABTF0751AC_R01_GIS0708_v0.4



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Groundwater well
- Groundwater well - destroyed
- Inferred groundwater elevation contours (mAHd)
- Inferred groundwater flow direction

IMAGERY SOURCE: DEPI (DECEMBER 2011)

revision

drawn HU

approved NW/PS

date 25.07.2017

scale 1:2,250

original size A3

0 22.5 45 67.5 90
SCALE 1:2,250 (A3) METRES
Projection: GDA 1994 MGA Zone 55

client: NORTON ROSE FULBRIGHT AUSTRALIA

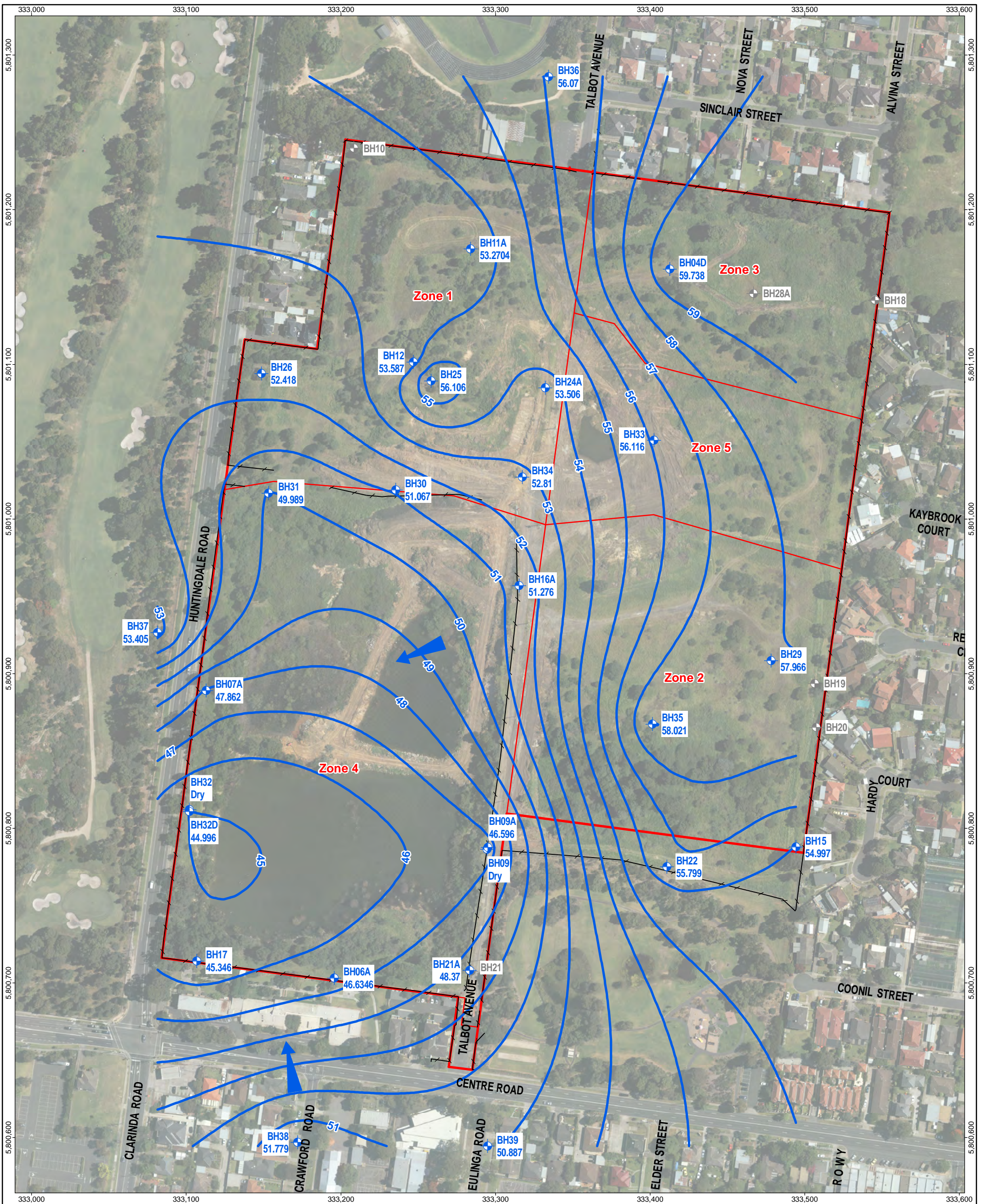
project: EXPERT REPORT OF MR PHIL SINCLAIR
MONASH PLANNING SCHEME AMENDMENT C129

title: GROUNDWATER GRADIENT PLAN (SEPTEMBER 2016)

project no: ENAUABTF00751AC **figure no:** FIGURE 8A **rev:** A

coffey
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MID Template Reference: ENAUABTF00751AC_R01_GIS008A_v0.1




no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17


LEGEND

- Groundwater well
- Groundwater well - destroyed
- Inferred groundwater elevation contours (mAHd)
- Inferred groundwater flow direction

IMAGERY SOURCE: DEPI (DECEMBER 2011)

revision





SCALE 1:2,250 (A3) METRES

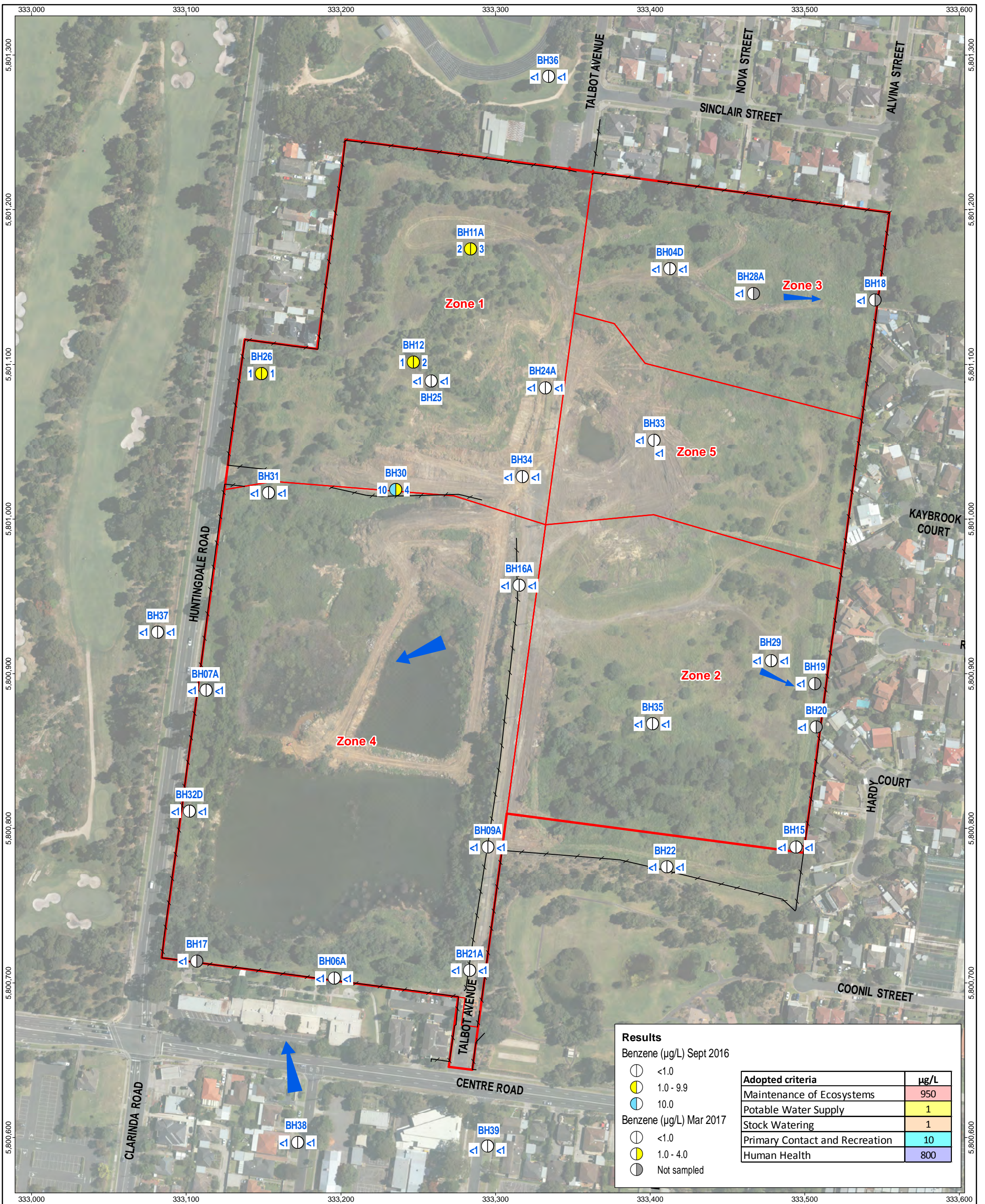
Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

coffey
A TETRA TECH COMPANY




client:	NORTON ROSE FULBRIGHT AUSTRALIA
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129
title:	GROUNDWATER GRADIENT PLAN (MARCH 2017)
project no:	ENAUABTF00751AC
figure no:	FIGURE 8B
rev:	A

MID Template Reference: ENAUABTF0751AC_R01_GIS08B_v0.1






Results

Benzene (µg/L) Sept 2016

-  <1.0
-  1.0 - 9.9
-  10.0




Benzene (µg/L) Mar 2017


-  <1.0
-  1.0 - 4.0
-  Not sampled

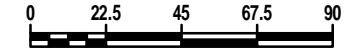
Adopted criteria	µg/L
Maintenance of Ecosystems	950
Potable Water Supply	1
Stock Watering	1
Primary Contact and Recreation	10
Human Health	800

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

-  Fence
-  Site boundary
-  Inferred groundwater flow direction





SCALE 1:2,250 (A3) METRES

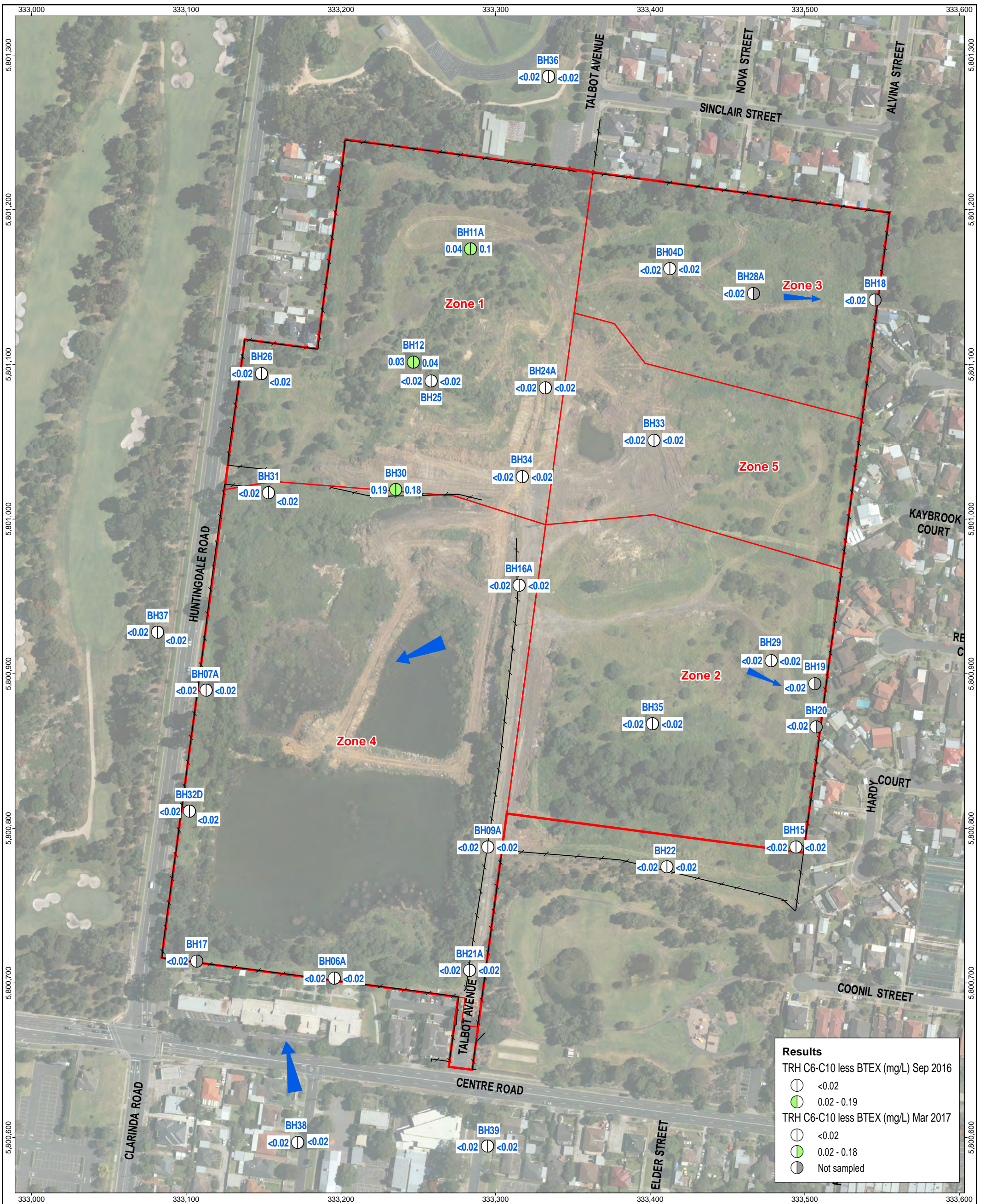
Projection: GDA 1994 MGA Zone 55



client: NORTON ROSE FULBRIGHT AUSTRALIA	
project: EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129	
title: GROUNDWATER ANALYTICAL RESULTS - BENZENE	
project no: ENAUABTF00751AC	figure no: FIGURE 9A
rev: A	

MID Template Reference: ENAUABTF0751AC_R01_GIS090A_v0.1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



Results	
TRH C6-C10 less BTEX (mg/L) Sep 2016	
○	<math><0.02</math>
●	0.02 - 0.19
TRH C6-C10 less BTEX (mg/L) Mar 2017	
○	<math><0.02</math>
●	0.02 - 0.18
○	Not sampled

revision	no.	description	drawn	approved	date
A	1	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND	
	Fence
	Site boundary
	Inferred groundwater flow direction

SCALE 1:2,250 (A3)

Projection: GDA 1994 MGA Zone 55

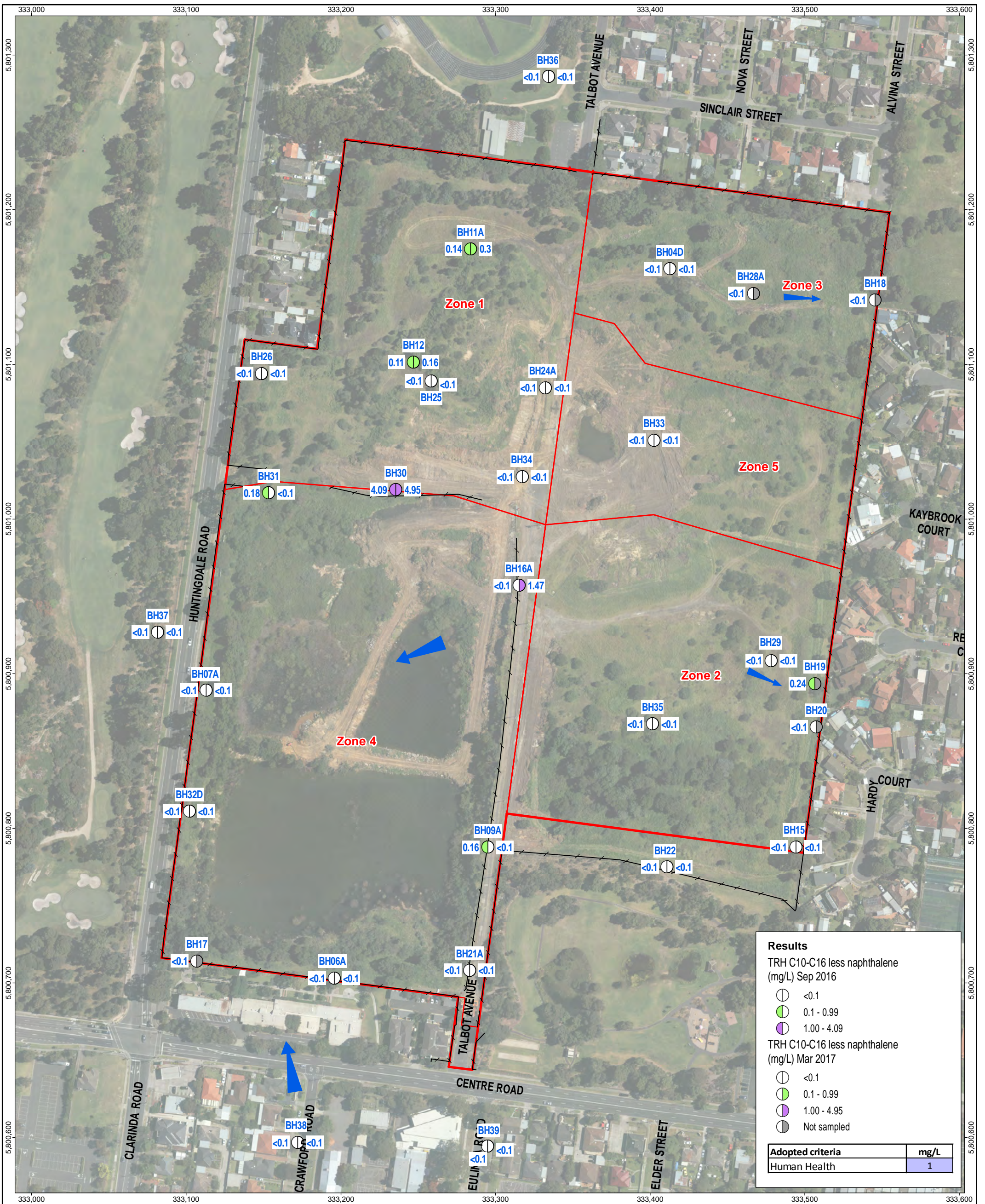
drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

A TETRA TECH COMPANY

client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	GROUNDWATER ANALYTICAL RESULTS - TRH C6-C10		
project no:	ENAUABTF00751AC	figure no:	FIGURE 9B
rev:	A		

M:\00 Templates Reference: ENAUABTF00751AC_R01_GIS0908_v0.1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



Results	
TRH C10-C16 less naphthalene (mg/L) Sep 2016	
○	<0.1
●	0.1 - 0.99
●	1.00 - 4.09
TRH C10-C16 less naphthalene (mg/L) Mar 2017	
○	<0.1
●	0.1 - 0.99
●	1.00 - 4.95
○	Not sampled
Adopted criteria	mg/L
Human Health	1

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND	
—	Fence
—	Site boundary
➔	Inferred groundwater flow direction

SCALE 1:2,250 (A3)

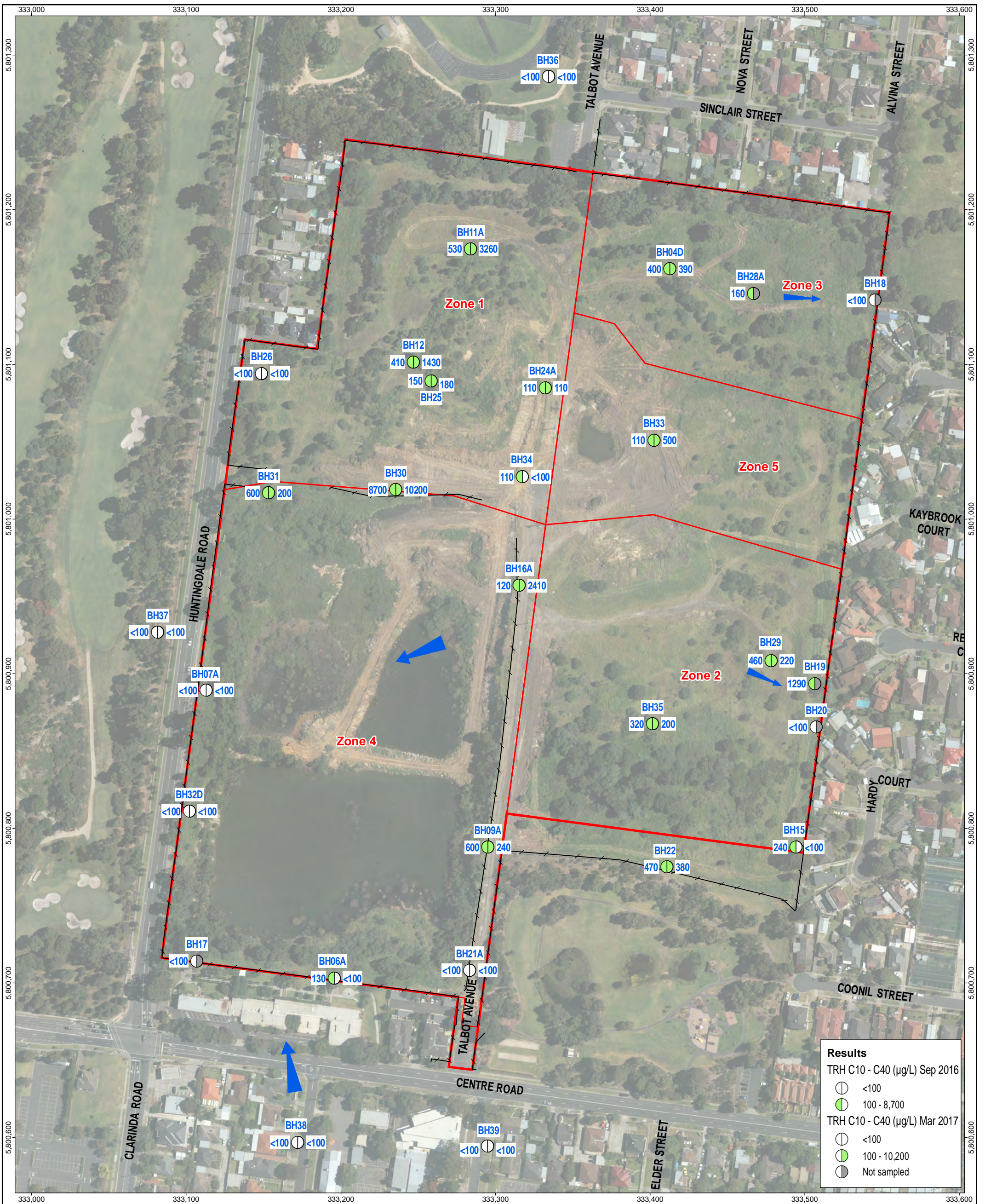
Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

client: NORTON ROSE FULBRIGHT AUSTRALIA	
project: EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129	
title: GROUNDWATER ANALYTICAL RESULTS TRH C10-C16 LESS NAPHTHALENE	
project no: ENAUABTF00751AC	figure no: FIGURE 9C
rev: A	

M:\D\Temp\ENAUABTF00751AC_R01_GIS\909C_v0_1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

drawn	approved	date	scale	original size
HU	NW/PS	25.07.2017	1:2,250	A3

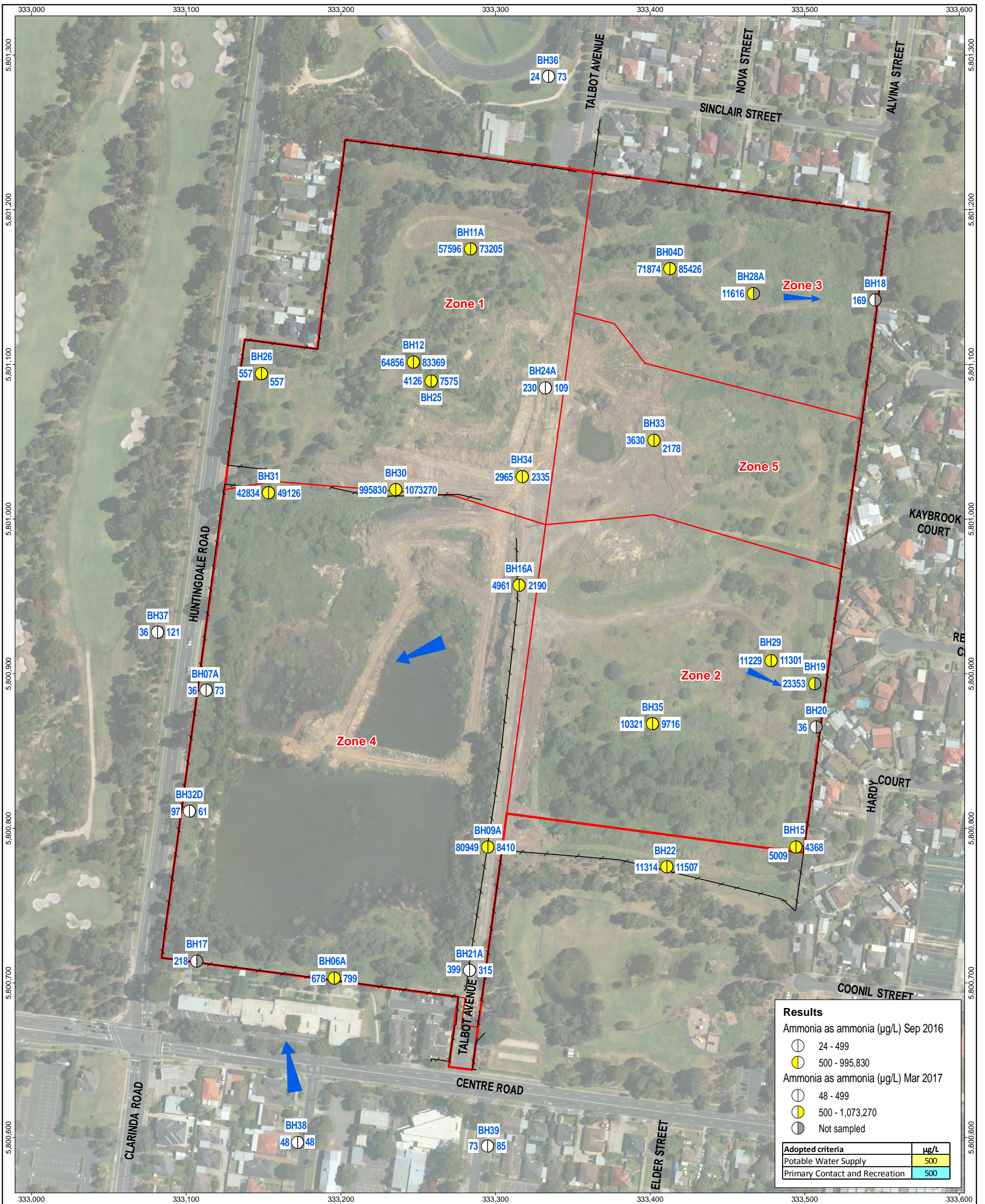


client: NORTON ROSE FULBRIGHT AUSTRALIA	
project: EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129	
title: GROUNDWATER ANALYTICAL RESULTS - TRH C10-C40	
project no: ENAUABTF00751AC	figure no: FIGURE 9D
rev: A	

SCALE 0 22.5 45 67.5 90 METRES
 Projection: GDA 1994 MGA Zone 55

M:\D\Temp\Reference: ENAUABTF00751AC_R01_GIS\9090_0_1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



Results	
Ammonia as ammonia (µg/L) Sep 2016	
○	24 - 499
●	500 - 995,830
Ammonia as ammonia (µg/L) Mar 2017	
○	48 - 499
●	500 - 1,073,270
○	Not sampled
Adopted criteria	
Potable Water Supply	500
Primary Contact and Recreation	500

revision	no.	description	drawn	approved	date
A	1	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND	
	Fence
	Site boundary
	Inferred groundwater flow direction

SCALE 1:2,250 (A3) METRES

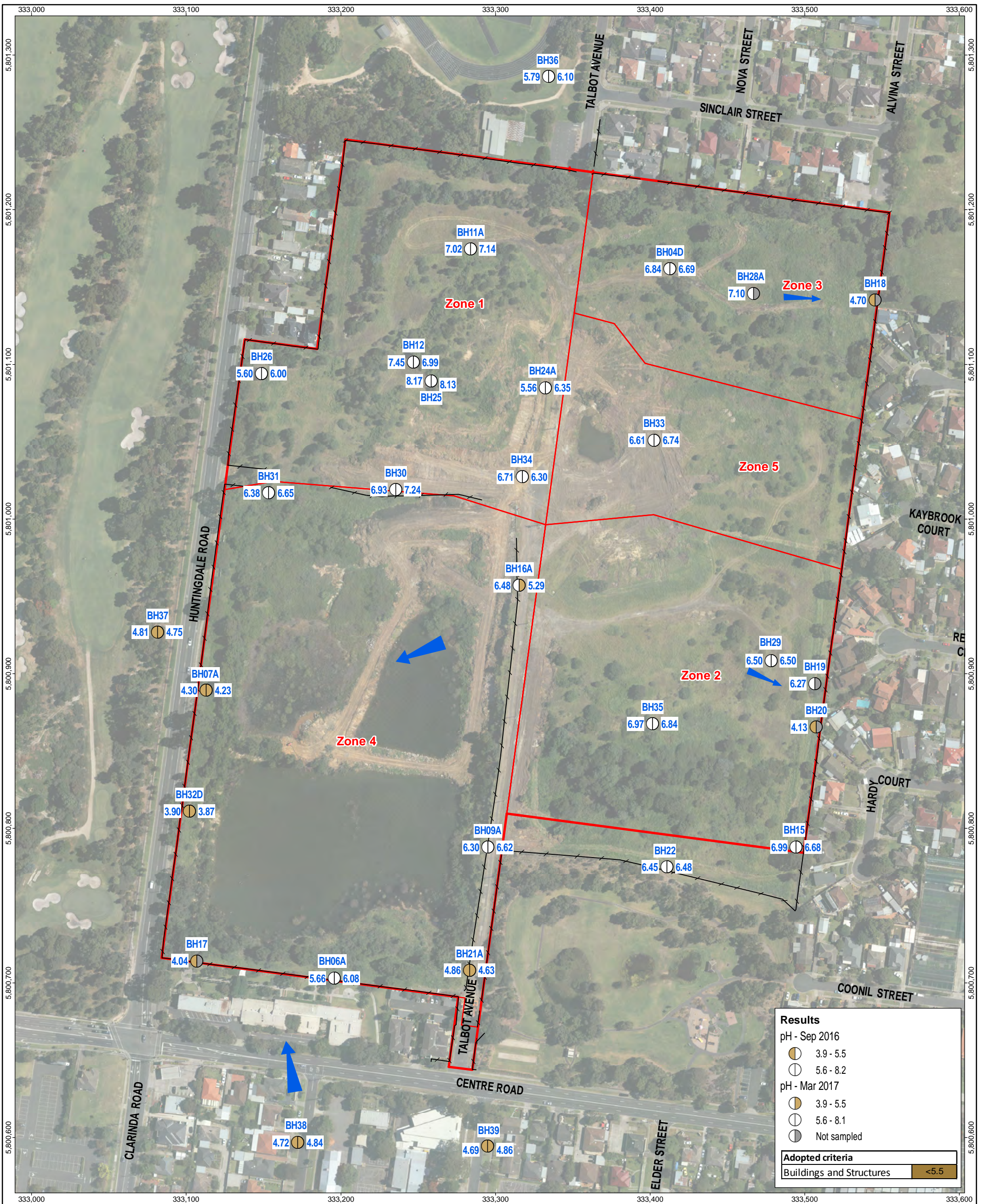
Projection: GDA 1994 MGA Zone 55

drawn	HU
approved	NW/PS
date	25.07.2017
scale	1:2,250
original size	A3

client:		NORTON ROSE FULBRIGHT AUSTRALIA	
project:		EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129	
title:		GROUNDWATER ANALYTICAL RESULTS - AMMONIA	
project no:	ENAUABTF00751AC	figure no:	FIGURE 9E
rev:	A		

MID Template Reference: ENAUABTF0751AC_R01_GIS000E_v0.1

IMAGERY SOURCE: DEPI (DECEMBER 2011)



no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25.07.17

LEGEND

- Fence
- Site boundary
- ➔ Inferred groundwater flow direction

revision

no. description drawn approved date

A ORIGINAL ISSUE HU NW/PS 25.07.17

drawn HU

approved NW/PS

date 25.07.2017

scale 1:2,250

original size A3

IMAGERY SOURCE: DEPI (DECEMBER 2011)

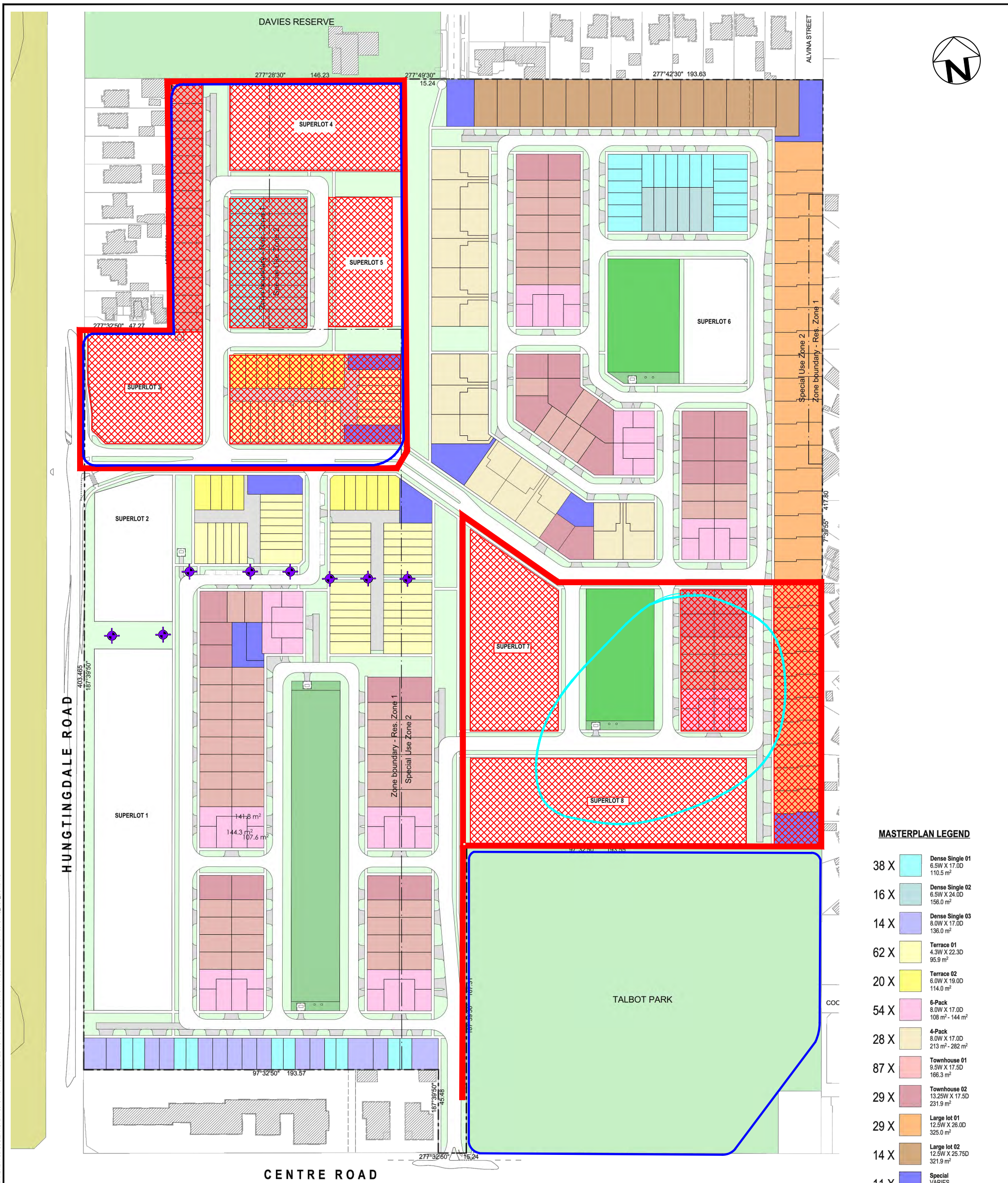
client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	GROUNDWATER ANALYTICAL RESULTS - pH		
project no:	ENAUABTF00751AC	figure no:	FIGURE 9F
rev:	A		

0 22.5 45 67.5 90 METRES

SCALE 1:2,250 (A3)

Projection: GDA 1994 MGA Zone 55

M:\0_Temp\ref: ENAUABTF0751AC_R01_GIS\09F_00_1



MASTERPLAN LEGEND

- 38 X Dense Single 01
6.5W X 17.0D
110.5 m²
- 16 X Dense Single 02
6.5W X 24.0D
156.0 m²
- 14 X Dense Single 03
8.0W X 17.0D
136.0 m²
- 62 X Terrace 01
4.3W X 22.3D
95.9 m²
- 20 X Terrace 02
6.0W X 19.0D
114.0 m²
- 54 X 6-Pack
8.0W X 17.0D
108 m² - 144 m²
- 28 X 4-Pack
8.0W X 17.0D
213 m² - 282 m²
- 87 X Townhouse 01
9.5W X 17.5D
166.3 m²
- 29 X Townhouse 02
13.25W X 17.5D
231.9 m²
- 29 X Large lot 01
12.5W X 26.0D
325.0 m²
- 14 X Large lot 02
12.5W X 25.75D
321.9 m²
- 11 X Special VARIES
136.0 m²

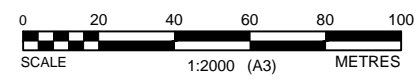
PLOT DATE: 25/07/2017 3:10:08 PM DWG FILE: \ABTF\0751AC - HUNTINGDALE NORTON ROSE FULBRIGHT\FIGURES\ENAUABTF00751AC_R01_001.DWG

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25/07/2017

LEGEND

- LEACHATE TREATMENT WELLS (IF REQUIRED)
- APPROXIMATE EXTENT OF LANDFILL WASTE (EXTENT TO BE FULLY DEFINED)
- APPROXIMATE EXTENT OF POTENTIALLY LANDFILLED AREA (EXTENT TO BE FULLY DEFINED)
- VERTICAL GAS VENTING SYSTEM
- HIGH GAS PROTECTION MEASURES FOR BUILDINGS
- OPEN SPACES/STORMWATER BASINS

SOURCE: MASTERPLAN (SITE PLAN) FROM SITE SERIES, DKO, 10831, TP.00.10.04 25/11/2014



drawn	HU
approved	NW/PS
date	25/07/2017
scale	AS SHOWN
original size	A3

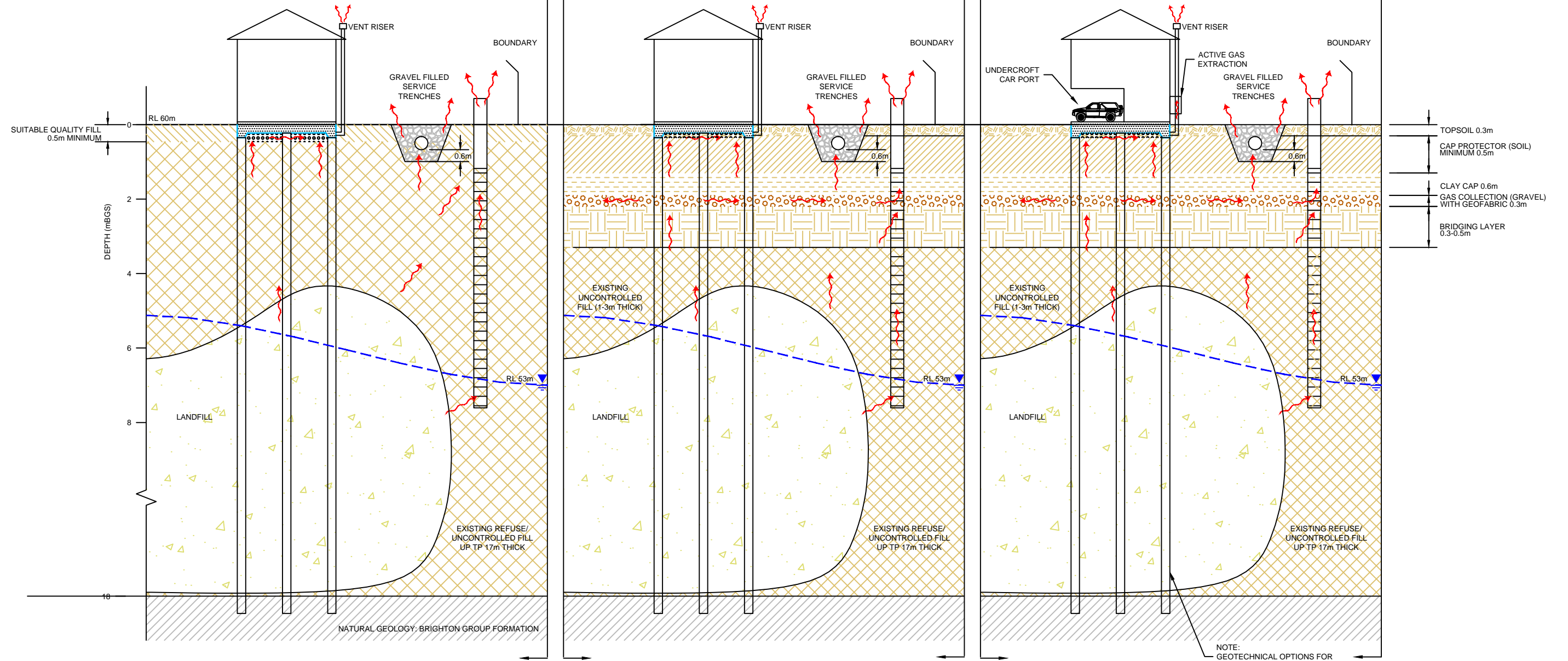


client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	REMEDIAL OPTIONS FOR MASTERPLAN		
project no:	ENAUABTF00751AC-R01	figure no:	FIGURE 10A
rev:	A		

CONCEPT DESIGN FOR
'LOW' GAS HAZARD POTENTIAL

CONCEPT DESIGN FOR
'MODERATE' GAS HAZARD POTENTIAL

CONCEPT DESIGN FOR
'MODERATE TO HIGH' GAS HAZARD POTENTIAL



- TOPSOIL 0.3m
- CAP PROTECTOR (SOIL) MINIMUM 0.5m
- CLAY CAP 0.6m
- GAS COLLECTION (GRAVEL) WITH GEOFABRIC 0.3m
- BRIDGING LAYER 0.3-0.5m

NOTE: GEOTECHNICAL OPTIONS FOR ZONE 1 BUILDINGS INCLUDE PILES

LEGEND

- LANDFILL GAS MIGRATION
- GROUNDWATER LEVEL (PREDICTED)
- TOPSOIL
- CAP PROTECTOR (SOIL)
- CLAY CAP
- GAS COLLECTION (GRAVEL) WITH GEOFABRIC
- STRUCTURAL FILL
- EXISTING UNCONTROLLED FILL
- LANDFILLED WASTE
- PROPRIETARY GAS MEMBRANE WITH VENTING LAYER
- VENTING LAYER

NOTES:
1. CONCEPT DESIGN FOR MODERATE GAS HAZARD POTENTIAL MAY ALSO BE ADOPTED AS PART OF BOUNDARY PROTECTION MEASURES WHERE GAS HAZARD POTENTIAL IS LOW

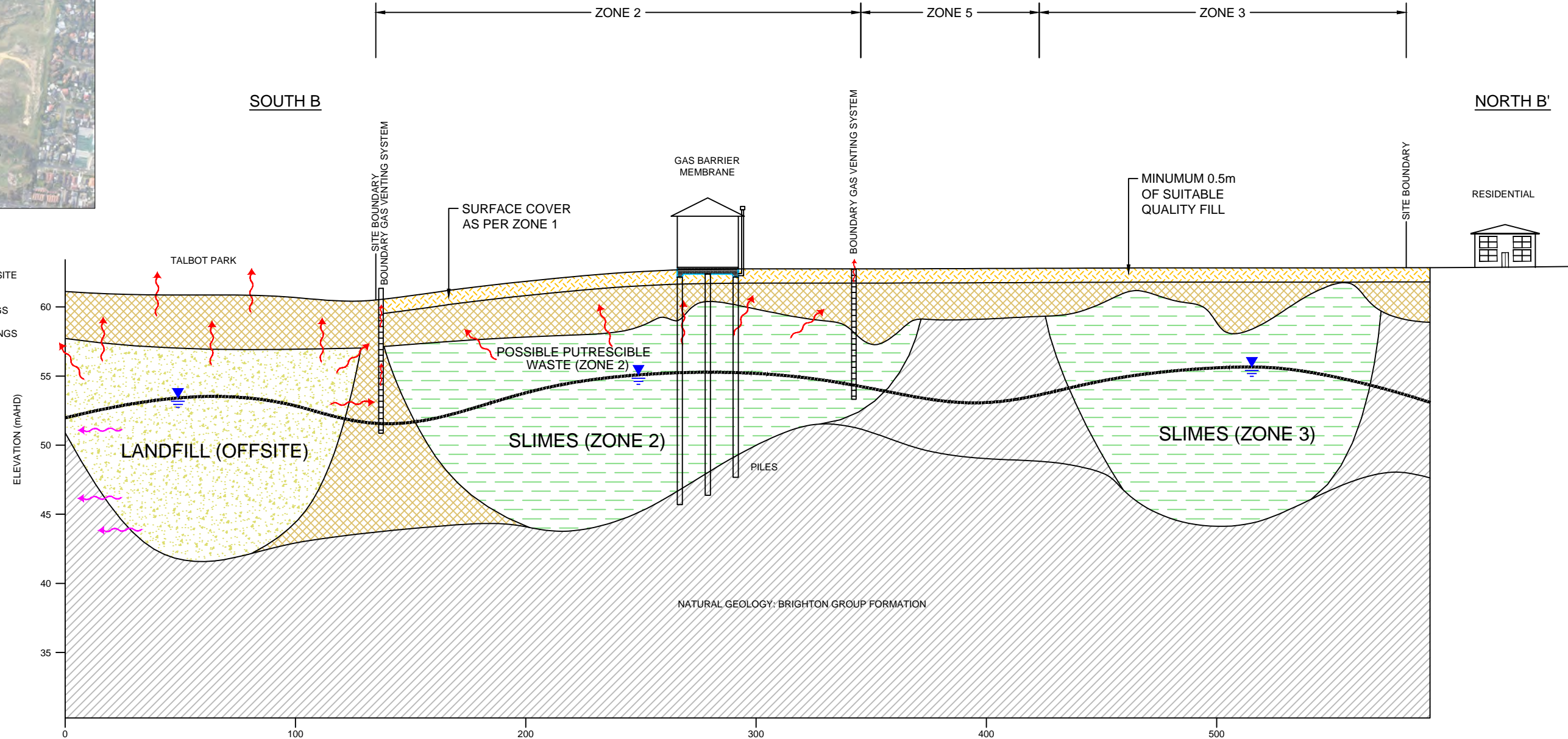
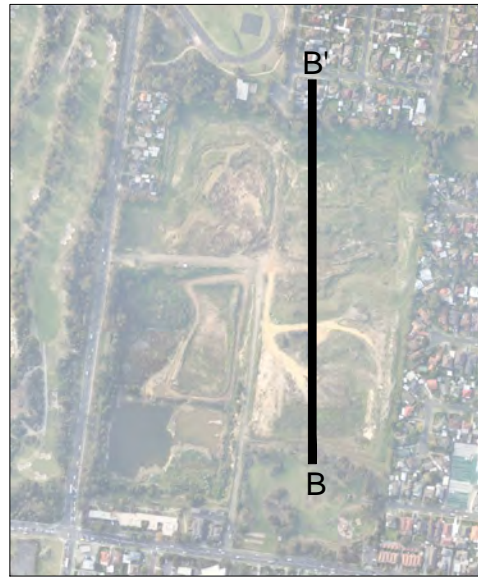
no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25/07/2017

drawn	HU
approved	NW/PS
date	25/07/2017
scale	N/A
original size	A3



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	ZONE 1 CONCEPTUAL DESIGN GAS MITIGATION		
project no:	ENAUABTF00751AC-R01	figure no:	FIGURE 10B
rev:	A		

PLOT DATE: 25/07/2017 3:10:08 PM DWG FILE: \\BTF001\CORP\COFFEY\A\DATA\ENV\OPS\JOB FILES\ENAUABTF00751AC - HUNTINGDALE NORTON ROSE FULBRIGHT\FIGURE 10B\ENAUABTF00751AC_R01.DWG



- LANDFILL GAS TREATMENT OPTIONS:**
1. REMOVE LANDFILL WASTE FROM SITE
 2. AREA-WIDE GAS BARRIER AND BOUNDARY VENTING
 3. VOID VENTING BENEATH BUILDINGS WITH BOUNDARY VENTING
 4. GAS MEMBRANE BENEATH BUILDINGS WITH BOUNDARY VENTING

LEGEND

- EXISTING UNCONTROLLED FILL
- LANDFILLED WASTE
- SLIMES
- GROUNDWATER LEVELS
- POTENTIAL LANDFILL GAS MOVEMENT
- POTENTIAL LEACHATE MOVEMENT
- PROPRIETARY GAS MEMBRANE WITH VENTING LAYER

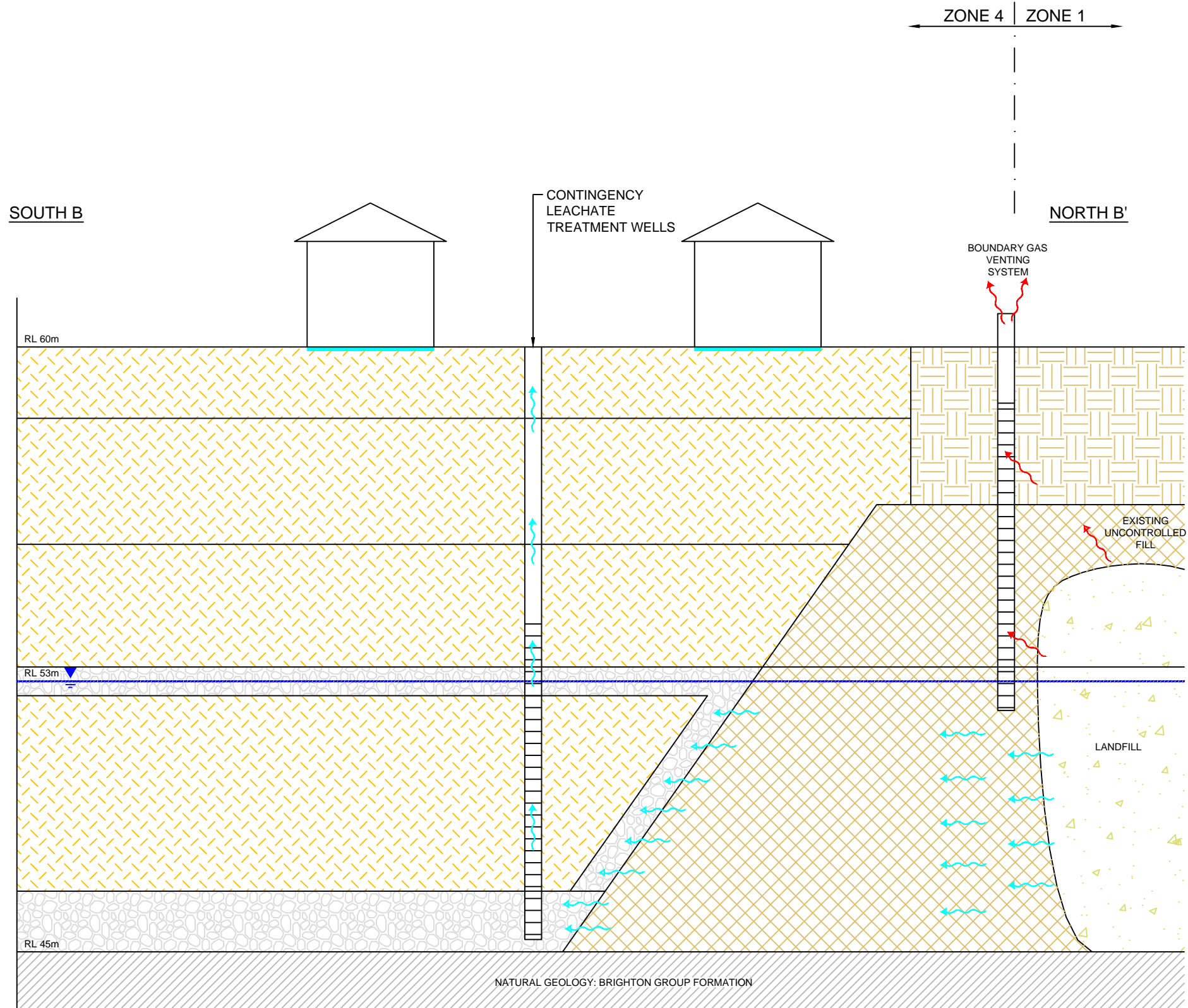
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no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25/07/2017

drawn	HU
approved	NW/PS
date	25/07/2017
scale	AS SHOWN
original size	A3



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	ZONES 2, 3 & 5 CONCEPTUAL DESIGN GAS MITIGATION		
project no:	ENAUABTF00751AC-R01	figure no:	FIGURE 10C
rev:	A		



DRAINAGE LAYER (REFER TO
 ZONE 4 BACKFILL DESIGN REPORT)

LEGEND

- LANDFILL LEACHATE
- LANDFILL GAS
- STABILIZED GROUNDWATER LEVEL
- AS PER ZONE 1 DESIGN (FIGURE 12)
- EXISTING UNCONTROLLED FILL
- LANDFILLED WASTE
- ENGINEERED BACKFILL
- DRAINAGE LAYER
- GAS MEMBRANE - DEPENDANT ON RESIDUAL GAS RISK

PLOT DATE: 25/07/2017 3:10:11 PM DWG FILE: \\ABTF00751AC\OPS\JOB FILES\ENAUABTF00751AC\DATA\ENAUABTF00751AC - HUNTINGDALE NORTON ROSE FULBRIGHT\FIGURE\ENAUABTF00751AC_R01.DWG

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	HU	NW/PS	25/07/2017

drawn	HU
approved	NW/PS
date	25/07/2017
scale	AS SHOWN
original size	A3



client:	NORTON ROSE FULBRIGHT AUSTRALIA		
project:	EXPERT REPORT OF MR PHIL SINCLAIR MONASH PLANNING SCHEME AMENDMENT C129		
title:	ZONE 4 CONCEPTUAL DESIGN GAS MITIGATION		
project no:	ENAUABTF00751AC-R01	figure no:	FIGURE 10D
rev:	A		

Appendix B – Tables

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	BH4D-1.0	BH4D-2.0	BH30-0.5	BH30-2.0	BH31-0.5	BH31-1.0	BH32-0.5	BH32-1.0	BH33-2.0	BH33-4.0	BH34_0.5	
			Depth (m)	1	2	0.5	2	0.5	1	0.5	1	2	4	0.5	
			Sampled Date	15/08/2016	15/08/2016	7/04/2014	7/04/2014	8/04/2014	8/04/2014	9/04/2014	9/04/2014	15/08/2016	15/08/2016	20/06/2016	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 3	Zone 3	Zone 1	Zone 1	Zone 4	Zone 4	Zone 4	Zone 4	Zone 5	Zone 5	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			11	3.9	8.2	10	8.2	6.8	3.8	10	9.5	21	20
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2							<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<20	<20	<20	<20	<20	<20	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<20	44	<20	<20	<20	<20	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	110	250	<50	76	<50	<50	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	60	150	<50	<50	<50	<50	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	170	440	<50	76	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<20	<20	<20	<20	<20	<20	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	63	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	150	370	<100	100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50							<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<20	<20	<20	<20	<20	<20	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	63	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	5	<5	10	11	10	10	3.7	39	<5	<5	<5
Barium	mg/kg	10			-	-							-	-	-
Beryllium	mg/kg	1		60	-	-							-	-	-
Boron	mg/kg	10		4500	-	-							-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-							-	-	-
Chromium	mg/kg	2	190 ²		16	2	25	51	20	44	<5	19	11	4	8
Chromium (Trivalent)	mg/kg	5	190 ²		-	-							-	-	-
Cobalt	mg/kg	2		100	-	-							-	-	-
Copper	mg/kg	5	60 ²	6000	18	<5	81	140	7.8	38	<5	<5	14	<5	5
Lead	mg/kg	5	1100 ²	300	14	<5	12	14	9.9	8.1	15	13	47	<5	9
Manganese	mg/kg	5		3800	-	-							-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	7	<2	13	28	7.9	13	<5	<5	7	<2	8
Phosphorus	mg/kg	5			-	-							-	-	-
Selenium	mg/kg	5		200	-	-							-	-	-
Vanadium	mg/kg	5			-	-							-	-	-
Zinc	mg/kg	5	70 ²	7400	22	<5	35	55	25	35	43	10	48	7	18

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	BH34_2.0	BH35_0.5	BH35_2.0	GB25A_5.0	GB25A_6.0	GB27A_0.5	GB27A_2.0	GB29A_1.0	GB29A_2.0	GB36A-1.5	GB36A-2.5					
Depth (m)	2	0.5	2	5	6	0.5	2	1	2	1.5	2.5					
Sampled Date	20/06/2016	22/06/2016	22/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	16/08/2016	16/08/2016					
Soil Type	Natural	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 1	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 3	Zone 3					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			18.9	15.3	15.6	13.5	11.8	16.1	15.5	30.7	25.4	5.1	17.9	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	120	<100	500	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	120	<50	500	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	120	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	200	<100	420	<100	<100	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	200	<50	540	<50	<50	<50	<50	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	120	<50	<50	<50	<50	<50	<50	<50	<50
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	<5	5	10	<5	13	<5	75	28	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		6	19	26	20	10	34	15	98	35	2	24	24
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	5	10	10	15	16	27	8	9	8	<5	14	14
Lead	mg/kg	5	1100 ²	300	18	33	31	112	68	75	16	11	17	<5	13	13
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	16	8	12	15	8	28	10	30	23	<2	7	7
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	17	47	55	82	92	73	21	64	52	6	167	167

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
NL: Not Limiting
*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	GB46A_1.0	GB46A_3.0	GB60_2.0	GB60_4.0	GB61_1.0	GB61_4.0	GB62_0.5	GB62_3.0	GB63_3.0	GB63_5.0	GB64_3.5				
Depth (m)	1	3	2	4	1	4	0.5	3	3	5	3.5				
Sampled Date	21/06/2016	21/06/2016	22/06/2016	22/06/2016	23/06/2016	23/06/2016	22/06/2016	22/06/2016	22/06/2016	22/06/2016	23/06/2016				
Soil Type	Foundry waste	Foundry waste	Fill	Foundry waste	Fill	Fill	Fill	Foundry waste	Foundry waste	Foundry waste	Fill				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	9.9	10.4	8.1	11.2	10.3	13.9	14.6	12.8	27.5	13	14.7
Moisture	%	1													
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			270	140	<100	<100	<100	<100	<100	<100	150	110	<100
C29 - C36	mg/kg	50			130	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			400	140	<50	<50	<50	<50	<50	<50	150	110	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	370	190	<100	<100	<100	<100	120	<100	180	160	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			370	190	<50	<50	<50	<50	120	<50	180	160	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	<5	<5	12	<5	<5	5	11	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		36	19	5	9	2	30	21	14	38	125	36
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	75	64	6	25	<5	8	26	31	204	194	15
Lead	mg/kg	5	1100 ²	300	25	10	5	18	<5	25	16	9	17	18	153
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	19	18	3	5	<2	13	11	12	28	42	6
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	157	44	24	108	10	65	116	112	142	212	140

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	GB64_6.0	GB65_3.5	GB65_6.0	GB66_1.0	GB66_3.0	GB67_0.5	GB67_2.0	GB68-1.0	GB68-2.0	GB69-1.0	GB69-2.0	
			Depth (m)	6	3.5	6	1	3	0.5	2	1	2	1	2	
			Sampled Date	23/06/2016	23/06/2016	23/06/2016	21/06/2016	21/06/2016	23/06/2016	23/06/2016	16/08/2016	16/08/2016	16/08/2016	16/08/2016	
			Soil Type	Fill	Natural	Natural	Foundry waste	Foundry waste	Fill	Natural	Fill	Fill	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 3	Zone 3	Zone 5	Zone 5	Zone 5	Zone 5	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			17.4	12.8	21.8	7.2	7.9	8.2	8.7	15.6	8.4	5.6	10.6
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			100	<100	<100	120	540	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	300	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			100	<50	<50	120	840	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	140	<100	<100	190	790	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	110	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			140	<50	<50	190	900	<50	<50	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	6	6	30	<5	<5	<5	<5	8	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		25	9	16	72	65	6	11	39	<2	<2	<2
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	26	<5	<5	46	97	5	<5	14	<5	<5	<5
Lead	mg/kg	5	1100 ²	300	33	<5	8	14	54	8	<5	6	<5	<5	<5
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	10	4	4	13	31	3	3	8	<2	<2	<2
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	122	<5	28	85	269	23	<5	15	<5	<5	<5

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	GB70-1.0	GB70-2.0	GB71_4.0	GB71_5.0	GB72_0.5	GB72_2.0	GB73_0.5	GB73_2.0	GB74_1.0	GB75_1.0	GB75_2.0				
Depth (m)	1	2	4	5	0.5	2	0.5	2	1	1	2				
Sampled Date	16/08/2016	16/08/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	22/06/2016	22/06/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 5	Zone 5	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	6.4	8.8	6.9	10.5	12.4	6	8	12.8	20	18.8	19.7
Moisture	%	1													
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	110	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	120	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	230	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	220	110	<100	<100	<100	<100	<100	<100	130
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	220	110	<50	<50	<50	<50	<50	<50	130
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	6	<5	7	6	<5	15	20	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		<2	7	10	15	20	20	20	9	32	33	29
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	<5	12	6	75	30	17	<5	60	<5	44
Lead	mg/kg	5	1100 ²	300	<5	<5	8	21	256	108	40	10	58	19	24
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	<2	2	6	11	34	22	34	4	59	12	14
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	<5	<5	18	45	578	212	46	23	108	16	211

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,
0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	GB76_0.2	GB76_1.0	GB77_0.5	GB77_2.0	GB78_1.0	GB78_2.0	GB79_0.5	GB79_2.0	SED-1	SED-2	SED-4	
			Depth (m)	0.2	1	0.5	2	1	2	0.5	2	0.7	0.2	0.1	
			Sampled Date	20/06/2016	20/06/2016	20/06/2016	20/06/2016	20/06/2016	20/06/2016	21/06/2016	21/06/2016	27/02/2014	27/03/2014	27/03/2014	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Slimes	Sediment	Sediment	Sediment	
			Location	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 4	Zone 4	Zone 4	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			15.4	12.3	14.4	19	14.1	16	25	32.9	31	24	35
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.2	<0.2
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<20	<20	<20
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<20	<20	<20
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<50	<50	<50
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<50	<50	<50
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<20	<20	<20
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	100	<50	<50			
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<20	<20	<20
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	10	11	7	7	29	5	<5	45	31	16	33
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	<2	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	<10	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	1	<1	<1	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	<1	-	-
Chromium	mg/kg	2	190 ²		19	23	36	28	22	72	24	60	36	25	40
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	5.4	-	-
Copper	mg/kg	5	60 ²	6000	9	14	<5	17	13	65	<5	14	15	14	13
Lead	mg/kg	5	1100 ²	300	43	57	14	33	40	117	9	28	40	32	28
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	92	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	0.2	<0.1	0.1	0.2	0.3	0.3	<0.1	0.1
Nickel	mg/kg	2	30 ²	400	9	15	12	15	19	28	12	32	13	13	16
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	<2	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	51	130	16	86	66	449	9	91	53	44	55

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	SED-5	SED-6	SED-7	SED-8	SED-9	SED-11	SED-13	SM1_0.2	SM1_1.0	SM2_0.2	SM2_2.0	
			Depth (m)	0.1	1.0	0.5	0.1	0.1	0.1	0.1	0.2	1	0.2	2	
			Sampled Date	27/03/2014	27/03/2014	27/03/2014	5/03/2014	5/03/2014	5/03/2014	5/03/2014	26/05/2016	26/05/2016	26/05/2016	26/05/2016	
			Soil Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Fill	Fill	Fill	Fill	
			Location	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			43	25	30	67	47	65	53	10.2	12.3	13.8	12.7
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2										<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<1 - 0.6	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<20	<20	<20	<20	<20	<20	-	<10	<10	<10	<10
C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	<20	-	<50	<50	<50	<50
C15 - C28	mg/kg	50			<50	<50	<50	<50	<50	<50	-	110	<100	150	<100
C29 - C36	mg/kg	50			<50	<50	<50	<50	<50	<50	-	<100	<100	100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	-	110	<50	250	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<20	<20	<20	<20	<20	<20	-	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	-	160	<100	240	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50										160	<50	240	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<20	<20	<20	<20	<20	<20	-	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	28	17	25	95	40	54	57	<5	<5	<5	7
Barium	mg/kg	10										-	10	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	<2	-	2	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	<10	-	<50	-	-
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	<1	-	<0.5	-	-
Chromium	mg/kg	2	190 ²		34	22	31	51	41	56	-	73	19	25	9
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	12	-	6	-	-
Copper	mg/kg	5	60 ²	6000	9.3	7.7	12	32	12	16	17	62	<5	42	<5
Lead	mg/kg	5	1100 ²	300	22	20	29	37	35	32	38	21	6	35	<5
Manganese	mg/kg	5		3800	-	-	-	-	-	-	260	-	6	-	-
Mercury	mg/kg	0.1		40	0.1	<0.1	<0.1	0.3	0.3	<0.1	0.3	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	14	11	12	24	16	22	26	22	6	13	5
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	<2	-	<5	-	-
Vanadium	mg/kg	5										-	22	-	-
Zinc	mg/kg	5	70 ²	7400	43	34	42	120	57	81	99	355	<5	400	<5

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	SM3_0.25	SM3_2.0	SM4_1.0	SM4_3.0	SM5-0.5	SM5-1.0	SM6-0.5	SM7-0.2	SM7-2.0	SM8_1.0	SM8_3.0					
Depth (m)	0.25	2	1	3	0.5	1	0.5	0.2	2	1	3					
Sampled Date	27/05/2016	27/05/2016	27/05/2016	27/05/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	26/05/2016	26/05/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			6.7	10.3	3.8	6.1	2.5	1.8	3.7	10.4	13.4	10	10.3	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<0.5	<1	<1	<0.5	<1	<1	<1	<1	<1
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	190	<100	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	290	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	270	<100	<100	<100	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	270	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	8	<5	<5	<5	<5	34	47	57	
Barium	mg/kg	10			-	-	-	20	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	<1	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	<50	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	<0.5	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		3	2	32	8	<2	<2	11	85	22	14	10	
Chromium (Trivalent)	mg/kg	5	190 ²						-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	<2	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	<5	41	<5	<5	<5	14	46	<5	<5	<5	
Lead	mg/kg	5	1100 ²	300	<5	<5	19	<5	<5	<5	6	7	10	<5	<5	
Manganese	mg/kg	5		3800	-	-	-	35	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	2	<2	15	3	<2	<2	5	31	4	3	<2	
Phosphorus	mg/kg	5							-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	<5	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	19	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	10	<5	253	7	<5	<5	33	37	<5	<5	<5	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
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3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
NL: Not Limiting
*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	SM9_1.0	SM9_3.0	SM10-0.5	SM10-1.5	SM10-2.5	SM11_1.0	SM11_3.0	SM12-0.2	SM12-2.5	SM13_0.2	SM13_1.5					
Depth (m)	1	3	0.5	1.5	2.5	1	3	0.2	2.5	0.2	1.5					
Sampled Date	27/05/2016	27/05/2016	2/06/2016	2/06/2016	2/06/2016	27/05/2016	27/05/2016	2/06/2016	2/06/2016	6/06/2016	6/06/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			12.4	11.5	12.4	10.9	12.7	7.4	15	15.5	13.1	11.2	9.4	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<0.5	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
METALS																
Arsenic	mg/kg	2	100 ²	100	14	31	11	28	9	12	9	<5	38	8	<5	
Barium	mg/kg	10			-	-	-	-	-	50	-	-	-	-	-	
Beryllium	mg/kg	1		60	-	-	-	-	-	<1	-	-	-	-	-	
Boron	mg/kg	10		4500	-	-	-	-	-	<50	-	-	-	-	-	
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	<0.5	-	-	-	-	-	
Chromium	mg/kg	2	190 ²		14	12	13	19	16	17	16	8	16	13	12	
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-	
Cobalt	mg/kg	2		100	-	-	-	-	-	3	-	-	-	-	-	
Copper	mg/kg	5	60 ²	6000	<5	<5	<5	<5	<5	12	12	13	<5	<5	<5	
Lead	mg/kg	5	1100 ²	300	5	<5	<5	7	7	66	146	7	7	10	12	
Manganese	mg/kg	5		3800	-	-	-	-	-	184	-	-	-	-	-	
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	
Nickel	mg/kg	2	30 ²	400	2	2	4	3	6	7	12	4	3	4	6	
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Selenium	mg/kg	5		200	-	-	-	-	-	<5	-	-	-	-	-	
Vanadium	mg/kg	5			-	-	-	-	-	55	-	-	-	-	-	
Zinc	mg/kg	5	70 ²	7400	<5	<5	<5	<5	<5	82	149	32	<5	11	16	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
 2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
 3: NEPM (2013) Health Investigation Levels - Residential Setting A
 4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
 5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
 NL: Not Limiting
 *: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	SM14-0.5	SM14-1.5	SM15-0.5	SM15-2.0	SM16-0.2	SM16-2.0	SM17_1.0	SM17_2.0	SM18_1.0	SM18_2.0	SM19_1.0					
Depth (m)	0.5	1.5	0.5	2	0.2	2	1	2	1	2	1					
Sampled Date	2/06/2016	2/06/2016	3/06/2016	3/06/2016	3/06/2016	3/06/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	30/05/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 1	Zone 1	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 5					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			5.4	2.6	7.1	2.4	4.3	4.7	4.8	7.7	14.3	30.1	3.2	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<1	<0.5	<1	<0.5	<1	<0.5	<1	<1	<1	<0.5	
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	110	140	<100	100	<100	<100	
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	140	<100	
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	110	140	<50	100	140	<50	
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	140	<100	140	180	120	140	180	<100	
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	140	<50	140	180	120	140	180	<50	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	<5	7	<5	<5	<5	<5	<5	<5	53	<5	
Barium	mg/kg	10			-	-	-	-	<10	-	40	-	-	-	-	
Beryllium	mg/kg	1		60	-	-	-	-	<1	-	<1	-	-	-	-	
Boron	mg/kg	10		4500	-	-	-	-	<50	-	<50	-	-	-	-	
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	<0.5	-	<0.5	-	-	-	-	
Chromium	mg/kg	2	190 ²		12	12	18	21	7	32	34	56	20	50	6	
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-	
Cobalt	mg/kg	2		100	-	-	-	-	<2	-	<2	-	-	-	-	
Copper	mg/kg	5	60 ²	6000	6	25	10	12	5	38	15	25	42	21	11	
Lead	mg/kg	5	1100 ²	300	25	8	42	<5	<5	6	8	30	<5	25	6	
Manganese	mg/kg	5		3800	-	-	-	-	59	-	260	-	-	-	-	
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	
Nickel	mg/kg	2	30 ²	400	7	6	7	8	4	13	6	9	12	21	4	
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Selenium	mg/kg	5		200	-	-	-	-	<5	-	<5	-	-	-	-	
Vanadium	mg/kg	5			-	-	-	-	<5	-	<5	-	-	-	-	
Zinc	mg/kg	5	70 ²	7400	62	28	39	20	12	26	65	442	15	87	23	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
NL: Not Limiting
*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	SM19_2.0	SM20_0.5	SM20_2.0	SM21_1.0	SM21_2.0	SM22_1.0	SM22_3.0	SM23_0.2	SM23_2.5	SM24_1.0	SM24_2.0					
Depth (m)	2	0.5	2	1	2	1	3	0.2	2.5	1	2					
Sampled Date	30/05/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	30/05/2016	30/05/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 5	Zone 5	Zone 5	Zone 2	Zone 2	Zone 2	Zone 2	Zone 5	Zone 5	Zone 5	Zone 5					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			3.8	6.8	3.2	6.3	9.9	10.9	9.9	10.8	23.2	4.3	11.3	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<0.5	<1	<1	<1	<0.5	<1	<1	<1	<1	<0.5	
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	150	<100	<100	<100	<100	
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	150	<50	<50	<50	<50	
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
C16-C34	mg/kg	100	300	4,500 ⁵	130	130	<100	110	130	<100	220	<100	<100	<100	<100	
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C40 (Sum of total)	mg/kg	50			130	130	<50	110	130	<50	220	<50	<50	<50	<50	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	8	6	<5	<5	8	7	<5	<5	
Barium	mg/kg	10			-	-	-	-	-	40	-	-	-	-	30	
Beryllium	mg/kg	1		60	-	-	-	-	-	<1	-	-	-	-	<1	
Boron	mg/kg	10		4500	-	-	-	-	-	<50	-	-	-	-	<50	
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	<0.5	-	-	-	-	<0.5	
Chromium	mg/kg	2	190 ²		29	11	5	20	27	14	34	12	47	9	10	
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-	
Cobalt	mg/kg	2		100	-	-	-	-	-	3	-	-	-	-	2	
Copper	mg/kg	5	60 ²	6000	86	72	11	25	23	15	41	10	25	25	10	
Lead	mg/kg	5	1100 ²	300	17	<5	22	88	110	44	21	62	55	137	48	
Manganese	mg/kg	5		3800	-	-	-	-	-	60	-	-	-	-	61	
Mercury	mg/kg	0.1		40	0.3	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Nickel	mg/kg	2	30 ²	400	20	11	4	20	17	8	13	5	51	8	8	
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Selenium	mg/kg	5		200	-	-	-	-	-	<5	-	-	-	-	<5	
Vanadium	mg/kg	5			-	-	-	-	-	21	-	-	-	-	20	
Zinc	mg/kg	5	70 ²	7400	115	15	48	140	166	63	260	56	76	109	58	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	SM25_1.0	SM25_2.0	SM26_0.5	SM26_2.0	SM27_1.0	SM27_2.0	SM28_0.5	SM28_1.5	SM29_1.0	SM29_2.0	TP1-1.5				
Depth (m)	1	2	0.5	2	1	2	0.5	1.5	1	2	1.5				
Sampled Date	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	25/02/2014				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 4				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			9.4	12.3	6.9	8.6	2.8	9.4	7.6	9.3	10.6	23.2	17
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<20
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	320	<50
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	200	<50
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	520	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	100	<100	<100	<100	<100	110	<100	<100	<100	480	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			100	<50	<50	<50	<50	110	<50	<50	<50	480	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	6	<5	10	8	<5	7	10	6	12	6	2.7
Barium	mg/kg	10			-	-	-	-	-	-	-	90	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	<1	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	<50	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	<0.5	-	-	-
Chromium	mg/kg	2	190 ²		23	19	42	27	4	52	24	37	24	8	21
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	7	-	-	-
Copper	mg/kg	5	60 ²	6000	12	14	7	7	12	50	7	92	8	19	10
Lead	mg/kg	5	1100 ²	300	44	65	23	28	23	78	35	115	21	207	25
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	1200	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	0.4	<0.1
Nickel	mg/kg	2	30 ²	400	11	5	9	5	3	34	8	26	11	11	9
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	<5	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	24	-	-	-
Zinc	mg/kg	5	70 ²	7400	55	71	27	21	35	218	34	280	27	239	60

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP1-4.0	TP2-1.0	TP2-3.0	TP3-1.5	TP3-3.0	TP4-0.5	TP4-2.5	TP5-0.8	TP5-3.0	TP6-0.2	TP6-3.0	
			Depth (m)	4	1	3	1.5	3	0.5	2.5	0.8	3	0.2	3	
			Sampled Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Natural	
			Location	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			23	14	17	21	18	8.1	18	19	19	8.6	21
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	-	-	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	-	-	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	-	-	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Xylene (m & p)	mg/kg	0.2			-	-	<0.2	<0.2	-	<0.2	-	<0.2	-	<0.2	-
Xylene (o)	mg/kg	0.1			-	-	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	-	-	<0.3	<0.3	-	<0.3	-	<0.3	-	<0.3	-
Total BTEX	mg/kg	0.2													
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-
HYDROCARBONS															
C6 - C9	mg/kg	10			-	-	<20	<20	-	<20	-	<20	-	<20	-
C10 - C14	mg/kg	20			-	-	<20	<20	-	<20	-	<20	-	<20	-
C15 - C28	mg/kg	50			-	-	53	<50	-	<50	-	<50	-	<50	-
C29 - C36	mg/kg	50			-	-	69	<50	-	<50	-	<50	-	<50	-
C10 - C36 (Sum of total)	mg/kg	50			-	-	120	<50	-	<50	-	<50	-	<50	-
C6 - C10	mg/kg	10	180	4400 ⁵	-	-	<20	<20	-	<20	-	<20	-	<20	-
C10-C16	mg/kg	50	120	3,300 ⁵	-	-	<50	<50	-	<50	-	<50	-	<50	-
C16-C34	mg/kg	100	300	4,500 ⁵	-	-	110	<100	-	<100	-	<100	-	<100	-
C34-C40	mg/kg	100	2800	6,300 ⁵	-	-	<100	<100	-	<100	-	<100	-	<100	-
C10 - C40 (Sum of total)	mg/kg	50													
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	-	-	<20	<20	-	<20	-	<20	-	<20	-
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	-	-	<50	<50	-	<50	-	<50	-	<50	-
METALS															
Arsenic	mg/kg	2	100 ²	100	9	3.3	5.9	8.4	6.7	10	6.2	5.4	11	9.2	25
Barium	mg/kg	10													
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		25	20	19	21	21	19	21	22	23	20	25
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	9.7	10	10	14	13	11	6.3	17	10	12	<5
Lead	mg/kg	5	1100 ²	300	28	41	26	22	22	18	17	25	33	47	8.1
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	11	9.7	11	20	13	15	11	15	10	8.5	9.3
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5													
Zinc	mg/kg	5	70 ²	7400	32	43	36	42	32	30	21	40	43	61	9.4

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP7-1.0	TP7-2.5	TP8-0.5	TP8-1.0	TP8-2.0	TP9-0.2	TP9-1.0	TP9-3.0	TP10-0.5	TP10-3.0	TP10-4.0	
			Depth (m)	1	2.5	0.5	1	2	0.2	1	3	0.5	3	4	
			Sample Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	
			Soil Type	Natural	Natural	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 4	Zone 4	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			24	17	15	12	17	5.3	8	12	10	8.3	9.9
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Xylene (o)	mg/kg	0.1			-	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	-	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2													
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			-	<20	<20	<20	<20	<20	-	<20	<20	<20	<20
C10 - C14	mg/kg	20			-	<20	<20	<20	<20	<20	-	<20	<20	<20	<20
C15 - C28	mg/kg	50			-	<50	<50	<50	<50	54	-	<50	<50	82	<50
C29 - C36	mg/kg	50			-	58	<50	<50	<50	<50	-	<50	<50	<50	<50
C10 - C36 (Sum of total)	mg/kg	50			-	58	<50	<50	<50	54	-	<50	<50	82	<50
C6 - C10	mg/kg	10	180	4400 ⁵	-	<20	<20	<20	<20	<20	-	<20	<20	<20	<20
C10-C16	mg/kg	50	120	3,300 ⁵	-	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	-	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	-	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50													
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	-	<20	<20	<20	<20	<20	-	<20	<20	<20	<20
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	-	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	3.9	31	4.4	6.2	4.6	11	15	3.9	8.5	<2	5.4
Barium	mg/kg	10													
Beryllium	mg/kg	1		60	-	-	-	-	-	<2	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	<10	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	<1	-	-	-	-	-
Chromium	mg/kg	2	190 ²		8.3	13	18	14	25	8.3	-	25	26	13	27
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	<5	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	<5	12	13	10	9	16	11	10	8	9.1
Lead	mg/kg	5	1100 ²	300	<5	6.2	38	30	26	57	99	32	39	43	30
Manganese	mg/kg	5		3800	-	-	-	-	-	-	72	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	<5	<5	12	18	9.6	<5	8.3	11	13	5	8.9
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	<2	-	-	-	-	-
Vanadium	mg/kg	5													
Zinc	mg/kg	5	70 ²	7400	<5	<5	51	61	33	53	84	33	53	56	38

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP11-1.0	TP11-3.0	TP11-5.0	TP12-1.0	TP12-3.0	TP12-6.0	TP13-0.5	TP13-1.5	TP13-3.0	TP14-0.2	TP14-1.5	
			Depth (m)	1	3	5	1	3	6	0.5	1.5	3	0.2	1.5	
			Sample Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			12	18	8.8	8.8	12	14	7.8	17	14	17	15
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.2													
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			<20	<20	<20	<20	<20	-	<20	<20	<20	<20	<20
C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	-	<20	<20	<20	<20	<20
C15 - C28	mg/kg	50			<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
C29 - C36	mg/kg	50			<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<20	<20	<20	<20	<20	-	<20	<20	<20	<20	<20
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50													
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<20	<20	<20	<20	<20	-	<20	<20	<20	<20	<20
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	5.9	10	26	9.1	15	5.4	7.9	29	21	2.8	5.2
Barium	mg/kg	10													
Beryllium	mg/kg	1		60	-	-	-	-	-	<2	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	<10	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	<1	-	-	-	-	-
Chromium	mg/kg	2	190 ²		34	36	21	20	18	-	21	23	25	25	22
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	<5	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	5.6	9.8	12	13	13	10	<5	<5	14	10
Lead	mg/kg	5	1100 ²	300	11	18	9.5	110	38	56	40	9	28	32	54
Manganese	mg/kg	5		3800	-	-	-	-	-	50	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	9.7	14	14	8.4	8.8	7.6	11	8.9	8.6	28	10
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	<2	-	-	-	-	-
Vanadium	mg/kg	5													
Zinc	mg/kg	5	70 ²	7400	8.8	33	22	68	34	61	35	8.4	15	51	51

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP14-3.0	TP15-0.2	TP15-1.5	TP15-3.0	TP16-0.2	TP16-1.5	TP16-3.0	TP17-0.5	TP17-1.5	TP17-3.0	TP18-0.5	
			Depth (m)	3	0.2	1.5	3	0.2	1.5	3	0.5	1.5	3	0.5	
			Sampled Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			12	7.9	12	7.1	7.7	17	15	9.9	6.5	14	7.4
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3
Total BTEX	mg/kg	0.2													
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20
C10 - C14	mg/kg	20			<20	<20	<20	30	<20	<20	<20	<20	-	<20	<20
C15 - C28	mg/kg	50			<50	<50	<50	130	<50	<50	<50	<50	-	<50	<50
C29 - C36	mg/kg	50			<50	<50	<50	66	<50	<50	<50	<50	-	<50	<50
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	230	<50	<50	<50	<50	-	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	170	<100	<100	<100	<100	-	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100
C10 - C40 (Sum of total)	mg/kg	50													
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<20	<20	<20	<20	<20	<20	<20	<20	-	<20	<20
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	-	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	150	4.4	15	2.1	8.1	4.7	5.6	19	2.6	4.3	18
Barium	mg/kg	10													
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	<2	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	<10	-	-	-
Cadmium	mg/kg	0.4		20	0.5	<0.4	<0.4	0.7	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	<1	-	-	-
Chromium	mg/kg	2	190 ²		20	18	18	40	26	21	19	22	-	20	30
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	<5	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	7.6	6.9	180	16	10	10	10	<5	15	8
Lead	mg/kg	5	1100 ²	300	8.1	16	23	15	24	27	27	25	20	27	23
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	24	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	5.1	<5	7.8	16	9.9	9.3	13	9.9	<5	33	9.2
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	<2	-	-	-
Vanadium	mg/kg	5													
Zinc	mg/kg	5	70 ²	7400	12	22	37	84	39	29	35	38	29	73	50

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,
0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP18-2.0	TP18-3.0	TP19-0.2	TP19-1.5	TP19-3.0	TP20-0.5	TP20-2.0	TP20-3.0	TP21-0.2	TP21-1.5	TP21-3.0	
			Depth (m)	2	3	0.2	1.5	3	0.5	2	3	0.2	1.5	3	
			Sampled Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			14	11	11	9.4	10	8.1	16	19	7	19	14
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.2													
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HYDROCARBONS															
C6 - C9	mg/kg	10			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-
C10 - C14	mg/kg	20			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-
C15 - C28	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-
C29 - C36	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-
C6 - C10	mg/kg	10	180	4400 ⁵	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-
C10 - C40 (Sum of total)	mg/kg	50													
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	-
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	-
METALS															
Arsenic	mg/kg	2	100 ²	100	4.3	7.6	3.7	7.6	4.8	5.9	6.3	9.4	4.2	<2	3.4
Barium	mg/kg	10													
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	<2
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	<10
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	<1
Chromium	mg/kg	2	190 ²		23	28	13	17	20	18	25	24	17	22	-
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	10
Copper	mg/kg	5	60 ²	6000	17	13	8	8.7	23	9.8	9.5	12	8.8	<5	18
Lead	mg/kg	5	1100 ²	300	16	40	14	19	35	35	27	28	29	8.4	17
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	63
Mercury	mg/kg	0.1		40	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	28	14	6.4	12	19	<5	8.4	14	8.3	<5	25
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	<2
Vanadium	mg/kg	5													
Zinc	mg/kg	5	70 ²	7400	52	71	14	72	78	31	24	53	49	<5	78

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP22-0.2	TP22-2.0	TP22-4.0	TP23-0.5	TP23-1.5	TP23-3.0	TP24-0.2	TP24-1.5	TP24-3.0	TP25_0.2	TP25_0.5	
			Depth (m)	0.2	2	4	0.5	1.5	3	0.2	1.5	3	0.2	0.5	
			Sampled Date	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	27/05/2016	27/05/2016	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Natural	Natural	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			6.3	8.8	14	6.8	9.5	16	6.6	13	11	4.9	1.1
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.5	<0.5
Total BTEX	mg/kg	0.2												<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<20	<20	<20	<20	<20	<20	-	<20	<20	<10	<10
C10 - C14	mg/kg	20			<20	<20	<20	43	42	<20	-	<20	<20	<50	<50
C15 - C28	mg/kg	50			110	72	<50	<50	<50	<50	-	150	<50	<100	<100
C29 - C36	mg/kg	50			100	91	55	<50	<50	<50	-	150	<50	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			210	160	55	<50	<50	<50	-	300	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<20	<20	<20	<20	<20	<20	-	<20	<20	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	180	130	<100	<100	<100	<100	-	240	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50												<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<20	<20	<20	<20	<20	<20	-	<20	<20	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	-	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<2	5.9	6	3.5	7.4	9.3	15	16	5.4	<5	<5
Barium	mg/kg	10												-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	<2	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	<10	-	-	-	-
Cadmium	mg/kg	0.4		20	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	<1	-	-	-	-
Chromium	mg/kg	2	190 ²		6.6	20	27	12	19	23	-	15	17	<2	<2
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	<5	-	-	-	-
Copper	mg/kg	5	60 ²	6000	5.6	17	14	11	7.9	16	<5	<5	11	<5	<5
Lead	mg/kg	5	1100 ²	300	<5	38	35	21	21	46	14	12	21	<5	<5
Manganese	mg/kg	5		3800	-	-	-	-	-	-	23	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	12	14	10	17	11	14	7.4	5.2	8	<2	<2
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	<2	-	-	-	-
Vanadium	mg/kg	5												-	-
Zinc	mg/kg	5	70 ²	7400	10	77	44	52	100	68	18	18	42	13	<5

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4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP25_1.0	TP25_2.0	TP25_4.0	TP26-0.5	TP26-1.0	TP26-2.0	TP26-3.0	TP26-4.0	TP27-0.5	TP27-1.0	TP27-2.0				
Depth (m)	1	2	4	0.5	1	2	3	4	0.5	1	2				
Sampled Date	27/05/2016	27/05/2016	27/05/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016				
Soil Type	Natural	Natural	Natural	Fill	Fill	Foundry waste	Foundry waste	Foundry waste	Fill	Fill	Foundry waste				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			2.5	<1	5.6	6.3	8.5	6.8	6.6	8.6	14.3	5.1	10
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<0.5	<1	<1	<1	<0.5	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	160	170	<100	<100	<100	150
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	160	170	<50	<50	<50	150
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	110	210	210	<100	<100	<100	180
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	110	260	210	<50	<50	<50	180
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	20	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	<1	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	<50	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	<0.5	-	-
Chromium	mg/kg	2	190 ²		<2	<2	8	7	30	25	22	<2	10	2	5
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	<2	-	-
Copper	mg/kg	5	60 ²	6000	<5	<5	<5	5	76	52	28	<5	17	5	14
Lead	mg/kg	5	1100 ²	300	<5	<5	<5	<5	27	21	8	<5	8	5	8
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	73	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	<2	<2	<2	5	13	16	4	<2	4	<2	7
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	<5	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	16	-	-
Zinc	mg/kg	5	70 ²	7400	<5	<5	<5	22	176	130	33	<5	28	54	29

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP27-3.0	TP27-4.0	TP28_0.2	TP28_1.0	TP28_2.0	TP28_3.0	TP28_4.0	TP29_0.2	TP29_1.0	TP29_2.0	TP29_3.0	
			Depth (m)	3	4	0.2	1	2	3	4	0.2	1	2	3	
			Sample Date	2/06/2016	2/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	
			Soil Type	Foundry waste	Foundry waste	Fill	Fill	Natural	Natural	Natural	Fill	Fill	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			18.2	16.9	7.3	6.4	7.8	15.8	19.4	10.6	5.6	1.6	15.8
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1 - 1.3
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	120	230	<100	280
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	110	<100	170
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	120	340	<50	450
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	<100	190	330	<100	400
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	190	330	<50	400
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	10	<5	<5	<5	28	<5	<5	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		29	17	7	2	8	38	20	49	46	<2	31
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	8	5	<5	<5	<5	<5	58	93	11	83
Lead	mg/kg	5	1100 ²	300	6	41	14	<5	<5	8	<5	24	35	16	34
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	6	4	2	<2	<2	23	3	13	17	<2	20
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	<5	32	15	<5	<5	<5	<5	398	924	21	236

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP29_4.0	TP30_0.5	TP30_1.0	TP30_2.0	TP30_3.0	TP30_4.0	TP31_0.5	TP31_1.0	TP31_2.0	TP31_3.0	TP31_4.0				
Depth (m)	4	0.5	1	2	3	4	0.5	1	2	3	4				
Sampled Date	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016	27/05/2016				
Soil Type	Landfill	Fill	Fill	Foundry waste	Foundry waste	Foundry waste	Fill	Foundry waste	Foundry waste	Foundry waste	Foundry waste				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	4.8	11.2	8.9	13.8	8.8	8.8	6	8.7	6.3	5.7	9.9
Moisture	%	1													
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1 - 0.9	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	280	170	<100	240	120	180	520
C29 - C36	mg/kg	50			<100	<100	<100	<100	170	<100	<100	120	<100	160	300
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	450	170	<50	360	120	340	820
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	60	<50	<50	70	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	120	<100	<100	410	230	<100	320	170	330	790
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	150
C10 - C40 (Sum of total)	mg/kg	50			<50	120	<50	<50	470	230	<50	390	170	330	940
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	60	<50	<50	70	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	12	<5	14	<5	<5	<5	10	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	130	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	<1	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	<50	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	<0.5	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		<2	37	6	14	52	28	<2	39	32	19	4
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	4	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	34	<5	<5	100	44	<5	200	67	42	6
Lead	mg/kg	5	1100 ²	300	<5	11	<5	6	23	19	<5	59	8	23	44
Manganese	mg/kg	5		3800	-	-	-	-	1790	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	<2	12	3	3	20	8	<2	28	16	9	5
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	<5	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	9	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	<5	56	17	8	198	118	12	330	21	123	62

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP32-0.2	TP32-1.0	TP32-2.0	TP32-3.0	TP32-4.0	TP33_0.2	TP33_1.0	TP33_2.0	TP33_3.0	TP33_4.0	TP33_5.0	
			Depth (m)	0.2	1	2	3	4	0.2	1	2	3	4	5	
			Sampled Date	2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Natural	Natural	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			8.7	8.1	8	10.2	19.6	10.5	7.3	18.4	9	17.3	12.5
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	<5	<5	<5	7	14	<5	<5	29
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		7	2	7	7	30	18	18	24	2	12	16
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	12	<5	<5	<5	<5	108	24	7	<5	<5	<5
Lead	mg/kg	5	1100 ²	300	15	<5	<5	<5	9	41	16	9	<5	5	<5
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	5	2	3	<2	6	8	7	6	<2	2	<2
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	42	<5	<5	<5	5	243	115	26	<5	<5	<5

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP34_0.5	TP34_1.0	TP34_2.0	TP34_3.0	TP34_4.0	TP35-0.2	TP35-1.0	TP35-2.0	TP35-4.0	TP35-6.0	TP36-0.5				
Depth (m)	0.5	1	2	3	4	0.2	1	2	4	6	0.5				
Sampled Date	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	3/06/2016	3/06/2016	3/06/2016	3/06/2016	3/06/2016	2/06/2016				
Soil Type	Fill	Fill	Landfill	Landfill	Landfill	Fill	Foundry waste	Foundry waste	Foundry waste	Landfill	Fill				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	TP34_0.5	TP34_1.0	TP34_2.0	TP34_3.0	TP34_4.0	TP35-0.2	TP35-1.0	TP35-2.0	TP35-4.0	TP35-6.0	TP36-0.5
Moisture	%	1			6.8	5.6	29.8	11.7	11.1	8.3	6.8	5.4	7.7	16.9	12
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<0.5	<1	<1	<1	<1 - 1.3	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	280	200	260	200	130	220	230	<100
C29 - C36	mg/kg	50			<100	<100	<100	120	<100	110	<100	<100	100	480	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	400	200	370	200	130	320	710	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	360	260	350	250	160	280	570	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	310	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	360	260	400	250	160	280	880	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	10	<5	<5	<5	<5	<5	<5	<5	7	16
Barium	mg/kg	10			-	-	-	-	-	200	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	<1	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	<50	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	3	<1	4	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	<0.5	-	-	-	-	-
Chromium	mg/kg	2	190 ²		10	10	29	43	30	43	97	22	29	33	92
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	2	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	18	13	124	108	53	31	32	32	88	26	38
Lead	mg/kg	5	1100 ²	300	9	7	24	25	15	14	49	12	66	130	13
Manganese	mg/kg	5		3800	-	-	-	-	-	594	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1
Nickel	mg/kg	2	30 ²	400	5	5	15	20	7	18	5	6	11	18	23
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	<5	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	7	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	46	34	259	267	151	67	321	69	351	417	43

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP36-1.0	TP36-2.0	TP36-3.0	TP36-4.0	TP37_0.5	TP37_1.0	TP37_2.0	TP37_3.0	TP37_4.0	TP38_0.5	TP38_1.0					
Depth (m)	1	2	3	4	0.5	1	2	3	4	0.5	1					
Sampled Date	2/06/2016	2/06/2016	2/06/2016	2/06/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	27/05/2016	27/05/2016					
Soil Type	Fill	Fill	Foundry waste	Fill	Fill	Foundry waste	Foundry waste	Foundry waste	Foundry waste	Fill	Foundry waste					
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			7.9	3.4	3.3	7.4	14.3	8.8	11.2	9.9	11.4	9.7	5.2	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1 - 2.7	<1	<1	<1	<1	
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	50	<50	<50	<50	<50	
C15 - C28	mg/kg	50			<100	<100	<100	<100	200	240	380	210	<100	150	150	
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	120	<100	<100	<100	<100	
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	200	240	550	210	<50	150	150	
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	80	<50	<50	<50	<50	
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	260	290	440	260	120	220	210	
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	260	290	520	260	120	220	210	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	80	<50	<50	<50	<50	
METALS																
Arsenic	mg/kg	2	100 ²	100	8	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-	
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-	
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-	
Chromium	mg/kg	2	190 ²		27	2	<2	4	29	70	14	48	25	15	6	
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-	
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-	
Copper	mg/kg	5	60 ²	6000	12	<5	<5	<5	28	32	35	143	105	33	18	
Lead	mg/kg	5	1100 ²	300	9	<5	<5	<5	27	17	19	10	10	7	<5	
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-	
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Nickel	mg/kg	2	30 ²	400	7	<2	<2	<2	13	10	8	31	15	13	4	
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Zinc	mg/kg	5	70 ²	7400	23	<5	<5	<5	101	121	108	66	50	56	12	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
 2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
 3: NEPM (2013) Health Investigation Levels - Residential Setting A
 4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
 5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
 NL: Not Limiting
 *: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP38_2.0	TP38_3.0	TP38_4.0	TP39_3.5	TP39_4.0	TP39_5.0	TP39_7.0	TP40-0.2	TP40-1.0	TP40-2.0	TP40-3.0	
			Depth (m)	2	3	4	3.5	4	5	7	0.2	1	2	3	
			Sampled Date	27/05/2016	27/05/2016	27/05/2016	23/06/2016	23/06/2016	23/06/2016	23/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016	
			Soil Type	Foundry waste	Foundry waste	Foundry waste	Fill	Natural	Natural	Natural	Fill	Foundry waste	Fill	Fill	
			Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			11.3	9.9	11.4	15.6	17.2	8.5	16.7	12.8	7.2	3.1	5.2
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	2.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1 - 1.5	2	<1	<1	<1	<1	<1	<0.5	<1	<0.5	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			270	270	200	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			140	110	130	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			410	380	330	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	80	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	360	330	290	<100	<100	<100	100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			440	330	290	<50	<50	<50	100	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	80	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	7	<5	<5	58	5	<5	6	<5	<5	<5	<5
Barium	mg/kg	10			160	-	-	-	-	-	-	-	<10	-	-
Beryllium	mg/kg	1		60	1	-	-	-	-	-	-	-	<1	-	-
Boron	mg/kg	10		4500	<50	-	-	-	-	-	-	-	<50	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	<0.5	-	-	-	-	-	-	-	<0.5	-	-
Chromium	mg/kg	2	190 ²		52	26	36	31	18	6	58	19	5	<2	<2
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	4	-	-	-	-	-	-	-	<2	-	-
Copper	mg/kg	5	60 ²	6000	268	83	118	<5	16	16	49	6	8	<5	<5
Lead	mg/kg	5	1100 ²	300	10	73	8	11	16	8	26	30	6	<5	<5
Manganese	mg/kg	5		3800	1560	-	-	-	-	-	-	-	<5	-	-
Mercury	mg/kg	0.1		40	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	24	13	16	11	31	5	14	7	14	<2	2
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	<5	-	-	-	-	-	-	-	<5	-	-
Vanadium	mg/kg	5			8	-	-	-	-	-	-	-	<5	-	-
Zinc	mg/kg	5	70 ²	7400	37	97	44	14	58	73	106	30	10	<5	55

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP40-4.0	TP40-5.0	TP41_0.5	TP41_1.0	TP41_2.0	TP41_3.0	TP41_4.0	TP42_0.2	TP42_1.0	TP42_2.0	TP42_3.0				
Depth (m)	4	5	0.5	1	2	3	4	0.2	1	2	3				
Sampled Date	2/06/2016	2/06/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016				
Soil Type	Fill	Fill	Foundry waste	Foundry waste	Fill	Fill	Landfill	Fill	Foundry waste	Foundry waste	Foundry waste				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	TP40-4.0	TP40-5.0	TP41_0.5	TP41_1.0	TP41_2.0	TP41_3.0	TP41_4.0	TP42_0.2	TP42_1.0	TP42_2.0	TP42_3.0
Moisture	%	1			16	15.1	24.2	6.4	11.5	9.6	19.8	11.9	5.8	6.2	6.6
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1 - 0.8	<1	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	190	240	<100	<100	<100	<100	240	330	310
C29 - C36	mg/kg	50			<100	<100	100	110	<100	<100	<100	<100	120	150	210
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	290	350	<50	<50	<50	<50	360	480	520
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	50	<50	<50	<50	<50	<50	70	100
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	250	320	<100	<100	<100	<100	330	440	440
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	120
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	250	370	<50	<50	<50	<50	330	510	660
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	50	<50	<50	<50	<50	<50	70	100
METALS															
Arsenic	mg/kg	2	100 ²	100	8	28	<5	<5	9	<5	6	14	<5	<5	<5
Barium	mg/kg	10			-	-	-	50	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	<1	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	<50	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	<0.5	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		21	23	84	37	10	8	30	30	59	40	16
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	<2	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	<5	<5	89	60	9	11	<5	14	53	188	27
Lead	mg/kg	5	1100 ²	300	8	<5	17	6	7	<5	18	62	23	10	11
Manganese	mg/kg	5		3800	-	-	-	319	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	8	3	44	17	20	21	6	13	17	16	8
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	<5	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	<5	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	<5	<5	151	32	21	12	19	63	295	50	52

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP42_4.0	TP43_0.5	TP43_1.0	TP43_2.0	TP43_3.0	TP43_4.0	TP44_0.5	TP44_1.0	TP44_2.0	TP44_3.0	TP44_4.0				
Depth (m)	4	0.5	1	2	3	4	0.5	1	2	3	4				
Sampled Date	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016				
Soil Type	Foundry waste	Fill	Fill	Foundry waste	Foundry waste	Foundry waste	Fill	Foundry waste	Foundry waste	Foundry waste	Foundry waste				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	12.3	10.5	16.3	13	15.6	12	19	12.1	11.3	8.6	15.3
Moisture	%	1													
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	0.4	<0.2	0.4	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	0.7	<0.5	0.6	<0.5	0.6	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	0.6	<0.5	0.6	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	1	<0.2	1.5	<0.2	1.5	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	2	<1	<1 - 0.6	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			50	<50	<50	<50	100	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			430	<100	<100	110	870	260	170	<100	230	120	<100
C29 - C36	mg/kg	50			160	<100	<100	<100	330	120	130	<100	240	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			640	<50	<50	110	1300	380	300	<50	470	120	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	80	<50	<50	<50	190	60	60	<50	100	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	510	<100	<100	140	1090	340	260	100	340	170	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	120	<100	<100	<100	150	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			590	<50	<50	140	1400	400	320	100	590	170	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	80	<50	<50	<50	190	60	60	<50	100	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	6	7	<5	<5	<5	<5	<5	<5	10	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	4	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		29	18	18	43	10	38	34	32	81	138	12
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	76	12	18	63	16	73	69	76	76	550	24
Lead	mg/kg	5	1100 ²	300	15	54	146	8	16	19	8	<5	<5	67	10
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	14	9	7	16	8	16	22	15	48	72	6
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	77	70	195	55	83	132	27	10	12	362	42

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP45_0.5	TP45_1.0	TP45_2.0	TP45_3.0	TP45_4.0	TP46-0.5	TP46-2.0	TP46-3.0	TP47-0.5	TP47-2.0	TP48_0.2				
Depth (m)	0.5	1	2	3	4	0.5	2	3	0.5	2	0.2				
Sampled Date	26/05/2016	26/05/2016	26/05/2016	26/05/2016	26/05/2016	3/06/2016	3/06/2016	3/06/2016	3/06/2016	3/06/2016	31/05/2016				
Soil Type	Fill	Fill	Fill	Fill	Natural	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	8.7	8.2	14.4	12.2	17.7	9.5	5.8	6.4	23.2	28.6	24.2
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	0.5	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁵	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	1.1	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<0.5	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	60	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	150	130	240	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	150	<100	120
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	150	130	300	150	<50	120
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	90	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	120	<100	<100	<100	<100	200	160	290	170	<100	170
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			120	<50	<50	<50	<50	200	160	380	170	<50	170
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	90	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	<5	<5	<5	<5	<5	<5	<5	<5	35	125	30
Barium	mg/kg	10			10	-	-	-	-	-	-	-	-	-	-
Beryllium	mg/kg	1		60	<1	-	-	-	-	-	-	-	-	-	-
Boron	mg/kg	10		4500	<50	-	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	<0.5	-	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		3	<2	2	9	24	9	11	12	37	58	21
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	<2	-	-	-	-	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	6	<5	<5	<5	<5	6	9	12	16	9	20
Lead	mg/kg	5	1100 ²	300	8	<5	<5	<5	9	15	26	22	31	12	23
Manganese	mg/kg	5		3800	11	-	-	-	-	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	0.2	0.2	0.1
Nickel	mg/kg	2	30 ²	400	4	<2	<2	2	4	4	6	6	24	17	15
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	<5	-	-	-	-	-	-	-	-	-	-
Vanadium	mg/kg	5			8	-	-	-	-	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	13	<5	<5	<5	<5	86	175	1690	87	23	73

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
 2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
 3: NEPM (2013) Health Investigation Levels - Residential Setting A
 4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
 5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
 NL: Not Limiting
 *: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

			Field ID	TP48_1.0	TP49_1.0	TP49_2.0	TP50_1.0	TP50_4.0	TP51_0.2	TP51_2.0	TP52_0.5	TP52_2.0	TP53_0.2	TP53_2.0	
			Depth (m)	1	1	2	1	4	0.2	2	0.5	2	0.2	2	
			Sampled Date	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	31/05/2016	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	
			Location	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³											
Moisture	%	1			27.3	27.9	38.1	12	14.7	9.9	10	14	11.7	8.5	32.5
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<0.5	<1	<1 - 0.7	<1	<1	<1	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	150	130	<100	<100	<100	220	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	140	<100	100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	150	130	<50	<50	<50	360	<50	100
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	60	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	210	170	<100	<100	<100	330	150	160
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	210	170	<50	<50	<50	390	150	160
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	60	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	106	57	46	<5	<5	<5	<5	<5	<5	<5	38
Barium	mg/kg	10			-	-	30	-	40	-	-	-	-	-	-
Beryllium	mg/kg	1		60	-	-	1	-	<1	-	-	-	-	-	-
Boron	mg/kg	10		4500	-	-	<50	-	<50	-	-	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	<0.5	-	<0.5	-	-	-	-	-	-
Chromium	mg/kg	2	190 ²		49	70	87	28	11	9	5	48	120	30	48
Chromium (Trivalent)	mg/kg	5	190 ²												
Cobalt	mg/kg	2		100	-	-	7	-	2	-	-	-	-	-	-
Copper	mg/kg	5	60 ²	6000	8	11	10	37	39	40	<5	73	204	17	10
Lead	mg/kg	5	1100 ²	300	17	14	14	33	6	9	6	9	12	21	16
Manganese	mg/kg	5		3800	-	-	13	-	206	-	-	-	-	-	-
Mercury	mg/kg	0.1		40	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Nickel	mg/kg	2	30 ²	400	19	21	26	9	7	8	<2	28	70	12	22
Phosphorus	mg/kg	5													
Selenium	mg/kg	5		200	-	-	<5	-	<5	-	-	-	-	-	-
Vanadium	mg/kg	5			-	-	268	-	<5	-	-	-	-	-	-
Zinc	mg/kg	5	70 ²	7400	22	33	24	164	50	88	8	57	20	38	41

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP54_0.5	TP54_2.0	TP55_0.5	TP55_2.0	TP56_2.0	TP56_3.0	TP57_0.5	TP57_2.0	TP58_0.5	TP58_2.0	TP59_2.0					
Depth (m)	0.5	2	0.5	2	2	3	0.5	2	0.5	2	2					
Sampled Date	31/05/2016	31/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 5	Zone 5	Zone 5	Zone 5	Zone 5	Zone 5	Zone 3	Zone 3	Zone 5	Zone 5	Zone 5					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			6.3	17	7.2	15.6	3.6	15.3	7.7	30.6	13.5	9	10.6	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<0.5	<1	<1	<1	<1	<1	<1	<1	<0.5
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	200	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	200	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	400	<50	<50	<50	<50	<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	370	<100	<100	<100	<100	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	370	<50	<50	<50	<50	<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	13	6	12	<5	<5	5	38	8	<5	<5	<5
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-	40
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-	<1
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-	<50
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-	<0.5
Chromium	mg/kg	2	190 ²		3	8	33	16	9	14	8	43	22	8	9	9
Chromium (Trivalent)	mg/kg	5	190 ²													
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-	4
Copper	mg/kg	5	60 ²	6000	<5	<5	14	40	42	<5	11	10	15	<5	37	37
Lead	mg/kg	5	1100 ²	300	<5	<5	20	210	77	6	57	25	86	<5	90	90
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-	92
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	<2	<2	19	18	9	4	9	18	16	<2	16	16
Phosphorus	mg/kg	5														
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-	<5
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	13
Zinc	mg/kg	5	70 ²	7400	31	<5	40	200	97	6	49	48	68	<5	90	90

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

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3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,

0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP59_4.0	TP60_1.0	TP60_3.0	TP61_0.2	TP61_2.0	TP62_0.5	TP62_2.0	TP63_0.5	TP63_3.0	TP63_5.0	TP64_0.2					
Depth (m)	4	1	3	0.2	2	0.5	2	0.5	3	5	0.2					
Sampled Date	30/05/2016	30/05/2016	30/05/2016	30/05/2016	30/05/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016					
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill					
Location	Zone 5	Zone 5	Zone 5	Zone 5	Zone 5	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2					
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
Moisture	%	1			24	1.9	29.5	8.4	42.7	8.6	16.8	14.8	15.6	19.5	10.1	
BTEXN																
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	13	<1	<1	<1	<1	<1	<1	<1	
HYDROCARBONS																
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
C10 - C14	mg/kg	20			<50	<50	<50	200	<50	<50	<50	<50	<50	<50	<50	
C15 - C28	mg/kg	50			<100	<100	<100	1990	<100	<100	<100	<100	<100	<100	<100	
C29 - C36	mg/kg	50			<100	<100	<100	850	<100	<100	<100	<100	<100	<100	<100	
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	3040	<50	<50	<50	<50	<50	<50	<50	
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	290*	<10	<10	<10	<10	<10	<10	<10	
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	380	<50	<50	<50	<50	<50	<50	<50	
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	2540	<100	<100	<100	<100	<100	<100	<100	
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	350	<100	<100	<100	<100	<100	<100	<100	
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	3270	<50	<50	<50	<50	<50	<50	<50	
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	370	<50	<50	<50	<50	<50	<50	<50	
METALS																
Arsenic	mg/kg	2	100 ²	100	<5	<5	12	<5	23	17	9	5	6	<5	6	
Barium	mg/kg	10			-	-	-	-	-	-	-	-	-	-	-	
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	-	-	-	
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	-	-	-	
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	-	-	-	
Chromium	mg/kg	2	190 ²		8	<2	29	14	52	19	26	17	29	23	15	
Chromium (Trivalent)	mg/kg	5	190 ²													
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	-	-	-	
Copper	mg/kg	5	60 ²	6000	<5	<5	<5	22	10	8	8	14	22	20	8	
Lead	mg/kg	5	1100 ²	300	<5	<5	7	22	14	20	19	46	49	29	27	
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	-	-	-	
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	
Nickel	mg/kg	2	30 ²	400	<2	<2	8	58	18	10	13	9	22	11	13	
Phosphorus	mg/kg	5														
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	
Zinc	mg/kg	5	70 ²	7400	<5	<5	9	46	16	28	24	74	134	62	36	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
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 4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
 5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
 NL: Not Limiting
 *: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP64_2.0	TP65_0.5	TP65_2.0	TP66_0.2	TP66_2.0	TP67_0.5	TP67_2.0	TP68_0	TP68_0.2	TP69_1.0	TP69_3.0				
Depth (m)	2	0.5	2	0.2	2	0.5	2	0	0.2	1	3				
Sampled Date	6/06/2016	6/06/2016	6/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	6/06/2016	6/06/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	TP64_2.0	TP65_0.5	TP65_2.0	TP66_0.2	TP66_2.0	TP67_0.5	TP67_2.0	TP68_0	TP68_0.2	TP69_1.0	TP69_3.0
Moisture	%	1			14.5	8.9	17.6	15.2	11	15.5	10.4	8.4	17.7	7.2	18.6
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			110	<100	<100	<100	<100	<100	<100	<100	130	<100	<100
C29 - C36	mg/kg	50			160	<100	100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			270	<50	100	<50	<50	<50	<50	<50	130	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	230	<100	140	<100	<100	<100	120	<100	190	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	160	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			390	<50	140	<50	<50	<50	120	<50	190	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	18	10	<5	5	<5	7	<5	<5	7	20	14
Barium	mg/kg	10			-	-	-	-	-	-	-	80	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	<1	-	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	<50	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	<0.5	-	-	-
Chromium	mg/kg	2	190 ²		22	30	12	23	5	25	8	28	26	12	43
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	4	-	-	-
Copper	mg/kg	5	60 ²	6000	39	<5	19	13	6	18	9	39	37	26	12
Lead	mg/kg	5	1100 ²	300	99	8	105	32	6	17	56	83	52	75	47
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	559	-	-	-
Mercury	mg/kg	0.1		40	0.2	<0.1	0.1	<0.1	<0.1	0.3	0.1	<0.1	0.5	0.1	<0.1
Nickel	mg/kg	2	30 ²	400	12	5	6	21	3	39	6	16	29	2	22
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	<5	-	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	16	-	-	-
Zinc	mg/kg	5	70 ²	7400	73	9	144	46	18	50	285	178	126	20	26

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand,
0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

Field ID	TP70_0.5	TP70_2.0	TP71_0.2	TP71_2.0	TP72_0.5	TP72_2.0	TP73_0.2	TP73_1.0	TP74_0.2	TP74_2.0	TP75_0.5				
Depth (m)	0.5	2	0.2	2	0.5	2	0.2	1	0.2	2	0.5				
Sampled Date	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Slimes	Fill				
Location	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³	9.6	14.5	13.2	13.5	3.7	20.4	13	11.1	11.3	21.6	5.8
BTEXN															
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<1	<1
HYDROCARBONS															
C6 - C9	mg/kg	10			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100	<100	<100	<100	<100	<100	110	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	110	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	160	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50	<50	<50	<50	<50	<50	160	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
METALS															
Arsenic	mg/kg	2	100 ²	100	40	<5	<5	7	<5	5	<5	6	7	6	7
Barium	mg/kg	10			-	-	-	-	-	-	-	-	70	-	-
Beryllium	mg/kg	1		60	-	-	-	-	-	-	-	-	<1	-	-
Boron	mg/kg	10		4500	-	-	-	-	-	-	-	-	<50	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-	-	-	-	-	<0.5	-	-
Chromium	mg/kg	2	190 ²		20	23	24	18	61	21	23	24	23	24	22
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-	-	-	-	-	8	-	-
Copper	mg/kg	5	60 ²	6000	<5	13	28	23	63	16	10	30	15	37	8
Lead	mg/kg	5	1100 ²	300	12	16	37	139	70	32	17	46	39	89	33
Manganese	mg/kg	5		3800	-	-	-	-	-	-	-	-	165	-	-
Mercury	mg/kg	0.1		40	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1
Nickel	mg/kg	2	30 ²	400	6	19	28	12	62	19	15	65	24	17	12
Phosphorus	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-	-	-	-	-	<5	-	-
Vanadium	mg/kg	5			-	-	-	-	-	-	-	-	34	-	-
Zinc	mg/kg	5	70 ²	7400	7	58	87	169	171	86	21	70	62	352	43

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
 2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
 3: NEPM (2013) Health Investigation Levels - Residential Setting A
 4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+
 5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential
 NL: Not Limiting
 *: Duplicate / Triplicate Result adopted

**Table 1A:
Soil Results
(Hydrocarbons and Metals)**

				Field ID	TP75_2.0	TP75_4.0	TP76_0.2	TP76_1.0
				Depth (m)	2	4	0.2	1
				Sampled Date	7/06/2016	7/06/2016	7/06/2016	7/06/2016
				Soil Type	Fill	Slimes	Fill	Fill
				Location	Zone 2	Zone 2	Zone 2	Zone 2
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³				
Moisture	%	1			7.1	32.1	15.1	7.8
BTEXN								
Benzene	mg/kg	0.1	50	0.5 ⁴	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	0.1	85	160 / 220 / 310 / 540 ⁴	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	0.1	70	55 / NL / NL / NL ⁴	<0.5	<0.5	<0.5	<0.5
Xylene (m & p)	mg/kg	0.2			<0.5	<0.5	<0.5	<0.5
Xylene (o)	mg/kg	0.1			<0.5	<0.5	<0.5	<0.5
Xylene Total	mg/kg	0.3	105	40 / 60 / 95 / 170 ⁴	<0.5	<0.5	<0.5	<0.5
Total BTEX	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2
Naphthalene	mg/kg	0.5	170 ²	3 / NL / NL / NL ⁴	<1	<1	<1	<1
HYDROCARBONS								
C6 - C9	mg/kg	10			<10	<10	<10	<10
C10 - C14	mg/kg	20			<50	<50	<50	<50
C15 - C28	mg/kg	50			<100	<100	<100	<100
C29 - C36	mg/kg	50			<100	<100	<100	<100
C10 - C36 (Sum of total)	mg/kg	50			<50	<50	<50	<50
C6 - C10	mg/kg	10	180	4400 ⁵	<10	<10	<10	<10
C10-C16	mg/kg	50	120	3,300 ⁵	<50	<50	<50	<50
C16-C34	mg/kg	100	300	4,500 ⁵	<100	<100	<100	<100
C34-C40	mg/kg	100	2800	6,300 ⁵	<100	<100	<100	<100
C10 - C40 (Sum of total)	mg/kg	50			<50	<50	<50	<50
C6-C10 less BTEX (F1)	mg/kg	10		45 / 70 / 110 / 200 ⁴	<10	<10	<10	<10
F2-NAPHTHALENE	mg/kg	50		110 / 240 / 440 / NL ⁴	<50	<50	<50	<50
METALS								
Arsenic	mg/kg	2	100 ²	100	<5	61	12	<5
Barium	mg/kg	10			-	-	-	-
Beryllium	mg/kg	1		60	-	-	-	-
Boron	mg/kg	10		4500	-	-	-	-
Cadmium	mg/kg	0.4		20	<1	<1	<1	<1
Chromium (hexavalent)	mg/kg	0.5		100	-	-	-	-
Chromium	mg/kg	2	190 ²		20	96	30	40
Chromium (Trivalent)	mg/kg	5	190 ²		-	-	-	-
Cobalt	mg/kg	2		100	-	-	-	-
Copper	mg/kg	5	60 ²	6000	54	6	10	28
Lead	mg/kg	5	1100 ²	300	16	11	26	58
Manganese	mg/kg	5		3800	-	-	-	-
Mercury	mg/kg	0.1		40	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	2	30 ²	400	17	25	10	18
Phosphorus	mg/kg	5			-	-	-	-
Selenium	mg/kg	5		200	-	-	-	-
Vanadium	mg/kg	5			-	-	-	-
Zinc	mg/kg	5	70 ²	7400	68	24	46	77

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil

2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space

3: NEPM (2013) Health Investigation Levels - Residential Setting A

4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m / 1m to <2m / 2m to <4m / 4m+

5: CRC Care (2011) Soil Health Screening Levels for Direct Contact - Low Density Residential

NL: Not Limiting

*: Duplicate / Triplicate Result adopted

**Table 2A:
Soil Results
(PAHs PCBs)**

Field ID	BH30-0.5	BH30-2.0	BH31-0.5	BH31-1.0	BH32-0.5	BH32-1.0	SED-1	SED-13	SM1 1.0	SM2 0.2	SM4 3.0	SM5-0.5	SM6-0.5	SM9 3.0				
Depth (m)	0.5	2	0.5	1	0.5	1	0.7	0.1	1	0.2	3	0.5	0.5	3				
Sampled Date	7/04/2014	7/04/2014	8/04/2014	8/04/2014	9/04/2014	9/04/2014	27/02/2014	5/03/2014	26/05/2016	26/05/2016	27/05/2016	2/06/2016	2/06/2016	27/05/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Sediment	Sediment	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 1	Zone 1	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³														
PAHs																		
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.7		<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAHs	mg/kg	0.5		300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5		3							0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5		3							1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PHENOLS																		
2,4,5-trichlorophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2,4,6-trichlorophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2,4-dichlorophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2,4-dimethylphenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2,4-dinitrophenol	mg/kg	5																
2,6-dichlorophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2-chlorophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
2-methylphenol	mg/kg	0.2																
2-nitrophenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
3-&4-methylphenol	mg/kg	0.4									<0.4	<0.4	<1	-	<1	-	-	-
4,6-Dinitro-2-methylphenol	mg/kg	5																
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20																
4-chloro-3-methylphenol	mg/kg	0.5									<0.5	-	<0.5	-	-	-	-	-
4-nitrophenol	mg/kg	5																
Dinoseb	mg/kg	20																
Pentachlorophenol	mg/kg	1		100														
Phenol	mg/kg	0.5		3000							<0.5	<0.5	<0.5	-	<0.5	-	-	-
Phenols (Total Halogenated)	mg/kg	1																
Phenols (Total Non Halogenated)	mg/kg	20																
tetrachlorophenols	mg/kg	1																
2,4,5-Trichlorophenoxy acetic acid	mg/kg										<0.5	<0.5						
2,4-Dichlorophenoxy acetic acid	mg/kg										<0.5	<0.5						
2-Methyl-4-chlorophenoxy acetic acid	mg/kg										<0.5	<0.5						
2-Methyl-4-Chlorophenoxy butanoic acid	mg/kg										<0.5	<0.5						
PCBs																		
Arochlor 1221	mg/kg	0.1									<0.1	<0.1						
Arochlor 1016	mg/kg	0.1									<0.1	<0.1						
Arochlor 1232	mg/kg	0.1									<0.1	<0.1						
Arochlor 1242	mg/kg	0.1									<0.1	<0.1						
Arochlor 1248	mg/kg	0.1									<0.1	<0.1						
Arochlor 1254	mg/kg	0.1									<0.1	<0.1						
Arochlor 1260	mg/kg	0.1									<0.1	<0.1						
PCBs (Sum of total)	mg/kg	0.1		1							<0.1	<0.1	<0.1	-	<0.1	-	-	-
INORGANICS																		
Cyanide (Free)	mg/kg	5		250							<5	<5						
Cyanide WAD	mg/kg																	
Sulphide	mg/kg																	

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m

**Table 2A:
Soil Results
(PAHs PCBs)**

Field ID	SM11 1.0	SM14-0.5	SM15-0.5	SM16-0.2	SM17 1.0	SM19 1.0	SM20 0.5	SM22 1.0	SM24 2.0	SM28 1.5	SM29 1.0	TP9-1.0	TP12-6.0	TP17-1.5				
Depth (m)	1	0.5	0.5	0.2	1	1	0.5	1	2	1.5	1	1	6	1.5				
Sampled Date	27/05/2016	2/06/2016	3/06/2016	3/06/2016	31/05/2016	30/05/2016	6/06/2016	6/06/2016	30/05/2016	7/06/2016	7/06/2016	25/02/2014	25/02/2014	25/02/2014				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 1	Zone 1	Zone 3	Zone 3	Zone 3	Zone 5	Zone 5	Zone 2	Zone 5	Zone 2	Zone 2	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³														
PAHs																		
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	0.6	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	0.6	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	0.7	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	0.6	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	1.7	0.8	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1	0.6	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	1.7	0.7	<0.5	<0.5
Total PAHs	mg/kg	0.5		300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.2	<0.5	6.9	2.1	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5		3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.7	0.6	1			
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5		3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2	1.2	1.3			
PHENOLS																		
2,4,5-trichlorophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2,4,6-trichlorophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2,4-dichlorophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2,4-dimethylphenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2,4-dinitrophenol	mg/kg	5																
2,6-dichlorophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2-chlorophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
2-methylphenol	mg/kg	0.2														<0.2	<0.2	<0.2
2-nitrophenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
3-&4-methylphenol	mg/kg	0.4			<1	-	-	<1	<1	-	-	<1	<1	<1	-	<0.4	<0.4	<0.4
4,6-Dinitro-2-methylphenol	mg/kg	5																
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20																
4-chloro-3-methylphenol	mg/kg	0.5			<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-			
4-nitrophenol	mg/kg	5																
Dinoseb	mg/kg	20																
Pentachlorophenol	mg/kg	1		100												<1	<1	<1
Phenol	mg/kg	0.5		3000	<0.5	-	-	<0.5	<0.5	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
Phenols (Total Halogenated)	mg/kg	1																
Phenols (Total Non Halogenated)	mg/kg	20																
tetrachlorophenols	mg/kg	1																
2,4,5-Trichlorophenoxy acetic acid	mg/kg															<0.5	<0.5	<0.5
2,4-Dichlorophenoxy acetic acid	mg/kg															<0.5	<0.5	<0.5
2-Methyl-4-chlorophenoxy acetic acid	mg/kg															<0.5	<0.5	<0.5
2-Methyl-4-Chlorophenoxy butanoic acid	mg/kg															<0.5	<0.5	<0.5
PCBs																		
Arochlor 1221	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1016	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	0.1														<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	0.1														<0.1	<0.1	<0.1
PCBs (Sum of total)	mg/kg	0.1		1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
INORGANICS																		
Cyanide (Free)	mg/kg	5		250												<5	<5	<5
Cyanide WAD	mg/kg				<1			<1	<1			<1	<1	<1				
Sulphide	mg/kg															1.1	1.2	<1

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m

**Table 2A:
Soil Results
(PAHs PCBs)**

Field ID	TP21-3.0	TP24-0.2	TP26-1.0	TP27-0.5	TP29 3.0	TP30 3.0	TP32-0.2	TP34 1.0	TP35-0.2	TP37 2.0	TP38 2.0	TP40-0.2	TP40-2.0	TP41 1.0				
Depth (m)	3	0.2	1	0.5	3	3	0.2	1	0.2	2	2	0.2	2	1				
Sampled Date	25/02/2014	25/02/2014	2/06/2016	2/06/2016	27/05/2016	27/05/2016	2/06/2016	30/05/2016	3/06/2016	26/05/2016	27/05/2016	2/06/2016	2/06/2016	26/05/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Foundry waste	Fill	Fill	Fill	Foundry waste	Foundry waste	Fill	Fill	Foundry waste				
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³														
PAHs																		
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	0.9	0.6	<0.5	<0.5	0.8	1.5	0.6	<0.5	<0.5	0.6
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAHs	mg/kg	0.5		300	<0.5	<0.5	<0.5	<0.5	2.2	1.5	<0.5	<0.5	2.1	4.7	2.1	<0.5	<0.5	1.4
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5		3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5		3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PHENOLS																		
2,4,5-trichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2,4,6-trichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2,4-dichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2,4-dimethylphenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2,4-dinitrophenol	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-dichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2-chlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
2-methylphenol	mg/kg	0.2			<0.2	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
2-nitrophenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
3-&4-methylphenol	mg/kg	0.4			<0.4	<0.4	-	<1	-	-	<1	-	<1	-	<1	-	<1	<1
4,6-Dinitro-2-methylphenol	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20			-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-chloro-3-methylphenol	mg/kg	0.5			-	<0.5	-	<0.5	-	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5
4-nitrophenol	mg/kg	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dinoseb	mg/kg	20			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	mg/kg	1		100	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	mg/kg	0.5		3000	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5
Phenols (Total Halogenated)	mg/kg	1			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols (Total Non Halogenated)	mg/kg	20			-	-	-	-	-	-	-	-	-	-	-	-	-	-
tetrachlorophenols	mg/kg	1			-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenoxy acetic acid	mg/kg				<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenoxy acetic acid	mg/kg				<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
2-Methyl-4-chlorophenoxy acetic acid	mg/kg				<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
2-Methyl-4-Chlorophenoxy butanoic acid	mg/kg				<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
PCBs																		
Arochlor 1221	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1016	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1232	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1242	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1248	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1254	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
Arochlor 1260	mg/kg	0.1			<0.1	<0.1	-	-	-	-	-	-	-	-	-	-	-	-
PCBs (Sum of total)	mg/kg	0.1		1	<0.1	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1
INORGANICS																		
Cyanide (Free)	mg/kg	5		250	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide WAD	mg/kg				<1	<1	-	<1	-	<1	-	<1	-	<1	-	<1	-	<1
Sulphide	mg/kg				2.9	<1	-	-	-	-	-	-	-	-	-	-	-	-

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m

**Table 2A:
Soil Results
(PAHs PCBs)**

Field ID	TP44_0.5	TP45_0.5	TP47-0.5	TP49_2.0	TP50_4.0	TP55_2.0	TP59_2.0	TP62_0.5	TP65_0.5	TP68_0	TP73_1.0	TP74_0.2				
Depth (m)	0.5	0.5	0.5	2	4	2	2	0.5	0.5	0	1	0.2				
Sampled Date	26/05/2016	26/05/2016	3/06/2016	31/05/2016	31/05/2016	30/05/2016	30/05/2016	6/06/2016	6/06/2016	7/06/2016	7/06/2016	7/06/2016				
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 1	Zone 1	Zone 3	Zone 3	Zone 3	Zone 5	Zone 5	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2				
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³												
PAHs																
Acenaphthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	0.7		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo[b+j]fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	0.7	<0.5	0.7	0.7	<0.5
Fluorene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	mg/kg	0.5			<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	0.7	<0.5	0.7	0.8	<0.5
Total PAHs	mg/kg	0.5		300	0.6	<0.5	<0.5	<0.5	0.7	1.7	<0.5	1.4	<0.5	1.4	2.1	<0.5
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5		3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5		3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PHENOLS																
2,4,5-trichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4,6-trichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4-dichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4-dimethylphenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4-dinitrophenol	mg/kg	5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,6-dichlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2-chlorophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2-methylphenol	mg/kg	0.2			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2-nitrophenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
3-&4-methylphenol	mg/kg	0.4			-	<1	-	<1	<1	-	<1	-	-	<1	-	<1
4,6-Dinitro-2-methylphenol	mg/kg	5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
4,6-Dinitro-o-cyclohexyl phenol	mg/kg	20			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
4-chloro-3-methylphenol	mg/kg	0.5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
4-nitrophenol	mg/kg	5			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
Dinoseb	mg/kg	20			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
Pentachlorophenol	mg/kg	1		100	-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
Phenol	mg/kg	0.5		3000	-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
Phenols (Total Halogenated)	mg/kg	1			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
Phenols (Total Non Halogenated)	mg/kg	20			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
tetrachlorophenols	mg/kg	1			-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4,5-Trichlorophenoxy acetic acid	mg/kg				-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2,4-Dichlorophenoxy acetic acid	mg/kg				-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2-Methyl-4-chlorophenoxy acetic acid	mg/kg				-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
2-Methyl-4-Chlorophenoxy butanoic acid	mg/kg				-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5
PCBs																
Arochlor 1221	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1016	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1232	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1242	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1248	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1254	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
Arochlor 1260	mg/kg	0.1			-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
PCBs (Sum of total)	mg/kg	0.1		1	-	<0.1	-	<0.1	<0.1	-	0.2	-	-	<0.1	-	<0.1
INORGANICS																
Cyanide (Free)	mg/kg	5		250	-	<1	-	<1	<1	-	<1	-	-	<1	-	<1
Cyanide WAD	mg/kg				-	<1	-	<1	<1	-	<1	-	-	<1	-	<1
Sulphide	mg/kg				-	<1	-	<1	<1	-	<1	-	-	<1	-	<1

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m

**Table 1C:
Soil Results
(Pesticides)**

			Field ID	SED-1	SED-2	SED-4	SED-5	SED-6	SED-7	SED-8	SED-9	SED-11	SED-13	SM1_1.0	SM4_3.0	SM11_1.0	SM16-0.2	SM17_1.0	SM22_1.0
			Depth (m)	0.7	0.2	0.1	0.1	1.0	0.5	0.1	0.1	0.1	0.1	1	3	1	0.2	1	1
			Sampled Date	27/02/2014	27/03/2014	27/03/2014	27/03/2014	27/03/2014	27/03/2014	5/03/2014	5/03/2014	5/03/2014	5/03/2014	26/05/2016	27/05/2016	27/05/2016	3/06/2016	31/05/2016	6/06/2016
			Soil Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Fill	Fill	Fill	Fill	Fill	Fill
			Location	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 4	Zone 1	Zone 1	Zone 1	Zone 3	Zone 3	Zone 2
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³															
OCPs																			
4,4-DDE	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
a-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		6										<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
b-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlordane	mg/kg	0.1		50	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
d-BHC	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	mg/kg	0.05	180 ²		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
DDT+DDE+DDD	mg/kg	0.05		240	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	mg/kg	0.05		270	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan I	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan II	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	mg/kg	0.05		10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin ketone	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	mg/kg	0.05		6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05		10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	mg/kg	0.05		300	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene	mg/kg	1		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-chlordane	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
OPPs																			
Azinophos methyl	mg/kg	0.05			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	mg/kg	0.05		160	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	mg/kg	0.05			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorvos	mg/kg	0.05			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dimethoate	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	mg/kg	0.05			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Malathion	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl parathion	mg/kg	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Monocrotophos	mg/kg	0.2												<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	mg/kg	0.2												<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	mg/kg	0.05												<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bolstar (Sulprofos)	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-O	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Disulfoton	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethoprop	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenitrothion	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fensulfothion	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Merphos	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Mevinphos (Phosdrin)	mg/kg				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naled (Dibrom)	mg/kg				<0.5	<0.5													

**Table 1C:
Soil Results
(Pesticides)**

			Field ID	SM24 2.0	SM28 1.5	TP9-1.0	TP12-6.0	TP17-1.5	TP21-3.0	TP24-0.2	TP27-0.5	TP30 3.0	TP35-0.2	TP38 2.0	TP40-2.0	TP41 1.0	TP45 0.5	TP49 2.0	TP50 4.0	
			Depth (m)	2	1.5	1	6	1.5	3	0.2	0.5	3	0.2	2	2	1	0.5	2	4	
			Sampled Date	30/05/2016	7/06/2016	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014	2/06/2016	27/05/2016	3/06/2016	27/05/2016	2/06/2016	26/05/2016	26/05/2016	31/05/2016	31/05/2016	
			Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Foundry waste	Fill	Foundry waste	Fill	Foundry waste	Fill	Fill	Fill	
			Location	Zone 5	Zone 2	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 3	Zone 3	
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³																
OCPs																				
4,4-DDE	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
a-BHC	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Aldrin + Dieldrin	mg/kg	0.05		6	0.06	<0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
b-BHC	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlordane	mg/kg	0.1		50	-	0.5	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	-	-	
cis-Chlordane	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
d-BHC	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
DDD	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
DDT	mg/kg	0.05	180 ²	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
DDT+DDE+DDD	mg/kg	0.05		240	<0.05	<0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dieldrin	mg/kg	0.05			0.06	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan	mg/kg	0.05		270	<0.05	<0.05				<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan I	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan II	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulfan sulphate	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin	mg/kg	0.05		10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin aldehyde	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Endrin ketone	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
g-BHC (Lindane)	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor	mg/kg	0.05		6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Heptachlor epoxide	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Hexachlorobenzene	mg/kg	0.05		10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methoxychlor	mg/kg	0.05		300	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Toxaphene	mg/kg	1		20		-	<1	<1	<1	<1	<1	-	-	-	-	-	-	-	-	
trans-chlordane	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
OPPs																				
Azinophos methyl	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Bromophos-ethyl	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Carbophenothion	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorfenvinphos	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Chlorpyrifos	mg/kg	0.05		160	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Chlorpyrifos-methyl	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Demeton-S-methyl	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Diazinon	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dichlorvos	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Dimethoate	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethion	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fenamiphos	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fenthion	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Malathion	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Methyl parathion	mg/kg	0.2		<0.2	<0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Monocrotophos	mg/kg	0.2		<0.2	<0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Parathion	mg/kg	0.2		<0.2	<0.2					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Pirimphos-ethyl	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Prothiofos	mg/kg	0.05		<0.05	<0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Bolstar (Sulprofos)	mg/kg																			
Demeton-O	mg/kg																			
Disulfoton	mg/kg																			
Ethoprop	mg/kg																			
Fenitrothion	mg/kg																			
Fensulfothion	mg/kg																			
Fenthion	mg/kg																			
Merphos	mg/kg																			
Mevinphos (Phosdrin)	mg/kg																			
Naled (Dibrom)	mg/kg																			
Phorate	mg/kg																			
Ronnel	mg/kg																			
Trichloronate	mg/kg																			
Tokuthion	mg/kg																			
HERBICIDE / INSECTICIDE																				
Atrazine	mg/kg	0.05		320	<0.05	<0.05														

**Table 1C:
Soil Results
(Pesticides)**

			Field ID	TP59_2.0	TP68_0	TP74_0.2
			Depth (m)	2	0	0.2
			Sampled Date	30/05/2016	7/06/2016	7/06/2016
			Soil Type	Fill	Fill	Fill
			Location	Zone 5	Zone 2	Zone 2
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Human Health ³		
OCPs						
4,4-DDE	mg/kg	0.05			<0.05	<0.05
a-BHC	mg/kg	0.05			<0.05	<0.05
Aldrin	mg/kg	0.05			<0.05	<0.05
Aldrin + Dieldrin	mg/kg	0.05		6	<0.05	<0.05
b-BHC	mg/kg	0.05			<0.05	<0.05
Chlordane	mg/kg	0.1		50	-	-
cis-Chlordane	mg/kg	0.05			<0.05	<0.05
d-BHC	mg/kg	0.05			<0.05	<0.05
DDD	mg/kg	0.05			<0.05	<0.05
DDT	mg/kg	0.05	180 ²		<0.2	<0.2
DDT+DDE+DDD	mg/kg	0.05		240	<0.05	<0.05
Dieldrin	mg/kg	0.05			<0.05	<0.05
Endosulfan	mg/kg	0.05		270	<0.05	<0.05
Endosulfan I	mg/kg	0.05			<0.05	<0.05
Endosulfan II	mg/kg	0.05			<0.05	<0.05
Endosulfan sulphate	mg/kg	0.05			<0.05	<0.05
Endrin	mg/kg	0.05		10	<0.05	<0.05
Endrin aldehyde	mg/kg	0.05			<0.05	<0.05
Endrin ketone	mg/kg	0.05			<0.05	<0.05
g-BHC (Lindane)	mg/kg	0.05			<0.05	<0.05
Heptachlor	mg/kg	0.05		6	<0.05	<0.05
Heptachlor epoxide	mg/kg	0.05			<0.05	<0.05
Hexachlorobenzene	mg/kg	0.05		10	<0.05	<0.05
Methoxychlor	mg/kg	0.05		300	<0.2	<0.2
Toxaphene	mg/kg	1		20	-	-
trans-chlordane	mg/kg	0.05			<0.05	<0.05
OPPs						
Azinophos methyl	mg/kg	0.05			<0.05	<0.05
Bromophos-ethyl	mg/kg	0.05			<0.05	<0.05
Carbophenothion	mg/kg	0.05			<0.05	<0.05
Chlorfenvinphos	mg/kg	0.05			<0.05	<0.05
Chlorpyrifos	mg/kg	0.05		160	<0.05	<0.05
Chlorpyrifos-methyl	mg/kg	0.05			<0.05	<0.05
Demeton-S-methyl	mg/kg	0.05			<0.05	<0.05
Diazinon	mg/kg	0.05			<0.05	<0.05
Dichlorvos	mg/kg	0.05			<0.05	<0.05
Dimethoate	mg/kg	0.05			<0.05	<0.05
Ethion	mg/kg	0.05			<0.05	<0.05
Fenamiphos	mg/kg	0.05			<0.05	<0.05
Fenthion	mg/kg	0.05			<0.05	<0.05
Malathion	mg/kg	0.05			<0.05	<0.05
Methyl parathion	mg/kg	0.2			<0.2	<0.2
Monocrotophos	mg/kg	0.2			<0.2	<0.2
Parathion	mg/kg	0.2			<0.2	<0.2
Pirimphos-ethyl	mg/kg	0.05			<0.05	<0.05
Prothiofos	mg/kg	0.05			<0.05	<0.05
Bolstar (Sulprofos)	mg/kg					
Demeton-O	mg/kg					
Disulfoton	mg/kg					
Ethoprop	mg/kg					
Fenitrothion	mg/kg					
Fensulfothion	mg/kg					
Fenthion	mg/kg					
Merphos	mg/kg					
Mevinphos (Phosdrin)	mg/kg					
Naled (Dibrom)	mg/kg					
Phorate	mg/kg					
Ronnel	mg/kg					
Trichloronate	mg/kg					
Tokuthion	mg/kg					
HERBICIDE / INSECTICIDE						
Atrazine	mg/kg	0.05		320	<0.05	<0.05
Bifenthrin	mg/kg	0.05		600	<0.05	<0.05
Mirex	mg/kg	0.05		10	<0.2	<0.2
Mecoprop	mg/kg					
Picloram	mg/kg					

1: NEPM (2013) Ecological Screening Levels - Urban Residential and Public Open Space, Coarse Soil
2: NEPM (2013) Ecological Investigation Levels - Urban Residential and Public Open Space
3: NEPM (2013) Health Investigation Levels - Residential Setting A
4: NEPM (2013) Health Screening Levels - Low-high density residential, sand, 0m to <1m

**Table 1D:
Soil Results
(Asbestos in Soil)**

Field ID	SM3_0.25	SM5-0.5	SM7-0.2	SM11_1.0	SM14-0.5	TP26-0.5	TP27-0.5	TP29_1.0	TP31_2.0	TP32-0.2	TP35-0.2	TP36-0.2	TP37_1.0	TP38_0.2	TP40-0.2	TP41_0.5	TP42_0.2	TP53-0.2	TP58-0.5	TP63_5.0
Depth (m)	0.25	0.5	0.2	1	0.5	0.5	0.5	1	2	0.2	0.2	0.2	1	0.2	0.2	0.5	0.2	0.2	0.5	5
Sampled Date	27/05/2016	2/06/2016	2/06/2016	27/05/2016	2/06/2016	2/06/2016	2/06/2016	27/05/2016	27/05/2016	2/06/2016	3/06/2016	2/06/2016	26/05/2016	27/05/2016	2/06/2016	26/05/2016	26/05/2016	31/05/2016	30/05/2016	6/06/2016
Soil Type	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Foundry waste	Fill	Fill	Fill	Foundry waste	Fill	Fill	Foundry waste	Fill	Fill	Fill	Fill
Location	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1	Zone 3	Zone 5	Zone 2
ChemName	Maintenance of Ecosystems ¹	Human Health ³																		
ASBESTOS IN SOIL																				
Asbestos Detected	No	No	No	No	No	No	No	No	No	No	Yes (Ch + Am)	No	No	No	No	No	No	No	No	No
Asbestos Type																				

Table 1E:
Soil Results
(Physical Properties)

Field ID	BH4D-2.0	BH33-4.0	GB27A_0.5	GB46A_2.0	GB60_2.0	GB64_3.5	GB67_0.5	GB68-1.0	GB71_4.0	GB79_2.0	SM3_2.0	SM11_3.0	SM14-1.5	SM16-0.2	SM17_1.0	SM22_3.0	SM26_0.5	SM28_1.5	TP9-1.0	TP12-6.0	TP17-1.5	TP21-3.0	TP24-0.2				
Depth (m)	2	4	0.5	2	2	3.5	0.5	1	4	2	2	3	1.5	0.2	1	3	0.5	1.5	1	6	1.5	3	0.2				
Sampled Date	15/08/2016	15/08/2016	21/06/2016	21/06/2016	22/06/2016	23/06/2016	23/06/2016	16/08/2016	21/06/2016	21/06/2016	27/05/2016	27/05/2016	2/06/2016	3/06/2016	31/05/2016	6/06/2016	7/06/2016	7/06/2016	25/02/2014	25/02/2014	25/02/2014	25/02/2014	25/02/2014				
Soil Type	Fill	Fill	Fill	Foundry waste	Fill	Fill	Fill	Fill	Fill	Slimes	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill				
Location	Zone 3	Zone 5	Zone 2	Zone 1	Zone 1	Zone 1	Zone 3	Zone 5	Zone 2	Zone 2	Zone 1	Zone 1	Zone 1	Zone 3	Zone 3	Zone 2	Zone 2	Zone 2	Zone 1	Zone 1	Zone 1	Zone 1	Zone 1				
ChemName	Units	EQL	Buildings and Structures ¹																								
SOIL PROPERTIES																											
pH (CaCl2)	pH Unit	0.1	<5.5	6.8	5.8	7.9	7.6	6.6	6.5	4.3	7.5	9.3	6.3	4.7	6.6	6.8	5.4	7.1	7.2	6.3	7.1	8	8.1	8.9	8.4	8.1	
Cation Exchange Capacity	meq/100g	0.1	0.7	6.1	9.7	8	1.4	13.9	2.5	14.9	24.1	19															
Chloride	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-	10	40	30	<10	<10	30	40	10	44	130	84	82	6.5	
Sulphate (as SO ₄)	mg/kg	50	5,000	-	-	-	-	-	-	-	-	-	-	<50	240	<50	<50	160	<50	480	380						

1: AS 2159-2009 Piling Design and Installation
Limit for mild exposure classification of soil conditions A

Bore Number	Date	Time	Barometric Pressure	Relative Pressure	Stable Flow	Peak Methane	Sustained Methane	Carbon Dioxide	Oxygen	Carbon Monoxide	Hydrogen Sulfide	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB01	21-Mar-17	11:48	1004	0.00	0.0	0.0	0.0	8.0	12.6	0	0	NA	NA	1	
GB02	21-Mar-17	11:42	1004	0.00	0.0	0.0	0.0	0.9	19.8	0	0	NA	NA	1	
GB03	21-Mar-17	10:31	1004	0.00	0.0	0.0	0.0	5.3	15.5	0	0	NA	NA	1	Good condition
GB04	21-Mar-17	10:26	1004	0.00	0.0	0.0	0.0	0.7	19.9	0	0	NA	NA	1	Grass growing in stickup
GB05	21-Mar-17	9:59	1004	0.00	0.0	32.9	32.8	15.3	0.0	0	0	NA	NA	2	Good condition
GB06	21-Mar-17														Not sampled
GB07	21-Mar-17	9:38	1004	0.00	0.0	0.0	0.0	3.2	17.6	0	0	NA	NA	1	Good condition
GB08	21-Mar-17	9:08	1004	0.00	0.0	0.0	0.0	3.0	17.7	0	0	NA	NA	1	Good condition.
GB09	20-Mar-17	15:15	1003	0.00	0.0	0.0	0.0	2.2	18.5	0	0	NA	NA	1	Good condition.
GB10	20-Mar-17	15:10	1003	0.00	0.0	0.0	0.0	3.7	17.4	0	0	NA	NA	1	Good condition.
GB11	20-Mar-17	15:01	1003	0.00	0.0	0.0	0.0	6.9	14.5	1	0	NA	NA	1	Good condition.
GB12	20-Mar-17	14:55	1004	0.01	0.1	0.0	0.0	5.2	15.0	1	0	0.00	0.01	1	Good condition.
GB13	20-Mar-17	14:50	1006	0.00	0.0	0.0	0.0	4.7	13.1	0	0	NA	NA	1	Good condition
GB14	20-Mar-17	13:05	1006	0.00	0.0	1.4	0.8	17.9	0.1	0	1	NA	NA	2	Good condition
GB15	20-Mar-17	12:40	1005	0.10	2.2	42.2	39.8	15.9	0.2	3	1	0.93	0.35	3	Good condition
GB16	20-Mar-17	12:35	1005	0.00	0.0	0.0	0.0	1.1	19.8	0	0	NA	NA	1	Good condition
GB17	20-Mar-17		Well Destroyed												
GB18A	20-Mar-17	11:46	1006	0.00	0.0	0.0	0.0	8.6	9.6	0	0	NA	NA	1	Good condition.
GB19	20-Mar-17	11:30	1006	0.00	0.0	0.0	0.0	0.8	20.0	0	0	NA	NA	1	Good condition.
GB20	20-Mar-17	11:08	1007	0.00	0.0	0.9	0.9	0.2	18.6	0	0	NA	NA	1	Good condition.
GB21A	20-Mar-17	10:50	-	0.00	0.0	40.5	40.0	0.6	4.5	0.0	1.0	NA	NA	2	Good condition
GB23	20-Mar-17	14:17	1007	0.30	5.5	75.9	75.9	21.9	0.0	1	1	4.17	1.20	4	Good condition
GB25A	20-Mar-17	15:26	1002	0.24	5	19.1	19.1	8.8	0.0	0	0	0.96	0.44	3	Good condition
GB27A	21-Mar-17	11:23	1004	0	0	0.0	0.0	11.1	10.1	0	0	NA	NA	1	Good condition
GB28	21-Mar-17	11:06	1004	0.00	0.0	12.9	12.9	24.2	0.0	1	1	NA	NA	2	
GB29A	21-Mar-17	11:11	1004	0.00	0.0	0.1	0.0	14.7	8.6	0	0	NA	NA	1	Good condition
GB30	20-Mar-17	15:06	1003	0.00	0.0	0.0	0.0	7.1	12.6	0	0	NA	NA	1	Good condition.
GB32	20-Mar-17	13:00	1005	0.29	5.2	70.7	70.7	20.9	0.0	3	1	3.68	1.09	4	Good condition
GB33A	21-Mar-17	14:14	1002	0.00	0.0	0.0	0.0	1.2	19.5	0	0	NA	NA	1	Good condition
GB36A	20-Mar-17	14:45	1007	0.05	1.4	0.0	0.0	6.0	5.2	0	0	0.00	0.08	2	Broken stickup cover. PVC seems ok
GB37	20-Mar-17	12:55	1005	0.01	0.3	64.2	64.2	23.1	0.0	5	1	0.19	0.07	2	Good condition
GB40	21-Mar-17	9:48	1004	0.00	0.0	0.0	0.0	3.2	17.5	0	0	NA	NA	1	Good condition.
GB41	21-Mar-17	9:43	1004	0.00	0.0	0.0	0.0	2.7	18.0	0	0	NA	NA	1	Good condition.
GB42	21-Mar-17	9:33	1004	0.00	0.0	0.0	0.0	2.5	18.3	0	0	NA	NA	1	Good condition
GB43 3.1	21-Mar-17	9:24	1004	0.00	0.0	0.0	0.0	3.7	17.3	0	0	NA	NA	1	Good condition.
GB43 5.0	21-Mar-17	9:27	1004	0.00	0.0	0.0	0.0	0.0	20.6	0	0	NA	NA	1	Good condition.
GB44	21-Mar-17		Well Destroyed												
GB45	21-Mar-17	9:02	1004	0.00	0.0	0.3	0.0	4.7	16.2	0	0	NA	NA	1	Good condition
GB46A	20-Mar-17	11:25	1006	0.00	0	1.2	0.1	7.9	4.8	1	0	NA	NA	2	Good condition
GB47	20-Mar-17	11:40	1006	0.00	0.0	0.0	0.0	6.4	14.5	0	0	NA	NA	1	Good condition
GB48	20-Mar-17	13:10	1005	0.00	0.0	0.0	0.0	6.9	12.6	0	0	NA	NA	1	Good condition
GB49	20-Mar-17	11:55	1007	0.00	0.0	0.0	0.0	2.1	18.2	0	0	NA	NA	1	Good condition
GB50	20-Mar-17	12:00	1007	0.00	0.0	0.0	0.0	4.1	16.9	0	0	NA	NA	1	Good condition
GB51 2.7	20-Mar-17	12:10	1006	0.00	0.0	0.0	0.0	5.7	15.5	0	0	NA	NA	1	Good condition
GB51 5.8	20-Mar-17	12:14	1006	0.00	0.0	0.0	0.0	8.8	9.2	0	0	NA	NA	1	Good condition
GB51 7.8	20-Mar-17	12:18	1006	0.00	0.0	0.0	0.0	8.1	10.5	0	0	NA	NA	1	Good condition
GB52	20-Mar-17	12:25	1006	0.00	0.0	0.0	0.0	1.7	19.3	0	0	NA	NA	1	Good condition
GB53	20-Mar-17	12:30	1005	0.00	0.0	0.0	0.0	2.5	18.3	0	0	NA	NA	1	Good condition
GB54	20-Mar-17	12:28	1005	0.00	0.0	0.0	0.0	7.9	9.5	1	1	NA	NA	1	Good condition
GB54B	20-Mar-17	9:46	1008	0.00	0.0	0.0	0.0	0.3	19.4	0	0	NA	NA	1	Possible opening / crack near well cap fitting
GB55	20-Mar-17	9:30	1008	0.00	0.0	63.2	63.0	18.5	0.0	1	1	NA	NA	2	Casing damaged and bent, not cracked
GB56	20-Mar-17	11:00	1007	0.03	0.6	19.7	19.3	1.4	0.0	0	0	0.12	0.01	2	Good condition
GB57	21-Mar-17	11:30	1004	0.00	0.0	0.0	0.0	6.0	14.3	0	0	NA	NA	1	Good condition
GB58	21-Mar-17	11:35	1004	0.00	0.0	0.0	0.0	7.4	13.8	0	0	NA	NA	1	Good condition
GB59	21-Mar-17	11:54	1004	0.00	0.0	0.0	0.0	2.5	17.7	0	0	NA	NA	1	Good condition
GB60	20-Mar-17	14:29	1009	0.27	5.1	6.4	6.4	1.1	0.0	0	1	0.33	0.06	2	Good condition
GB61	20-Mar-17	14:23	1007	0.42	7.6	66.2	66.1	19.8	0.0	0	1	5.03	1.50	4	Good condition
GB62	20-Mar-17	14:33	1008	0.20	4.0	3.1	3.1	3.3	1.4	0	1	0.12	0.13	2	Good condition
GB63	20-Mar-17	11:50	1006	0.06	1.3	2.7	2.7	0.7	4.0	0	1	0.04	0.01	2	Good condition
GB64	20-Mar-17	14:12	1008	0.43	7.6	40.0	40.0	2.8	0.0	0	1	3.04	0.21	3	Good condition
GB65	20-Mar-17	11:15	1006	0.00	0.0	1.5	1.5	0.3	18.5	0	1	NA	NA	2	Good condition
GB66	21-Mar-17	12:08	1003	0.10	2.1	17.5	14.8	2.2	0.0	0	0	0.37	0.05	2	Good condition
GB67	20-Mar-17	13:17	1005	0.00	0.0	0.0	0.0	4.0	17.3	0	0	NA	NA	1	Good condition
GB68	20-Mar-17	14:39	1007	0.15	3.9	53.5	53.4	20.9	0.0	3	1	2.09	0.82	3	Good condition
GB69	20-Mar-17	14:06	1008	0.06	1.3	7.2	7.2	14.7	0.0	0	1	0.09	0.19	2	Broken gatic cover. PVC seems ok
GB70	20-Mar-17	14:00	1006	0.05	1.0	0.7	0.7	14.5	0.0	0	1	0.01	0.15	2	Good condition
GB71	20-Mar-17	15:31	1004	0.68	11.0	46.1	46.1	7.9	0.0	0	0	5.07	0.87	4	Good condition
GB72	20-Mar-17	15:20	1004	0.00	0.0	0.0	0.0	12.3	6.6	0	0	NA	NA	1	Good condition
GB73	21-Mar-17	8:59	1004	0.00	0.0	41.8	41.8	26.4	0.0	0	0	NA	NA	2	Good condition
GB75	21-Mar-17	11:17	1004	0.00	0.0	0.9	0.9	20.5	0.0	1	0	NA	NA	1	Good condition
GB76	21-Mar-17	10:15	1004	0.00	0.0	0.0	0.0	9.7	11.7	0	0	NA	NA	1	Good condition
GB77	21-Mar-17	10:20	1004	0.00	0.0	0.1	0.1	9.5	11.8	0	0	NA	NA	1	Good condition
GB78	21-Mar-17	10:10	1004	0.00	0.0	0.3	0.0	5.9	16.0	0	0	NA	NA	1	Good condition
GB79	21-Mar-17	9:53	1004	0.00	0.0	0.0	0.0	15.0	6.7	0	0	NA	NA	1	Good condition

Methane detected >1%

GSV CH₄: Methane Gas Screening Value

GSV CO₂: Carbon Dioxide Gas Screening Value

1: British Standard 8485:2015 Characteristic Gas Situation

Situation	Hazard Potential
1	Very Low
2	Low
3	Moderate
4	Moderate to High
5	High
6	Very High

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB01	25-Mar-09		1011	0.06		0.2		1.1	18.8			NA	NA	1		
	02-Apr-09		1014	-0.72		0.0		0.2	20.5			NA	NA	1		
	08-Apr-09		1018	-0.03		0.0		0.3	20.5			NA	NA	1		
	15-Apr-09		1000	0.09		0.0		0.3	20.7			NA	NA	1		
	21-Apr-09		1018	0.19		0.1		0.3	19.3			NA	NA	1		
	29-Apr-09		1018	0.19		0.0		0.0	20.7			NA	NA	1		
	09-Jun-09		1001	0		0.0		0.0	20.7			NA	NA	1		
	18-Jun-09		1023	0		0.0		11.8	8.4			NA	NA	1		
	22-Jun-09		1008	0		0.0		7.2	9.9			NA	NA	1		
	01-Jul-09		990	0		0.0		1.3	18.9			NA	NA	1		
	07-Jul-09		1022	0		0.0		1.5	20.2			NA	NA	1		
	05-Aug-09		1008	0.1		0.0		5.5	15.6			NA	NA	1		
	11-Aug-09		1000	0		0.0		0.6	20.4			NA	NA	1		
	18-Aug-09		1017	0		0.0		2.9	17.9			NA	NA	1		
	01-Sep-09		1012	-0.02		0.0		2.0	18.6			NA	NA	1		
	07-Sep-09		993	0		0.0		2.0	20.0			NA	NA	1		
	15-Sep-09		1010	0		0.0		4.9	16.5			NA	NA	1		
	23-Sep-09		990			0.0		3.4	17.0			NA	NA	1		
	06-Oct-09		1004	0		0.0		1.0	19.7			NA	NA	1		
	15-Oct-09		998	-0.01		0.0		0.6	20.1			NA	NA	1		
	20-Oct-09		1008	0		0.0		9.1	12.5			NA	NA	1		
	04-Nov-09		1010	0		0.0		2.4	18.0			NA	NA	1		
	17-Nov-09		1000	0		0.0		0.3	20.5			NA	NA	1		
	01-Dec-09		1009	0.06		0.0		0.2	16.0			NA	NA	1		
	14-Dec-09		1012	-0.02		0.0		2.0	18.5			NA	NA	1		
	04-Jan-10		1009	0		0.0		0.2	20.4			NA	NA	1		
18-Jan-10		1001	0		0.0		0.9	20.0			NA	NA	1			
21-Oct-10		1011	0		0.0		7.9	11.1			NA	NA	1			
03-Jul-13	11:00		1022	0.00	0.0	0.0	0.0	4.5	16.5	0	0	NA	NA	1	Readings did not stabilise after -5 mins	
16-Apr-14	9:12		1010	0.01	0.0	0.0	0.0	0.1	20.0	0	0	NA	NA	1		
31-Aug-16	8:33		1005	0.00	0.0	0.0	0.0	0.1	21.1	1	1	NA	NA	1	Good condition	
21-Mar-17	11:48		1004	0.00	0.0	0.0	0.0	8.0	12.6	0	0	NA	NA	1		
GB02	25-Mar-09		1010	0.06		0.2		0.2	20.7			NA	NA	1		
	02-Apr-09		1014	-0.6		0.0		0.4	20.0			NA	NA	1		
	09-Apr-09		1017	1.27		0.0		0.2	20.3			NA	NA	1		
	14-Apr-09		999	-0.28		0.0		2.8	16.7			NA	NA	1		
	22-Apr-09		1018	0		0.0		0.5	20.9			NA	NA	1		
	29-Apr-09		1018	0		0.0		0.1	20.8			NA	NA	1		
	09-Jun-09		1001	0		0.0		1.7	19.0			NA	NA	1		
	18-Jun-09		1023	0		0.0		2.1	19.5			NA	NA	1		
	22-Jun-09		1008	0		0.0		2.0	19.5			NA	NA	1		
	01-Jul-09		990	0		0.0		1.0	19.3			NA	NA	1		
	03-Jul-13	11:10		1022	0.00	0.0	0.0	0.0	1.9	19.3	0	0	NA	NA	1	
	16-Apr-14	9:51		1011	0.01	0.0	0.1	0.0	1.7	18.8	0	0	NA	NA	1	
	31-Aug-16	8:56		1003	0.00	0.0	0.0	0.0	0.0	21.1	0	0	NA	NA	1	Good condition. Tape around top casing
	21-Mar-17	11:42		1004	0.00	0.0	0.0	0.0	0.9	19.8	0	0	NA	NA	1	
GB03	25-Mar-09		1010	0.1		0.2		5.1	14.4			NA	NA	1		
	03-Apr-09		1008	-0.08		0.0		5.9	13.9			NA	NA	1		
	08-Apr-09		1017	0.01		0.0		5.5	14.0			NA	NA	1		
	14-Apr-09		1006	1.74		0.0		6.7	12.4			NA	NA	1		
	21-Apr-09		1018	0.01		0.0		5.5	13.8			NA	NA	1		
	29-Apr-09		1018	0.01		0.0		4.4	16.0			NA	NA	1		
	09-Jun-09		1001	0		0.0		4.2	14.9			NA	NA	1		
	18-Jun-09		1023	0		0.0		2.7	18.0			NA	NA	1		
	22-Jun-09		1008	0		0.0		2.0	19.5			NA	NA	1		
	01-Jul-09		989	0.04		0.0		1.9	18.0			NA	NA	1		
	03-Jul-13	11:15		1022	0.00	0.0	1.0	1.0	2.9	17.7	0	0	NA	NA	1	
	16-Apr-14	10:13		1012	0.00	0.2	0.1	0.1	4.2	18.5	0	0	0.00	0.01	1	Loose concrete in gatic base.
	31-Aug-16	9:01		1004	0.00	0.0	0.0	0.0	8.4	9.1	1	0	NA	NA	1	No cover. Bore has been repaired at ground level
21-Mar-17	10:31		1004	0.00	0.0	0.0	0.0	5.3	15.5	0	0	NA	NA	1	Good condition	
GB04	25-Mar-09		1010	-0.04		0.2		3.9	14.9			NA	NA	1		
	03-Apr-09		1007	0.01		0.0		8.7	11.6			NA	NA	1		
	09-Apr-09		1015	-0.01		0.0		1.4	18.5			NA	NA	1		
	14-Apr-09		1006	-0.01		0.0		0.5	19.9			NA	NA	1		
	22-Apr-09		1018	0		0.0		2.9	17.9			NA	NA	1		
	28-Apr-09		1014	0		0.0		0.8	19.1			NA	NA	1		
	09-Jun-09		1000	0		0.0		0.7	20.6			NA	NA	1		
	21-Oct-10		1008	0		0.0		0.9	18.9			NA	NA	1		
	03-Jul-13	11:20		1021	0.00	0.0	0.0	0.0	0.0	20.8	0	0	NA	NA	1	
	16-Apr-14	10:17		1013	0.01	0.0	0.1	0.1	1.1	19.2	0	0	NA	NA	1	Gas bore full of ants.
	31-Aug-16	9:07		1004	0.00	0.0	0.0	0.0	0.5	20.7	1	1	NA	NA	1	Difficult to ensure well cap is sealed
21-Mar-17	10:26		1004	0.00	0.0	0.0	0.0	0.7	19.9	0	0	NA	NA	1	Grass growing in stickup	
GB05	25-Mar-09		1010	0.01		64.6		17.0	0.2			NA	NA	2		
	03-Apr-09		1008	0.1		70.5		16.8	0.0			NA	NA	2		
	09-Apr-09		1013	-0.21		70.7		15.8	0.0			NA	NA	2		
	14-Apr-09		1006	-0.06		70.3		16.3	0.0			NA	NA	2		
	21-Apr-09		1018	0.08		52.2		16.3	0.0			NA	NA	2		
	28-Apr-09		1014	0.08		42.5		16.0	0.0			NA	NA	2		
	09-Jun-09		1000	0		52.3		14.5	0.1			NA	NA	2		
	21-Oct-10		1008	0		81.1		11.3	0.0			NA	NA	2		
	03-Jul-13	12:00		1021	0.19	0.2	87.9	87.9	11.3	0.0	0	0	0.18	0.02	2	Cap came off after taking flow reading
	04-Jul-13	10:00		1008	0.20	0.1	89.5	89.5	12.1	0.0	0	1	0.09	0.01	2	Sampled again due to falling pressure conditions
	16-Apr-14	10:27		1013	0.01	0.0	64.0	64.0	13.0	0.1	3	5	NA	NA	2	H ₂ S odour noted. Ant infestation.
30-Aug-16	15:32		1004	0.11	1.8	78.0	77.8	11.2	0.0	5	1	1.40	0.20	3		
21-Mar-17	9:59		1004	0.00	0.0	32.9	32.8	15.3	0.0	0	0	NA	NA	2	Good condition	

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB06	24-Mar-09		1006	-0.03		0.2		2.2	18.6			NA	NA	1	
	03-Apr-09		1008	0.49		0.0		3.1	18.1			NA	NA	1	
	09-Apr-09		1013	0.42		0.0		2.5	17.1			NA	NA	1	
	14-Apr-09		1003	-0.19		0.0		1.9	18.0			NA	NA	1	
	21-Apr-09		1018	0.01		0.1		1.5	18.3			NA	NA	1	
	28-Apr-09		1014	0.01		0.0		2.2	18.7			NA	NA	1	
	09-Jun-09		999	0		0.0		1.3	19.1			NA	NA	1	
	18-Jun-09		1023	0		0.0		3.4	18.0			NA	NA	1	
	22-Jun-09		1009	0		0.0		2.0	18.5			NA	NA	1	
	01-Jul-09		989	0		0.0		0.7	20.4			NA	NA	1	
	07-Jul-09		1020	0		0.0		2.1	17.9			NA	NA	1	
	05-Aug-09		1016	0		0.0		2.2	18.8			NA	NA	1	
	11-Aug-09		1002	0		0.0		3.1	17.6			NA	NA	1	
	18-Aug-09		1017	0		0.0		1.8	19.3			NA	NA	1	
	01-Sep-09		1011	0		0.0		1.6	19.1			NA	NA	1	
	07-Sep-09		994	0.01		0.0		2.2	19.1			NA	NA	1	
	15-Sep-09		1017	0.03		0.0		2.3	18.8			NA	NA	1	
	23-Sep-09		989			0.0		2.1	17.7			NA	NA	1	
	06-Oct-09		1004	0		0.0		3.1	17.0			NA	NA	1	
	15-Oct-09		996	0		0.0		2.7	18.6			NA	NA	1	
	20-Oct-09		1009	0.04		0.0		3.2	16.8			NA	NA	1	
	17-Nov-09		1003	0		0.0		2.5	18.5			NA	NA	1	
	01-Dec-00		1014	0		0.0		4.8	15.3			NA	NA	1	
	14-Dec-09		1012	0		0.0		3.5	16.6			NA	NA	1	
	04-Jan-10		1008	0		0.0		3.2	17.8			NA	NA	1	
	18-Jan-10		1002	0.1		0.0		2.2	18.3			NA	NA	1	
21-Oct-10		1008	0		0.0		2.6	15.5			NA	NA	1		
03-Jul-13	11:35		1021	-0.01	0.1	1.0	0.0	1.3	20.2	0	0	0.00	0.00	1	
16-Apr-14	10:35		1013	0.01	0.0	0.5	0.5	2.8	19.5	1	0	NA	NA	1	Unknown odour in ambient air around bore. Ants.
30-Aug-16															Insect nest. Not sampled
21-Mar-17															Not sampled
GB07	04-Nov-09			0		0.0		2.6	18.3			NA	NA	1	
	24-Mar-09		1006	-0.22		0.2		2.2	18.8			NA	NA	1	
	03-Apr-09		1008	0.11		0.0		2.3	19.1			NA	NA	1	
	09-Apr-09		1013	0.32		0.0		2.2	17.8			NA	NA	1	
	14-Apr-09		1003	0.01		0.0		2.4	17.8			NA	NA	1	
	21-Apr-09		1018	-0.02		0.1		0.7	19.5			NA	NA	1	
	28-Apr-09		1014	-0.02		0.0		0.7	20.2			NA	NA	1	
	09-Jun-09		999	0.02		0.0		0.8	20.3			NA	NA	1	
	18-Jun-09		1023	0		0.0		2.3	19.3			NA	NA	1	
	22-Jun-09		1009	0		0.0		1.1	20.0			NA	NA	1	
	01-Jul-09		989	0		0.0		1.3	19.4			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.6	19.0			NA	NA	1	
	05-Aug-09		1016	-0.17		0.0		2.2	19.1			NA	NA	1	
	11-Aug-09		1002	0.24		0.0		2.3	18.7			NA	NA	1	
	18-Aug-09		1017	0		0.0		2.0	19.1			NA	NA	1	
	01-Sep-09		1011	-0.02		0.0		1.9	18.7			NA	NA	1	
	07-Sep-09		994	0		0.0		1.8	19.9			NA	NA	1	
	15-Sep-09		1017	0		0.0		2.3	18.8			NA	NA	1	
	23-Sep-09		987			0.0		2.1	18.5			NA	NA	1	
	06-Oct-09		1004	0		0.0		2.7	18.0			NA	NA	1	
	15-Oct-09		996	-0.01		0.0		2.9	17.8			NA	NA	1	
	20-Oct-09		1009	0		0.0		3.0	18.4			NA	NA	1	
	04-Nov-09		1012	0		0.0		2.9	18.2			NA	NA	1	
	17-Nov-09		1003	0		0.0		2.5	18.6			NA	NA	1	
	01-Dec-09		1014	0.03		0.0		4.0	16.9			NA	NA	1	
	14-Dec-09		1012	0		0.0		3.9	16.2			NA	NA	1	
04-Jan-10		1008	-0.01		0.0		3.7	16.5			NA	NA	1		
18-Jan-10		1002	0		0.0		2.7	18.5			NA	NA	1		
21-Oct-10		1008	0		0.0		2.8	16.4			NA	NA	1		
16-Apr-14	11:01		1013	0.01	0.1	0.4	0.4	3.4	17.3	0	0	0.00	0.00	1	Good condition
30-Aug-16	14:56		1005	0.00	0.0	0.0	0.0	3.0	17.7	0	0	NA	NA	1	Good condition
21-Mar-17	9:38		1004	0.00	0.0	0.0	0.0	3.2	17.6	0	0	NA	NA	1	Good condition
GB08	24-Mar-09		1006	0.48		0.4		2.1	18.6			NA	NA	1	
	03-Apr-09		1008	0.08		0.0		2.3	19.0			NA	NA	1	
	09-Apr-09		1013	-0.09		0.0		2.0	17.2			NA	NA	1	
	14-Apr-09		1003	-0.28		0.0		2.0	17.4			NA	NA	1	
	21-Apr-09		1012	-0.03		0.0		0.9	19.3			NA	NA	1	
	28-Apr-09		1012	-0.03		0.0		0.1	20.8			NA	NA	1	
	09-Jun-09		1000	0		0.0		0.1	20.8			NA	NA	1	
	18-Jun-09		1023	0		0.0		1.8	19.5			NA	NA	1	
	22-Jun-09		1009	0		0.0		1.1	20.1			NA	NA	1	
	01-Jul-09		990	0		0.0		1.8	18.4			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.9	18.5			NA	NA	1	
	05-Aug-09		1013	0		0.0		2.8	18.5			NA	NA	1	
	11-Aug-09		1002	0.2		0.0		2.9	18.0			NA	NA	1	
	18-Aug-09		1017	0.02		0.0		2.7	18.2			NA	NA	1	
	01-Sep-09		1011	-0.02		0.0		2.2	18.7			NA	NA	1	
	07-Sep-09		994	0.01		0.0		2.5	18.8			NA	NA	1	
	15-Sep-09		1013	0		0.0		2.4	18.8			NA	NA	1	
	23-Sep-09		987			0.0		2.6	17.1			NA	NA	1	
	06-Oct-09		1004	0		0.0		2.6	18.0			NA	NA	1	
	15-Oct-09		996	0		0.0		2.4	18.8			NA	NA	1	
	20-Oct-09		1009	0		0.0		2.5	19.0			NA	NA	1	
	04-Nov-09		1012	0		0.0		3.0	17.9			NA	NA	1	
	17-Nov-09		1003	0		0.0		2.5	18.3			NA	NA	1	
	01-Dec-09		1014	0.08		0.0		3.8	16.6			NA	NA	1	
	14-Dec-09		1012	0		0.0		2.8	16.6			NA	NA	1	
	04-Jan-10		1008	0		0.0		2.7	16.8			NA	NA	1	
18-Jan-10		1002	0.07		0.0		2.0	19.3			NA	NA	1		
21-Oct-10		1008	0		0.0		3.4	15.8			NA	NA	1		
16-Apr-14	12:43		1014	0.01	0.0	0.0	0.0	3.5	16.4	0	0	NA	NA	1	Good condition.
30-Aug-16	14:39		1006	0.00	0.0	0.0	0.0	4.8	15.1	0	0	NA	NA	1	Good condition.
21-Mar-17	9:08		1004	0.00	0.0	0.0	0.0	3.0	17.7	0	0	NA	NA	1	Good condition.

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB09	24-Mar-09		1006	0.11		0.1		1.8	18.7			NA	NA	1		
	03-Apr-09		1006	-0.03		0.0		0.6	20.3			NA	NA	1		
	09-Apr-09		1013	0.01		0.0		1.9	17.7			NA	NA	1		
	14-Apr-09		1003	-0.14		0.0		1.9	18.1			NA	NA	1		
	21-Apr-09		1012	0		0.0		1.1	19.9			NA	NA	1		
	28-Apr-09		1012	0		0.0		0.8	19.9			NA	NA	1		
	09-Jun-09		1000	0		0.0		0.7	20.6			NA	NA	1		
	18-Jun-09		1023	0		0.0		1.9	19.6			NA	NA	1		
	22-Jun-09		1009	0		0.0		1.3	20.0			NA	NA	1		
	01-Jul-09		990	0		0.0		1.3	19.4			NA	NA	1		
	07-Jul-09		1020	0		0.0		1.7	18.8			NA	NA	1		
	05-Aug-09		1013	0		0.0		2.3	19.2			NA	NA	1		
	11-Aug-09		1001	0		0.0		2.4	18.6			NA	NA	1		
	18-Aug-09		1017	0.02		0.0		2.0	18.7			NA	NA	1		
	01-Sep-09		1011	0		0.0		1.8	19.0			NA	NA	1		
	07-Sep-09		994	0		0.0		1.9	19.7			NA	NA	1		
	15-Sep-09		1013	0		0.0		2.2	18.8			NA	NA	1		
	23-Sep-09		987			0.0		2.3	17.9			NA	NA	1		
	06-Oct-09		1004	0		0.0		3.0	17.4			NA	NA	1		
	15-Oct-09		996	0.01		0.0		2.8	17.7			NA	NA	1		
	20-Oct-09		1008	0		0.0		3.8	17.0			NA	NA	1		
	04-Nov-09		1012	0		0.0		7.1	12.9			NA	NA	1		
	17-Nov-09		1003	0		0.0		7.1	13.9			NA	NA	1		
	01-Dec-09		1011	0		0.0		7.6	12.7			NA	NA	1		
	14-Dec-09		1012	0		0.1		6.8	13.0			NA	NA	1		
04-Jan-10		1008	0		0.0		8.4	11.7			NA	NA	1			
18-Jan-10		1002	-0.02		0.0		3.1	17.6			NA	NA	1			
21-Oct-10		1008	0		0.0		4.5	14.2			NA	NA	1			
16-Apr-14	12:54		1014	0.00	0.2	0.0	0.0	2.6	17.6	0	0	0.00	0.01	1	Good condition.	
30-Aug-16	14:22		1006	0.00	0.0	0.0	0.0	3.0	17.4	0	0	NA	NA	1	Good condition.	
20-Mar-17	15:15		1003	0.00	0.0	0.0	0.0	2.2	18.5	0	0	NA	NA	1	Good condition.	
GB10	24-Mar-09		1007	0.1		0.1		3.2	17.9			NA	NA	1		
	02-Apr-09		1007	-0.35		0.0		5.1	13.0			NA	NA	1		
	09-Apr-09		1013	-0.24		0.0		2.5	17.1			NA	NA	1		
	14-Apr-09		999	0.02		0.0		3.3	17.1			NA	NA	1		
	21-Apr-09		1012	0		0.0		2.4	18.6			NA	NA	1		
	28-Apr-09		1012	0		0.0		2.1	18.9			NA	NA	1		
	09-Jun-09		999	0		0.0		1.8	18.7			NA	NA	1		
	18-Jun-09		1023	0		0.0		3.5	18.1			NA	NA	1		
	22-Jun-09		1009	0		0.0		1.7	18.7			NA	NA	1		
	01-Jul-09		990	0		0.0		2.6	18.0			NA	NA	1		
	07-Jul-09		1020	0		0.0		2.8	17.5			NA	NA	1		
	05-Aug-09		1013	-0.07		0.0		4.8	15.5			NA	NA	1		
	11-Aug-09		1001	0		0.0		4.9	15.1			NA	NA	1		
	18-Aug-09		1017	0		0.0		5.1	14.9			NA	NA	1		
	01-Sep-09		1012	0		0.0		5.6	14.3			NA	NA	1		
	07-Sep-09		994	0.02		0.0		5.9	14.6			NA	NA	1		
	15-Sep-09		1013	0		0.0		6.0	13.8			NA	NA	1		
	23-Sep-09		987			0.0		5.8	12.7			NA	NA	1		
	06-Oct-09		1004	0		0.0		7.6	12.0			NA	NA	1		
	15-Oct-09		996	0		0.0		6.9	12.2			NA	NA	1		
	20-Oct-09		1008	-0.02		0.0		7.0	13.5			NA	NA	1		
	04-Nov-09		1012	0		0.0		7.3	14.0			NA	NA	1		
	17-Nov-09		1003	0		0.0		5.2	16.7			NA	NA	1		
	01-Dec-09		1011	0		0.0		7.5	13.1			NA	NA	1		
	14-Dec-09		1012	0		0.0		7.8	12.1			NA	NA	1		
04-Jan-10		1008	0		0.0		6.4	14.2			NA	NA	1			
18-Jan-10		1001	0		0.0		3.0	18.3			NA	NA	1			
21-Oct-10		1017	0		0.0		7.8	9.9			NA	NA	1			
03-Jul-13	13:25		1019	0.00	0.0	0.0	0.0	4.5	14.9	0	0	NA	NA	1		
16-Apr-14	13:01		1014	0.01	0.1	0.0	0.0	2.8	17.3	0	0	0.00	0.00	1	Good condition.	
30-Aug-16	14:17		1006	0.00	0.0	0.0	0.0	6.8	12.1	0	0	NA	NA	1	Good condition.	
20-Mar-17	15:10		1003	0.00	0.0	0.0	0.0	3.7	17.4	0	0	NA	NA	1	Good condition.	
GB11	22-Jun-09		1009	0		0.0		0.9	20.9			NA	NA	1		
	01-Jul-09		992	0		0.0		1.2	19.6			NA	NA	1		
	07-Jul-09		1020					4.3	15.5			NA	NA	1		
	05-Aug-09		1013	0		0.0		2.9	17.6			NA	NA	1		
	11-Aug-09		1001	0		0.0		3.9	16.2			NA	NA	1		
	18-Aug-09		1017	0		0.0		2.5	18.3			NA	NA	1		
	01-Sep-09		1012	0.02		0.0		2.5	17.2			NA	NA	1		
	07-Sep-09		994	0		0.0		0.0	21.8			NA	NA	1		
	15-Sep-09		1013	0		0.0		3.6	16.5			NA	NA	1		
	23-Sep-09		988			0.0		3.7	16.1			NA	NA	1		
	06-Oct-09		1004	0		0.0		5.6	14.2			NA	NA	1		
	15-Oct-09		996	0		0.0		3.1	17.9			NA	NA	1		
	20-Oct-09		1008	0		0.0		5.2	15.4			NA	NA	1		
	04-Nov-09		1011	0		0.0		4.5	16.6			NA	NA	1		
	17-Nov-09		1001	0		0.0		5.0	16.2			NA	NA	1		
	01-Dec-09		1011	0		0.0		6.9	12.8			NA	NA	1		
	14-Dec-09		1012	-0.01		0.0		5.5	13.7			NA	NA	1		
	04-Jan-10		1008	0		0.0		7.1	11.9			NA	NA	1		
	18-Jan-10		1001	0		0.0		4.4	16.7			NA	NA	1		
	21-Oct-10		1008	0		0.0		6.7	11.4			NA	NA	1		
	16-Apr-14	13:19		1014	0.01	0.0	0.0	0.0	6.3	13.5	0	0	NA	NA	1	Good condition.
	30-Aug-16	14:06		1006	0.00	0.0	0.0	0.0	4.5	15.3	0	0	NA	NA	1	Good condition.
	20-Mar-17	15:01		1003	0.00	0.0	0.0	0.0	6.9	14.5	1	0	NA	NA	1	Good condition.

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB12	25-Mar-09		1009	-0.04		0.1		4.1	15.7			NA	NA	1	
	02-Apr-09		1007	-0.45		0.0		3.9	15.0			NA	NA	1	
	08-Apr-09		1017	0.05		0.0		4.0	16.3			NA	NA	1	
	14-Apr-09		999	-0.3		0.0		4.1	14.6			NA	NA	1	
	21-Apr-09		1010	0		0.0		4.2	15.7			NA	NA	1	
	29-Apr-09		1018	0		0.0		5.1	15.5			NA	NA	1	
	09-Jun-09		999	0		0.0		4.0	15.8			NA	NA	1	
	09-Jun-09		999	0		0.0		4.0	15.8			NA	NA	1	
	18-Jun-09		1023	0		0.0		5.0	15.2			NA	NA	1	
	22-Jun-09		1009	0		0.0		3.5	14.9			NA	NA	1	
	01-Jul-09		992	0		0.0		3.4	16.4			NA	NA	1	
	07-Jul-09		1020	0		0.0		4.1	16.4			NA	NA	1	
	05-Aug-09		1013	0		0.0		4.7	15.8			NA	NA	1	
	11-Aug-09		1001	0		0.0		4.5	15.8			NA	NA	1	
	18-Aug-09		1017	0		0.0		4.5	16.6			NA	NA	1	
	01-Sep-09		1012	0		0.0		3.8	16.7			NA	NA	1	
	07-Sep-09		994	0.01		0.0		3.5	17.6			NA	NA	1	
	15-Sep-09		1012	0		0.0		3.9	17.0			NA	NA	1	
	23-Sep-09		987			0.0		4.0	15.1			NA	NA	1	
	06-Oct-09		1004	0.01		0.0		3.4	15.7			NA	NA	1	
15-Oct-09		996	-0.01		0.0		4.1	17.0			NA	NA	1		
20-Oct-09		1008	0		0.0		5.0	15.4			NA	NA	1		
04-Nov-09		1011	0		0.0		5.3	15.0			NA	NA	1		
17-Nov-09		1001	0		0.0		4.8	16.2			NA	NA	1		
01-Dec-09		1011	0.02		0.0		5.6	12.3			NA	NA	1		
14-Dec-09		1012	0		0.0		5.7	12.8			NA	NA	1		
04-Jan-10		1008	0		0.0		5.9	12.7			NA	NA	1		
18-Jan-10		1001	0.01		0.0		3.8	17.3			NA	NA	1		
21-Oct-10		1017	0		0.0		5.1	13.9			NA	NA	1		
16-Apr-14	13:37		1014	0.01	0.0	0.1	0.1	4.6	13.8	0	0	NA	NA	1	Good condition.
30-Aug-16	13:45		1007	0.00	0.0	0.0	0.0	5.0	13.9	0	0	NA	NA	1	Good condition.
20-Mar-17	14:55		1004	0.01	0.1	0.0	0.0	5.2	15.0	1	0	0.00	0.01	1	Good condition.
GB13	25-Mar-09		1009	0.09		0.1		3.0	10.5			NA	NA	1	
	02-Apr-09		1007	-0.5		0.8		2.8	5.2			NA	NA	1	
	08-Apr-09		1017	0.38		0.0		2.8	10.2			NA	NA	1	
	14-Apr-09		999	0.18		0.0		3.0	8.9			NA	NA	1	
	22-Apr-09		1018	0		0.0		2.6	10.9			NA	NA	1	
	29-Apr-09		1018	0		0.0		2.8	11.0			NA	NA	1	
	09-Jun-09		999	0		0.0		2.0	10.9			NA	NA	1	
	09-Jun-09		999	0		0.0		2.0	10.9			NA	NA	1	
	18-Jun-09		1023	0		0.0		3.2	10.9			NA	NA	1	
	22-Jun-09		1011	0		0.0		1.8	11.3			NA	NA	1	
	01-Jul-09		992	0		0.0		1.7	10.4			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.9	10.8			NA	NA	1	
	05-Aug-09		1013	0		0.0		2.8	9.5			NA	NA	1	
	11-Aug-09		1001	0		0.0		2.8	9.5			NA	NA	1	
	18-Aug-09		1017	0.02		0.0		2.4	10.8			NA	NA	1	
	01-Sep-09		1012	0		0.0		2.4	10.5			NA	NA	1	
	07-Sep-09		993	-0.02		0.0		2.3	12.1			NA	NA	1	
	15-Sep-09		1012	0		0.0		2.5	10.9			NA	NA	1	
	23-Sep-09		987			0.0		2.4	8.5			NA	NA	1	
	06-Oct-09		1004	-0.03		0.0		2.7	6.8			NA	NA	1	
15-Oct-09		996	0		0.0		2.6	9.2			NA	NA	1		
20-Oct-09		1008	0		0.0		2.7	8.6			NA	NA	1		
04-Nov-09		1011	0		0.0		3.0	9.4			NA	NA	1		
17-Nov-09		1001	0		0.0		2.9	10.9			NA	NA	1		
01-Dec-09		1011	0		0.0		3.6	4.3			NA	NA	1		
14-Dec-09		1012	0		0.1		3.4	5.6			NA	NA	1		
04-Jan-10		1008	0		0.0		3.9	4.9			NA	NA	1		
18-Jan-10		1001	0.03		0.0		3.3	11.0			NA	NA	1		
21-Oct-10		1017	0		0.0		2.8	6.7			NA	NA	1		
16-Apr-14	13:41		1013	0.02	0.2	0.0	0.0	10.5	6.5	0	0	0.00	0.02	1	Good condition
30-Aug-16	13:39		1007	0.00	0.0	0.0	0.0	4.6	5.1	0	0	NA	NA	1	Good condition
20-Mar-17	14:50		1006	0.00	0.0	0.0	0.0	4.7	13.1	0	0	NA	NA	1	Good condition
GB14	24-Mar-09		1006	-0.15		0.2		8.3	9.7			NA	NA	1	
	02-Apr-09		1014	-0.44		33.7		14.8	4.0			NA	NA	2	
	08-Apr-09		1022	0.13		0.0		7.9	10.9			NA	NA	1	
	15-Apr-09		1001	0		0.0		5.8	13.9			NA	NA	1	
	22-Apr-09		1015	0.1		0.0		7.7	11.5			NA	NA	1	
	29-Apr-09		1018	0.1		0.0		7.1	12.7			NA	NA	1	
	09-Jun-09		998	0		0.0		7.1	11.8			NA	NA	1	
	09-Jun-09		998	0		0.0		7.1	11.8			NA	NA	1	
	18-Jun-09		1023	0		0.0		6.3	13.2			NA	NA	1	
	22-Jun-09		1011	0.01		0.0		6.4	13.0			NA	NA	1	
	01-Jul-09		992	-0.01		0.0		5.8	14.4			NA	NA	1	
	07-Jul-09		1017	0		0.0		5.8	12.5			NA	NA	1	
	05-Aug-09		1012	0		0.0		7.5	11.2			NA	NA	1	
	11-Aug-09		1001	0		0.0		7.3	11.9			NA	NA	1	
	18-Aug-09		1017	0		0.0		6.6	13.9			NA	NA	1	
	01-Sep-09		1012	0		0.0		7.1	11.5			NA	NA	1	
	07-Sep-09		993	0		0.0		6.8	13.7			NA	NA	1	
	15-Sep-09		1012	0		0.0		7.2	12.2			NA	NA	1	
	23-Sep-09		987			0.0		7.2	9.5			NA	NA	1	
	06-Oct-09		1004	-0.07		0.4		1.8	17.1			NA	NA	1	
15-Oct-09		996	-0.01		0.1		4.9	12.2			NA	NA	1		
20-Oct-09		1008	0.02		4.1		14.1	0.7			NA	NA	2		
04-Nov-09		1011	0		2.1		15.4	0.9			NA	NA	2		
17-Nov-09		1001	0		1.6		17.1	0.5			NA	NA	2		
01-Dec-09		1011	0		2.4		17.6	0.7			NA	NA	2		
14-Dec-09		1012	0		4.1		18.2	0.0			NA	NA	2		
04-Jan-10		1008	0.01		3.8		16.8	1.9			NA	NA	2		
18-Jan-10		1001	-0.02		0.0		15.5	5.3			NA	NA	1		
21-Oct-10		1011	0		7.5		14.5	2.0			NA	NA	2		
16-Apr-14	13:50		1014	0.01	0.1	0.1	0.1	5.0	8.4	0	0	0.00	0.01	1	Good condition.
30-Aug-16	13:29		1007	0.04	0.7	13.9	13.9	13.9	1.3	1	1	0.10	0.10	2	
20-Mar-17	13:05		1006	0.00	0.0	1.4	0.8	17.9	0.1	0	1	NA	NA	2	Good condition

**Table 2B:
Historical Gas Bore Monitoring**

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB15	24-Mar-09		1006	-0.2		0.2		12.8	7.9			NA	NA	1		
	02-Apr-09		1014	1.65		0.0		13.4	6.8			NA	NA	1		
	08-Apr-09		1022	0.04		0.0		11.5	8.9			NA	NA	1		
	15-Apr-09		1003	-0.03		0.4		11.9	7.6			NA	NA	1		
	22-Apr-09		1015	0		0.0		10.6	9.9			NA	NA	1		
	29-Apr-09		1018	-0.02		0.0		9.3	11.1			NA	NA	1		
	09-Jun-09		998	0		0.4		14.9	3.1			NA	NA	1		
	18-Jun-09		1023	0		0.0		9.2	10.0			NA	NA	1		
	22-Jun-09		1011	0		0.1		12.5	4.5			NA	NA	1		
	01-Jul-09		992	0		5.2		15.4	2.3			NA	NA	2		
	07-Jul-09		1017	0		0.1		9.9	8.8			NA	NA	1		
	05-Aug-09		1012	0		8.7		15.5	1.2			NA	NA	2		
	11-Aug-09		1001	0		16.5		16.3	0.5			NA	NA	2		
	18-Aug-09		1017	-0.01		4.8		13.7	4.4			NA	NA	2		
	01-Sep-09		1012	0		6.7		16.3	0.1			NA	NA	2		
	07-Sep-09		993	0		22.8		16.6	1.3			NA	NA	2		
	15-Sep-09		1012	0		12.1		16.4	0.0			NA	NA	2		
	23-Sep-09		988			30.3		16.6	0.0			NA	NA	2		
	06-Oct-09		1004	-0.01		23.3		16.5	0.5			NA	NA	2		
	15-Oct-09		996	-0.02		29.7		12.9	0.2			NA	NA	2		
	20-Oct-09		1008	0.02		25.8		16.9	0.3			NA	NA	2		
	04-Nov-09		1011	0.01		22.5		16.9	0.0			NA	NA	2		
	17-Nov-09		1001	0.01		22.3		17.0	0.0			NA	NA	2		
	01-Dec-09		1011	0.02		13.8		15.7	0.5			NA	NA	2		
	14-Dec-09		1012	0		26.0		16.1	0.0			NA	NA	2		
	04-Jan-10		1008	0		19.7		17.7	0.3			NA	NA	2		
	18-Jan-10		1001	0.02		19.7		16.7	0.3			NA	NA	2		
	21-Oct-10		1011	0		34.3		15.8	0.1			NA	NA	2		
16-Apr-14	15:01		1013	0.01	0.2	36.0	36.0	12.8	0.1	2	3	0.07	0.03	2	Good condition. Slight H2S odour.	
30-Aug-16	10:17		1009	0.06	1.2	53.7	53.7	16.9	0.0	0	0	0.64	0.20	2	PVC bore is loose in the standpipe cover	
20-Mar-17	12:40		1005	0.10	2.2	42.2	39.8	15.9	0.2	3	1	0.93	0.35	3	Good condition	
GB16	24-Mar-09		1006	-0.17		0.2		1.1	20.4			NA	NA	1		
	02-Apr-09		1014			0.0		2.5	17.8			NA	NA	1		
	08-Apr-09		1022	0.05		0.0		0.9	20.0			NA	NA	1		
	15-Apr-09		1003	-0.04		0.0		0.4	20.5			NA	NA	1		
	22-Apr-09		1015	0		0.0		0.6	20.6			NA	NA	1		
	29-Apr-09		1018	0		0.0		0.9	20.0			NA	NA	1		
	09-Jun-09		999	0		0.0		0.2	20.2			NA	NA	1		
	18-Jun-09		1023	0		0.0		1.2	20.2			NA	NA	1		
	22-Jun-09		1011	-0.02		0.0		0.7	20.7			NA	NA	1		
	01-Jul-09		992	0		0.0		0.6	20.2			NA	NA	1		
	07-Jul-09		1017	0		0.0		0.7	20.2			NA	NA	1		
	05-Aug-09		1012	0		0.0		1.0	20.3			NA	NA	1		
	11-Aug-09		1001	0		0.0		1.1	20.2			NA	NA	1		
	18-Aug-09		1017	0		0.0		1.0	20.0			NA	NA	1		
	01-Sep-09		1012	-0.04		0.0		0.9	20.2			NA	NA	1		
	07-Sep-09		993	-0.01		0.0		0.9	21.3			NA	NA	1		
	15-Sep-09		1012	0.03		0.0		0.9	20.1			NA	NA	1		
	23-Sep-09		988			0.0		1.0	19.9			NA	NA	1		
	06-Oct-09		1004	0		0.0		0.8	20.0			NA	NA	1		
	15-Oct-09		996	0.03		0.0		1.8	18.6			NA	NA	1		
	20-Oct-09		1008	0		0.0		1.2	20.3			NA	NA	1		
	04-Nov-09		1011	0		0.0		1.2	19.5			NA	NA	1		
	17-Nov-09		1001	0		0.0		1.0	19.9			NA	NA	1		
	01-Dec-09		1009	0		0.0		1.9	18.9			NA	NA	1		
	14-Dec-09		1012	0		0.0		1.5	19.0			NA	NA	1		
	04-Jan-10		1008	0		0.0		1.1	19.6			NA	NA	1		
	18-Jan-10		1001	0.02		0.0		1.2	19.7			NA	NA	1		
	21-Oct-10		1011	0		0.0		2.0	18.2			NA	NA	1		
16-Apr-14	15:11		1012	0.01	0.2	0.5	0.5	2.1	17.9	0	0	0.00	0.00	1	Good condition. Water filtered by moisture trap	
30-Aug-16	10:11		1009	0.00	0.0	0.0	0.0	2.7	18.6	0	0	NA	NA	1	PVC bore is loose in the standpipe cover	
20-Mar-17	12:35		1005	0.00	0.0	0.0	0.0	1.1	19.8	0	0	NA	NA	1	Good condition	
GB17	24-Mar-09		1006	-0.16		0.2		2.6	18.8			NA	NA	1		
	02-Apr-09		1014	-0.43		0.0		2.9	17.8			NA	NA	1		
	08-Apr-09		1022	0.05		0.0		2.6	18.4			NA	NA	1		
	15-Apr-09		1003	0.01		0.0		2.8	18.1			NA	NA	1		
	22-Apr-09		1015	0		0.0		2.5	18.7			NA	NA	1		
	29-Apr-09		1016	0		0.0		2.6	18.5			NA	NA	1		
	09-Jun-09		999	0		0.0		1.7	19.1			NA	NA	1		
	18-Jun-09		1023	0		0.0		3.0	18.8			NA	NA	1		
	22-Jun-09		1011	0		0.0		1.9	19.2			NA	NA	1		
	01-Jul-09		992	0		0.0		1.4	19.2			NA	NA	1		
	07-Jul-09		1017	0		0.0		1.4	18.7			NA	NA	1		
	05-Aug-09		1012	0.04		0.0		3.1	17.3			NA	NA	1		
	11-Aug-09		1000	0		0.0		3.9	16.1			NA	NA	1		
	18-Aug-09		1017	0		0.0		2.0	17.9			NA	NA	1		
	01-Sep-09		1012	0		0.0		3.5	15.9			NA	NA	1		
	07-Sep-09		993	0		0.0		4.1	16.7			NA	NA	1		
	15-Sep-09		1011	0.04		0.0		6.2	12.4			NA	NA	1		
	23-Sep-09		989			0.0		3.8	15.8			NA	NA	1		
	06-Oct-09		1004	-0.01		0.0		7.3	10.9			NA	NA	1		
	15-Oct-09		996	0		0.0		5.7	15.9			NA	NA	1		
	20-Oct-09		1008	0.02		0.0		10.3	8.0			NA	NA	1		
	04-Nov-09		1010	0		0.0		7.7	12.2			NA	NA	1		
	17-Nov-09		1000	0		0.0		7.2	14.1			NA	NA	1		
	01-Dec-09		1009	0		0.0		6.9	13.3			NA	NA	1		
	14-Dec-09		1012	0.01		0.0		9.7	11.0			NA	NA	1		
	04-Jan-10		1009	0		0.0		6.9	14.0			NA	NA	1		
	18-Jan-10		1001	0		0.0		4.2	17.9			NA	NA	1		
	21-Oct-10		1011	0		0.0		9.9	6.5			NA	NA	1		
	03-Jul-13	15:20		1018	0.00	0.0	0.0	0.0	14.6	1.8	0	0	NA	NA	1	
	16-Apr-14	15:50		1012	0.04	0.2	0.0	0.0	11.2	7.4	0	0	0.00	0.02	1	Good condition.
	30-Aug-16	9:52		1010	0.00	0.0	5.5	5.3	13.4	5.2	0	0	NA	NA	2	Good condition.
	20-Mar-17															Well Destroyed

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB18	25-Mar-09		1010	-0.12		0.2		2.7	18.0			NA	NA	1		
	02-Apr-09		1014	-0.22		0.0		2.4	17.9			NA	NA	1		
	08-Apr-09		1022	1.16		0.0		2.1	18.3			NA	NA	1		
	15-Apr-09		1003	0.05		0.0		1.8	18.8			NA	NA	1		
	22-Apr-09		1013	0		0.0		1.4	19.3			NA	NA	1		
	29-Apr-09		1016	0		0.0		2.7	17.9			NA	NA	1		
	09-Jun-09		999	0		0.0		1.8	18.7			NA	NA	1		
	18-Jun-09		1023	0		0.0		1.1	19.7			NA	NA	1		
	22-Jun-09		1011	0		0.0		1.4	18.1			NA	NA	1		
	01-Jul-09		992	0		0.0		2.6	17.0			NA	NA	1		
	01-Sep-09		1012	0		0.0		5.3	11.7			NA	NA	1		
	07-Sep-09		993	-0.01		0.0		4.3	14.7			NA	NA	1		
	15-Sep-09		1010	0		0.0		5.9	11.7			NA	NA	1		
	23-Sep-09		989			0.0		6.2	10.5			NA	NA	1		
	06-Oct-09		1004	0.0		0.0		7.0	9.4			NA	NA	1		
	15-Oct-09		998	0.01		0.0		5.7	12.9			NA	NA	1		
	20-Oct-09		1008	0		0.0		7.7	6.5			NA	NA	1		
	04-Nov-09		1010	0.02		0.0		9.1	6.1			NA	NA	1		
	17-Nov-09		1000	-0.03		0.0		9.2	9.6			NA	NA	1		
	01-Dec-09		1009	0		0.0		9.6	16.4			NA	NA	1		
	14-Dec-09		1012	0		0.0		10.0	6.3			NA	NA	1		
04-Jan-10		1009	-0.01		0.0		11.1	5.7			NA	NA	1			
18-Jan-10		1001	0		0.0		6.2	15.7			NA	NA	1			
21-Oct-10		1011	0		0.0		11.8	0.7			NA	NA	1			
17-Apr-14	9:58		1012	0.01	0.1	0.0	0.0	17.5	0.8	0	0	0.00	0.02	1	Good condition.	
30-Aug-16						Well Lost / Destroyed										
GB18A	30-Aug-16	9:32	1010	0.00	0.0	26.7	26.1	13.3	0.0	0	0	NA	NA	2	Good condition.	
	20-Mar-17	11:46	1006	0.00	0.0	0.0	0.0	8.6	9.6	0	0	NA	NA	1	Good condition.	
GB19	25-Mar-09		1010	-0.16		0.2		0.8	20.4			NA	NA	1		
	02-Apr-09		1014	-0.36		0.2		4.9	15.5			NA	NA	1		
	08-Apr-09		1022	0.11		0.0		1.0	19.6			NA	NA	1		
	15-Apr-09		1003	0.06		0.0		0.9	20.2			NA	NA	1		
	22-Apr-09		1013	0.02		0.0		0.5	19.9			NA	NA	1		
	29-Apr-09		1016	0.02		0.0		0.7	20.0			NA	NA	1		
	09-Jun-09		999	0		0.0		0.7	20.3			NA	NA	1		
	18-Jun-09		1023	0		0.0		1.6	20.1			NA	NA	1		
	22-Jun-09		1011	0		0.0		0.8	20.3			NA	NA	1		
	01-Jul-09		992	0		0.0		0.6	20.5			NA	NA	1		
	07-Jul-09		1017	0		0.0		0.9	20.0			NA	NA	1		
	05-Aug-09		1008	0.08		0.0		0.7	20.2			NA	NA	1		
	11-Aug-09		1000	0		0.0		1.1	19.8			NA	NA	1		
	18-Aug-09		1017	0		0.0		0.5	20.3			NA	NA	1		
	01-Sep-09		1012	0.03		0.0		0.5	20.4			NA	NA	1		
	07-Sep-09		993	0		0.0		0.8	21.2			NA	NA	1		
	15-Sep-09		1010	0		0.0		0.7	20.0			NA	NA	1		
	23-Sep-09		989			0.0		0.8	20.0			NA	NA	1		
	06-Oct-09		1004	-0.01		0.0		1.5	19.1			NA	NA	1		
	15-Oct-09		998	0		0.0		1.0	20.3			NA	NA	1		
	20-Oct-09		1008	0		0.0		1.3	20.0			NA	NA	1		
04-Nov-09		1010	0.02		0.1		0.7	20.0			NA	NA	1			
17-Nov-09		1000	0		0.0		1.0	19.4			NA	NA	1			
01-Dec-09		1009	0.01		0.0		1.5	5.9			NA	NA	1			
14-Dec-09		1012	0		0.0		1.4	18.8			NA	NA	1			
04-Jan-10		1009	0.02		0.0		0.8	19.6			NA	NA	1			
18-Jan-10		1001	0		0.0		1.0	19.6			NA	NA	1			
21-Oct-10		1011	0		0.0		2.4	16.9			NA	NA	1			
17-Apr-14	9:58		1012	0.01	0.1	0.0	0.0	1.0	19.4	0	0	0.00	0.00	1	Good condition.	
30-Aug-16	9:13		1010	0.00	0.0	0.0	0.0	3.0	18.0	1	1	NA	NA	1	Good condition.	
20-Mar-17	11:30		1006	0.00	0.0	0.0	0.0	0.8	20.0	0	0	NA	NA	1	Good condition.	
GB20	25-Mar-09		1010	-0.12		0.2		5.0	14.3			NA	NA	1		
	03-Apr-09		1007	-0.02		0.0		4.3	17.3			NA	NA	1		
	08-Apr-09		1022	0.28		0.0		4.4	14.1			NA	NA	1		
	15-Apr-09		1003	0.08		0.0		4.7	16.0			NA	NA	1		
	22-Apr-09		1013	0		0.0		3.8	17.2			NA	NA	1		
	28-Apr-09		1016	0		0.0		3.7	17.2			NA	NA	1		
	09-Jun-09		999	0		0.0		3.0	18.0			NA	NA	1		
	18-Jun-09		1023	0		0.0		3.3	18.6			NA	NA	1		
	22-Jun-09		1011	0		0.0		1.6	19.0			NA	NA	1		
	01-Jul-09		992	0		0.0		2.5	18.0			NA	NA	1		
	07-Jul-09		1017	0		0.0		2.1	17.8			NA	NA	1		
	05-Aug-09		1008	0.17		0.0		3.3	18.0			NA	NA	1		
	11-Aug-09		1000	0		0.0		3.4	18.1			NA	NA	1		
	18-Aug-09		1017	0.02		0.0		2.4	19.0			NA	NA	1		
	01-Sep-09		1012	0		0.0		2.8	18.5			NA	NA	1		
	07-Sep-09		993	0		0.0		3.5	19.0			NA	NA	1		
	15-Sep-09		1010	0		0.0		3.0	18.5			NA	NA	1		
	23-Sep-09		989			0.0		3.3	17.4			NA	NA	1		
	06-Oct-09		1004	0		0.0		3.6	14.9			NA	NA	1		
	15-Oct-09		998	0		0.0		3.8	16.7			NA	NA	1		
	20-Oct-09		1008	0.01		0.0		4.2	16.5			NA	NA	1		
04-Nov-09		1010	0		0.0		4.6	15.0			NA	NA	1			
17-Nov-09		1000	0		0.0		4.4	17.4			NA	NA	1			
01-Dec-09		1009	0.01		0.0		5.7	0.5			NA	NA	1			
14-Dec-09		1012	0		0.0		2.8	17.6			NA	NA	1			
04-Jan-10		1009	0		0.0		6.1	17.2			NA	NA	1			
18-Jan-10		1001	0		0.0		4.8	16.2			NA	NA	1			
21-Oct-10		1011	0		0.0		4.3	11.4			NA	NA	1			
17-Apr-14	11:13		1015	0.01	0.0	0.0	0.0	4.0	14.3	0	0	NA	NA	1	Good condition.	
30-Aug-16	9:02		1011	0.00	0.0	0.0	0.0	6.3	14.0	1	0	NA	NA	1	Good condition.	
20-Mar-17	11:08		1007	0.00	0.0	0.9	0.9	0.2	18.6	0	0	NA	NA	1	Good condition.	

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB21	25-Mar-09		1010	-0.5		57.7		1.0	0.2			NA	NA	2	
	02-Apr-09		1014	1.29		54.2		1.0	0.6			NA	NA	2	
	08-Apr-09		1022	0.2		60.4		0.7	0.0			NA	NA	2	
	15-Apr-09		1003	0.1		0.0		0.4	20.4			NA	NA	1	
	22-Apr-09		1013	0.13		53.9		0.7	0.0			NA	NA	2	
	29-Apr-09		1016	0.07		53.4		1.2	0.0			NA	NA	2	
	21-Oct-10		1011	0		50.2		1.3	0.0			NA	NA	2	
	03-Jul-13	16:00	-	-		58.7		0.5	0.4	0	0	NA	NA	2	No cap, covered only with tape.
	30-Aug-16		Well Lost / Destroyed												
GB21A	30-Aug-16	11:00	1010	0.30	5.8	49.9	49.9	0.6	0.0	1.0	1.0	2.89	0.03	3	Good condition
	20-Mar-17	10:50	-	0.00	0.0	40.5	40.0	0.6	4.5	0.0	1.0	NA	NA	2	Good condition
GB23	24-Mar-09		1006	0.05		71.6		20.4	0.4			NA	NA	2	
	02-Apr-09		1014	-0.17		62.1		19.9	0.0			NA	NA	2	
	09-Apr-09		1017	0.17		65.4		20.5	0.0			NA	NA	2	
	14-Apr-09		999	1.47		65.0		20.5	0.0			NA	NA	2	
	22-Apr-09		1013	0.12		62.0		19.6	0.0			NA	NA	2	
	28-Apr-09		1016	0.12		64.1		20.8	0.0			NA	NA	2	
	21-Oct-10		1017	0		28.4		9.0	11.2			NA	NA	2	
	03-Jul-13	15:30	-	-		81.6		18.4	0.0	0	7	NA	NA	2	
	16-Apr-14	14:38	1012	0.01	0.6	74.0	74.0	17.1	0.4	3	0	0.44	0.10	2	H2S odour noted
	31-Aug-16	12:12	1001	0.48	7.6	74.9	74.5	23.5	0.0	6	1	5.69	1.79	4	No standpipe cover
	20-Mar-17	14:17	1007	0.30	5.5	75.9	75.9	21.9	0.0	1	1	4.17	1.20	4	Good condition
GB24	25-Mar-09		1009	-0.15		13.4		7.0	17.5			NA	NA	2	
	02-Apr-09		1007	1		35.3		10.6	0.1			NA	NA	2	
	08-Apr-09		1022	0.06		0.0		0.3	20.6			NA	NA	1	
	15-Apr-09		1003	0.05		0.0		5.6	9.0			NA	NA	1	
	22-Apr-09		1013	0.09		6.0		7.9	0.0			NA	NA	2	
	29-Apr-09		1016	0.09		0.1		7.1	8.7			NA	NA	1	
		30-Aug-16		Well Lost / Destroyed											
GB25	24-Mar-09		1006	-0.24		0.1		9.6	7.1			NA	NA	1	
	03-Apr-09		1007	1.32		0.0		10.7	6.9			NA	NA	1	
	09-Apr-09		1013	0.35		0.3		11.1	5.0			NA	NA	1	
	14-Apr-09		999	-0.05		0.0		10.3	6.4			NA	NA	1	
	21-Apr-09		1012	0		0.0		9.2	8.2			NA	NA	1	
	28-Apr-09		1018	0		0.0		9.0	8.8			NA	NA	1	
	21-Oct-10		1008	0		3.0		7.3	2.1			NA	NA	2	
		30-Aug-16		Well Lost / Destroyed											
GB25A	31-Aug-16	11:05	1002	0.20	3.9	24.4	24.4	7.5	0.5	1	0	0.95	0.29	3	Good condition
	20-Mar-17	15:26	1002	0.24	5	19.1	19.1	8.8	0.0	0	0	0.96	0.44	3	Good condition
GB26	24-Mar-09		1007	-0.06		0.1		7.8	11.0			NA	NA	1	
	03-Apr-09		1006	0.01		0.0		7.8	11.6			NA	NA	1	
	08-Apr-09		1018	0.04		0.0		8.2	10.3			NA	NA	1	
	14-Apr-09		999	0.37		0.0		8.4	9.7			NA	NA	1	
	21-Apr-09		1010	0.01		0.0		7.3	11.5			NA	NA	1	
	29-Apr-09		1016	0.01		0.0		6.9	12.2			NA	NA	1	
	21-Oct-10		1017	0		0.0		5.3	11.5			NA	NA	1	
	30-Aug-16		Well Lost / Destroyed												
GB27	24-Mar-09		1007	-0.06		0.1		0.2	20.8			NA	NA	1	
	03-Apr-09		1007	0.05		0.0		0.2	21.2			NA	NA	1	
	09-Apr-09		1013	-0.34		0.4		1.1	19.2			NA	NA	1	
	14-Apr-09		1000	3.66		3.2		16.2	2.4			NA	NA	2	
	21-Apr-09		1014	0.01		0.0		8.8	9.6			NA	NA	1	
	28-Apr-09		1012	0.01		0.0		0.0	20.8			NA	NA	1	
	21-Oct-10		1017	0		4.1		13.4	1.1			NA	NA	2	
	30-Aug-16		Well Lost / Destroyed												
GB27A	31-Aug-16	9:33	1002	0	0	0.4	0.4	13.9	0.0	1	0	NA	NA	1	Good condition
	21-Mar-17	11:23	1004	0	0	0.0	0.0	11.1	10.1	0	0	NA	NA	1	Good condition
GB28	24-Mar-09		1006	0.04		9.1		22.0	0.5			NA	NA	2	
	03-Apr-09		1008	0.1		7.4		22.2	0.4			NA	NA	2	
	08-Apr-09		1020	0.04		7.7		21.4	0.0			NA	NA	2	
	14-Apr-09		1003	-0.21		10.8		22.4	0.0			NA	NA	2	
	21-Apr-09		1014	0.01		8.8		21.7	0.0			NA	NA	2	
	28-Apr-09		1012	0.01		5.7		20.2	0.3			NA	NA	2	
	09-Jun-09		1000	0.02		11.4		20.8	0.3			NA	NA	2	
	21-Oct-10		1017	0		20.2		16.8	1.4			NA	NA	2	
	04-Jul-13	11:00	1007	0.04	0.0	55.6	50.0	22.7	0.9	0	6	NA	NA	2	Readings did not stabilise after ~5 mins
	16-Apr-14	12:30	1014	0.01	0.0	20.5	20.3	24.1	0.3	8	2	NA	NA	2	Good condition, no standpipe cover
	31-Aug-16	10:54	1003	0.02	0.5	41.4	41.2	23.3	0.0	5	6	0.21	0.12	2	Cracks in bore sealed with tape
21-Mar-17	11:06	1004	0.00	0.0	12.9	12.9	24.2	0.0	1	1	NA	NA	2		
GB29A	31-Aug-16	9:14	1004	0.00	0.0	0.0	0.0	18.5	0.0	0	0	NA	NA	1	Good condition
	21-Mar-17	11:11	1004	0.00	0.0	0.1	0.0	14.7	8.6	0	0	NA	NA	1	Good condition

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB30	24-Mar-09		1007	-0.12		0.1		7.6	9.5			NA	NA	1		
	02-Apr-09		1007	-0.25		0.0		5.8	11.4			NA	NA	1		
	09-Apr-09		1013	-0.11		0.0		7.0	7.5			NA	NA	1		
	14-Apr-09		999	-0.32		0.0		5.9	11.6			NA	NA	1		
	21-Apr-09		1012	0		0.0		6.4	10.9			NA	NA	1		
	28-Apr-09		1012	0		0.0		5.2	11.6			NA	NA	1		
	09-Jun-09		999	0		0.0		3.8	13.3			NA	NA	1		
	18-Jun-09		1023	0		0.0		7.0	7.0			NA	NA	1		
	22-Jun-09		1009	0		0.0		5.0	9.0			NA	NA	1		
	01-Jul-09		990	0		0.0		7.2	8.2			NA	NA	1		
	07-Jul-09		1020	0		0.0		8.2	4.2			NA	NA	1		
	05-Aug-09		1013	-0.15		0.0		10.4	2.5			NA	NA	1		
	11-Aug-09		1001	0		0.0		10.3	2.2			NA	NA	1		
	18-Aug-09		1017	0		0.0		10.7	2.9			NA	NA	1		
	01-Sep-09		1012	0		0.0		10.7	3.2			NA	NA	1		
	07-Sep-09		994	0.01		0.0		9.7	4.7			NA	NA	1		
	15-Sep-09		1013	0		0.0		10.6	2.8			NA	NA	1		
	23-Sep-09		987			0.0		10.0	1.9			NA	NA	1		
	06-Oct-09		1004	-0.01		0.0		11.4	1.3			NA	NA	1		
	15-Oct-09		996	0		0.0		9.8	2.9			NA	NA	1		
	20-Oct-09		1008	0		0.0		11.5	2.7			NA	NA	1		
	04-Nov-09		1012	0		0.0		11.9	4.2			NA	NA	1		
	17-Nov-09		1003	0		0.0		10.1	9.0			NA	NA	1		
	01-Dec-09		1011	0		0.0		12.2	0.5			NA	NA	1		
	14-Dec-09		1012	0		0.0		12.8	1.7			NA	NA	1		
	04-Jan-10		1008	0.01		0.0		11.4	1.9			NA	NA	1		
18-Jan-10		1001	-0.02		0.0		7.3	12.2			NA	NA	1			
21-Oct-10		1017	0		0.0		12.2	2.3			NA	NA	1			
16-Apr-14	13:06		1014	0.01	0.0	0.0	0.0	8.2	5.8	0	0	NA	NA	1	Good condition.	
30-Aug-16	14:11		1006	0.00	0.0	0.0	0.0	10.9	1.9	0	0	NA	NA	1	Good condition.	
20-Mar-17	15:06		1003	0.00	0.0	0.0	0.0	7.1	12.6	0	0	NA	NA	1	Good condition.	
GB31	24-Mar-09		1006			4.1		14.5	0.4			NA	NA	2		
	03-Apr-09		1008			5.1		13.6	0.5			NA	NA	2		
	08-Apr-09		1017	0.02		3.0		12.6	3.1			NA	NA	2		
	15-Apr-09		1000	0.12		2.5		12.6	5.4			NA	NA	2		
	22-Apr-09		1011	0		0.2		12.6	2.8			NA	NA	1		
	28-Apr-09		1014	0		0.1		12.3	2.9			NA	NA	1		
	21-Oct-10		1008	0		1.1		9.5	0.0			NA	NA	2		
	30-Aug-16					Well Lost / Destroyed										
	24-Mar-09		1006			48.2		18.7	0.3				NA	NA	2	
	02-Apr-09		1014	1.38		44.5		18.6	0.0				NA	NA	2	
08-Apr-09		1017	0.06		45.9		18.6	0.0				NA	NA	2		
15-Apr-09		1001	0.11		28.2		17.4	0.2				NA	NA	2		
22-Apr-09		1015	0.04		43.9		18.4	0.0				NA	NA	2		
28-Apr-09		1018	0.04		41.5		18.5	0.0				NA	NA	2		
09-Jun-09		998	0		44.1		18.2	1.2				NA	NA	2		
18-Jun-09		1023	0		46.5		18.5	0.0				NA	NA	2		
22-Jun-09		1011	0		47.9		17.9	0.0				NA	NA	2		
01-Jul-09		992	0		42.7		16.8	0.8				NA	NA	2		
07-Jul-09		1017	0		47.9		10.4	0.0				NA	NA	2		
05-Aug-09		1012	0		52.4		12.1	0.0				NA	NA	2		
11-Aug-09		1001	0.2		51.3		10.7	0.0				NA	NA	2		
18-Aug-09		1017	0.08		45.7		11.7	1.9				NA	NA	2		
01-Sep-09		1012	0.08		52.9		13.9	0.0				NA	NA	2		
07-Sep-09		993	0.02		52.0		13.2	0.2				NA	NA	2		
15-Sep-09		1012	0.14		52.6		13.7	0.0				NA	NA	2		
23-Sep-09		987			63.2		14.6	0.0				NA	NA	2		
06-Oct-09		1004	-0.05		57.6		16.8	0.3				NA	NA	2		
15-Oct-09		996	0.04		55.2		12.1	0.6				NA	NA	2		
20-Oct-09		1008	0.25		55.4		15.5	0.2				NA	NA	2		
04-Nov-09		1011	0.15		53.8		18.3	0.0				NA	NA	2		
17-Nov-09		1001	0.13		55.1		17.0	0.0				NA	NA	2		
01-Dec-09		1011	0.25		52.4		16.7	0.3				NA	NA	2		
14-Dec-09		1012	0		53.6		15.4	0.0				NA	NA	2		
04-Jan-10		1008	0.06		54.9		17.9	0.0				NA	NA	2		
18-Jan-10		1001	0.09		52.3		17.5	0.0				NA	NA	2		
21-Oct-10		1011	0		54.8		16.8	0.2				NA	NA	2		
03-Jul-13	14:05		1019	4.30	0.3	81.0	81.0	16.2	0.0	0	0	0.24	0.05	2		
04-Jul-13	11:30		1007	0.13	0.7	82.3	82.2	16.6	0.0	1	3	0.58	0.12	2	Sampled again due to falling pressure conditions	
16-Apr-14	13:56		1014	0.01	0.6	67.4	67.4	17.6	0.1	4	3	0.40	0.11	2	Water in standpipe cover, H2S odour.	
30-Aug-16	11:56		1007	0.94	13.2	71.2	71.1	19.1	0.0	5	1	9.40	2.52	4	Good condition	
20-Mar-17	13:00		1005	0.29	5.2	70.7	70.7	20.9	0.0	3	1	3.68	1.09	4	Good condition	
GB33A	31-Aug-16	13:12	1004	0.00	0.0	0.0	0.0	2.2	18.4	0	0	NA	NA	1	Good condition	
	21-Mar-17	14:14	1002	0.00	0.0	0.0	0.0	1.2	19.5	0	0	NA	NA	1	Good condition	
GB36A	31-Aug-16	11:40	1001	0.04	1.0	0.5	0.0	5.1	0.0	1	1	0.01	0.05	1	Good condition	
	20-Mar-17	14:45	1007	0.05	1.4	0.0	0.0	6.0	5.2	0	0	0.00	0.08	2	Broken stickup cover. PVC seems ok	

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB37	24-Mar-09		1006			0.2		0.2	21.1			NA	NA	1	
	02-Apr-09		1014	-0.37		30.9		19.5	0.0			NA	NA	2	
	08-Apr-09		1022	0.13		36.0		20.4	0			NA	NA	2	
	15-Apr-09		1003	-0.3		7.8		7.9	6.7			NA	NA	2	
	22-Apr-09		1015	-1.32		33.6		19.9	0.0			NA	NA	2	
	29-Apr-09		1018	-1.32		20.9		15.3	3.1			NA	NA	2	
	09-Jun-09		998	0		39.5		20.6	0.0			NA	NA	2	
	18-Jun-09		1023	0		23.6		17.3	0.6			NA	NA	2	
	22-Jun-09		1011	0		40.8		19.3	0.0			NA	NA	2	
	01-Jul-09		992	0		41.6		19.9	0.1			NA	NA	2	
	07-Jul-09		1017	0		43.1		19.2	0.0			NA	NA	2	
	05-Aug-09		1012	0.08		47.7		20.4	0.0			NA	NA	2	
	11-Aug-09		1001	0.2		46.6		20.2	0.0			NA	NA	2	
	18-Aug-09		1017	0.18		45.0		20.0	0.6			NA	NA	2	
	01-Sep-09		1012	0.11		48.8		20.6	0.0			NA	NA	2	
	07-Sep-09		993	0		37.0		16.0	4.8			NA	NA	2	
	15-Sep-09		1012	0.26		48.8		19.9	0.0			NA	NA	2	
	23-Sep-09		988			54.4		19.9	0.2			NA	NA	2	
	06-Oct-09		1004	-0.06		53.2		19.9	0.5			NA	NA	2	
	15-Oct-09		996	0.03		49.7		20.1	0.1			NA	NA	2	
	20-Oct-09		1008	0.2		48.8		19.4	0.6			NA	NA	2	
	04-Nov-09		1011	0.24		51.4		20.8	0.0			NA	NA	2	
	17-Nov-09		1001	0.14		49.6		20.7	0.0			NA	NA	2	
	01-Dec-09		1011	0.26		50.1		20.1	0.0			NA	NA	2	
	14-Dec-09		1012	0		48.4		19.7	0.0			NA	NA	2	
	04-Jan-10		1008	0		47.8		21.2	0.8			NA	NA	2	
	18-Jan-10		1001	0.12		47.9		20.4	0.1			NA	NA	2	
21-Oct-10		1011	0		52.7		20.2	0.1			NA	NA	2		
16-Apr-14	14:53		1013	0.01	0.4	53.7	53.7	19.2	0.1	7	2	0.21	0.08	2	Strong H2S odour, good condition.
30-Aug-16	11:50		1007	1.01	13.5	0.0	0.0	6.8	13.1	1	1	0.00	0.92	3	Good condition
20-Mar-17	12:55		1005	0.01	0.3	64.2	64.2	23.1	0.0	5	1	0.19	0.07	2	Good condition
GB40	18-Jun-09		1023	0		0.0		2.5	19.0			NA	NA	1	
	22-Jun-09		1009	0		0.0		1.5	19.2			NA	NA	1	
	01-Jul-09		989	0		0.0		1.6	19.0			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.6	18.7			NA	NA	1	
	05-Aug-09		1016	0		0.0		2.8	18.7			NA	NA	1	
	11-Aug-09		1002	0.28		0.0		2.8	18.5			NA	NA	1	
	18-Aug-09		1017	-0.03		0.0		2.4	18.6			NA	NA	1	
	01-Sep-09		1011	0		0.0		2.5	18.6			NA	NA	1	
	07-Sep-09		994	0		0.0		2.5	19.4			NA	NA	1	
	15-Sep-09		1017	0.03		0.0		2.5	18.9			NA	NA	1	
	23-Sep-09		989			0.0		2.1	18.6			NA	NA	1	
	06-Oct-09		1004	0		0.0		2.6	18.1			NA	NA	1	
	15-Oct-09		996	0		0.0		2.5	19.0			NA	NA	1	
	20-Oct-09		1009	0.03		0.0		2.7	18.8			NA	NA	1	
	04-Nov-09		1012	0		0.0		2.5	18.4			NA	NA	1	
	17-Nov-09			0		0.0		2.1	18.8			NA	NA	1	
	01-Dec-09		1014	0		0.0		3.2	17.6			NA	NA	1	
	14-Dec-09		1012	0		0.0		1.9	17.0			NA	NA	1	
	04-Jan-10		1008	0		0.0		1.4	18.5			NA	NA	1	
	18-Jan-10		1002	0.05		0.0		2.3	18.7			NA	NA	1	
	21-Oct-10		1008	0		0.0		1.9	16.9			NA	NA	1	
03-Jul-13	11:55		1021	1.14	0.0	0.2	0.0	3.7	17.1	0	0	NA	NA	1	
16-Apr-14	10:47		1013	0.01	0.1	0.3	0.3	2.5	18.1	0	0	0.00	0.00	1	Good condition.
30-Aug-16	15:17		1004	0.00	0.0	0.0	0.0	3.0	17.9	0	0	NA	NA	1	Good condition.
21-Mar-17	9:48		1004	0.00	0.0	0.0	0.0	3.2	17.5	0	0	NA	NA	1	Good condition.
GB41	18-Jun-09		1023	0		0.0		2.6	19.0			NA	NA	1	
	22-Jun-09		1009	0		0.0		1.2	19.4			NA	NA	1	
	01-Jul-09		989	0		0.0		1.3	19.3			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.3	19.1			NA	NA	1	
	05-Aug-09		1016	0.14		0.0		2.1	19.2			NA	NA	1	
	11-Aug-09		1002	0		0.0		4.0	18.9			NA	NA	1	
	18-Aug-09		1017	0		0.0		2.0	19.0			NA	NA	1	
	01-Sep-09		1011	0.02		0.0		1.8	19.3			NA	NA	1	
	07-Sep-09		994	0.02		0.0		2.0	19.7			NA	NA	1	
	15-Sep-09		1017	0		0.0		2.2	19.0			NA	NA	1	
	23-Sep-09		989			0.0		2.1	18.4			NA	NA	1	
	06-Oct-09		1004	0		0.0		2.5	18.1			NA	NA	1	
	15-Oct-09		996	-0.01		0.0		2.3	18.7			NA	NA	1	
	20-Oct-09		1009	0.04		0.0		2.8	18.7			NA	NA	1	
	04-Nov-09		1012	0		0.0		2.8	18.2			NA	NA	1	
	17-Nov-09		1003	0		0.0		2.3	18.7			NA	NA	1	
	01-Dec-09		1014	0		0.0		2.4	17.6			NA	NA	1	
	14-Dec-09		1012	0		0.0		2.8	17.0			NA	NA	1	
	04-Jan-10		1008	0.01		0.0		3.2	18.0			NA	NA	1	
	18-Jan-10		1002	0		0.0		2.2	18.8			NA	NA	1	
	21-Oct-10		1008	0		0.0		2.6	17.0			NA	NA	1	
16-Apr-14	10:54		1013	0.01	0.1	0.4	0.4	3.0	17.8	0	0	0.00	0.00	1	Good condition.
30-Aug-16	15:04		1005	0.00	0.0	0.0	0.0	3.9	16.8	0	0	NA	NA	1	Good condition.
21-Mar-17	9:43		1004	0.00	0.0	0.0	0.0	2.7	18.0	0	0	NA	NA	1	Good condition.

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB42	18-Jun-09		1023	0		0.0		2.7	18.9			NA	NA	1	
	22-Jun-09		1009	0		0.0		1.4	19.5			NA	NA	1	
	01-Jul-09		990	0		0.0		1.8	19.0			NA	NA	1	
	07-Jul-09		1020	0		0.0		1.9	18.3			NA	NA	1	
	05-Aug-09		1016	0		0.0		2.8	18.4			NA	NA	1	
	11-Aug-09		1002	0		0.0		3.0	18.0			NA	NA	1	
	18-Aug-09		1017	0		0.0		2.7	18.3			NA	NA	1	
	01-Sep-09		1011	0		0.0		2.7	18.2			NA	NA	1	
	07-Sep-09		994	0		0.0		2.8	19.0			NA	NA	1	
	15-Sep-09		1017	0		0.0		3.0	18.1			NA	NA	1	
	23-Sep-09		987			0.0		2.8	17.7			NA	NA	1	
	06-Oct-09		1004	-0.03		0.0		2.7	18.3			NA	NA	1	
	15-Oct-09		996	0		0.0		2.9	18.1			NA	NA	1	
	20-Oct-09		1009	0		0.0		2.7	18.9			NA	NA	1	
	04-Nov-09		1012	0		0.0		2.5	18.8			NA	NA	1	
	17-Nov-09		1003	0		0.0		2.2	18.7			NA	NA	1	
	01-Dec-09		1014	0		0.0		3.3	17.3			NA	NA	1	
	14-Dec-09		1012	0		0.1		2.9	17.3			NA	NA	1	
	04-Jan-10		1008	0		0.0		3.6	17.0			NA	NA	1	
	18-Jan-10		1002	0.03		0.0		2.2	19.0			NA	NA	1	
	21-Oct-10		1008	0		0.0		2.8	16.6			NA	NA	1	
03-Jul-13	12:05		1021	0.00	0.0	0.0	2.7	18.3	0	0	NA	NA	1		
16-Apr-14	11:10		1013	0.01	0.1	0.4	0.4	2.4	17.9	1	0	0.00	0.00	1	Good condition
30-Aug-16	14:51		1005	0.00	0.0	0.0	0.0	3.2	17.5	0	0	NA	NA	1	Good condition
21-Mar-17	9:33		1004	0.00	0.0	0.0	0.0	2.5	18.3	0	0	NA	NA	1	Good condition
GB43 3.1	01-Jul-09					0.1		4.0	8.2			NA	NA	1	
	07-Jul-09		1020	-0.6		0.0		5.2	10.9			NA	NA	1	
	14-Jul-09		997	0.55		0.0		6.0	13.2			NA	NA	1	
	21-Jul-09		1004	-0.72		0.1		9.0	10.7			NA	NA	1	
	28-Jul-09		1016	-0.07		0.0		6.5	13.7			NA	NA	1	
	05-Aug-09		1016	0		0.0		6.2	14.2			NA	NA	1	
	11-Aug-09		1002	0.2		0.0		6.1	14.1			NA	NA	1	
	18-Aug-09		1017	0		0.0		5.3	15.4			NA	NA	1	
	01-Sep-09		1011	0		0.0		6.3	14.2			NA	NA	1	
	07-Sep-09		994	0		0.0		4.8	16.6			NA	NA	1	
	15-Sep-09		1017	0		0.0		6.2	14.3			NA	NA	1	
	23-Sep-09		988			0.0		5.5	13.8			NA	NA	1	
	06-Oct-09		1004	-0.02		0.0		6.2	14.3			NA	NA	1	
	15-Oct-09		996	-0.04		0.0		7.0	12.1			NA	NA	1	
	20-Oct-09		1009	0		0.0		6.7	14.1			NA	NA	1	
	04-Nov-09		1012	-0.02		0.0		7.1	13.2			NA	NA	1	
	17-Nov-09		1003	0		0.0		7.2	13.2			NA	NA	1	
	01-Dec-09		1014	0.05		0.0		7.1	13.4			NA	NA	1	
	14-Dec-09		1012	0		0.0		7.4	12.0			NA	NA	1	
	04-Jan-10		1008	0		0.0		7.7	13.0			NA	NA	1	
	18-Jan-10		1002	0.04		0.0		7.6	14.0			NA	NA	1	
21-Oct-10		1008	0		0.0		6.3	11.4			NA	NA	1		
16-Apr-14	11:18		1013	0.01	0.1	0.5	0.5	6.8	13.9	1	0	0.00	0.01	1	Good condition.
21-Mar-17	9:24		1004	0.00	0.0	0.0	0.0	3.7	17.3	0	0	NA	NA	1	Good condition.
GB43 5.0	01-Jul-09					0.1		6.4	6.2			NA	NA	1	
	07-Jul-09		1020	-1.1		0.1		6.9	6.6			NA	NA	1	
	14-Jul-09		997	0.1		0.0		8.4	9.2			NA	NA	1	
	21-Jul-09		1004	0		0.0		6.3	13.7			NA	NA	1	
	28-Jul-09		1016	0		0.0		4.9	15.0			NA	NA	1	
	05-Aug-09		1016	-0.39		0.0		8.4	12.2			NA	NA	1	
	11-Aug-09		1002	0.08		0.0		8.4	12.4			NA	NA	1	
	18-Aug-09		1017	0		0.0		6.6	14.8			NA	NA	1	
	01-Sep-09		1011	-0.04		0.0		8.6	12.6			NA	NA	1	
	07-Sep-09		994	0		0.0		5.6	16.3			NA	NA	1	
	15-Sep-09		1017	0		0.0		8.3	12.7			NA	NA	1	
	23-Sep-09		987			0.0		7.7	12.2			NA	NA	1	
	06-Oct-09		1004	-0.02		0.0		8.3	13.2			NA	NA	1	
	15-Oct-09		996	0		0.0		8.1	13.4			NA	NA	1	
	20-Oct-09		1009	0		0.0		8.4	13.4			NA	NA	1	
	04-Nov-09		1012	-0.03		0.0		8.5	12.6			NA	NA	1	
	17-Dec-09		1003	0		0.0		8.5	12.3			NA	NA	1	
	01-Dec-09		1014	0		0.0		8.5	12.6			NA	NA	1	
	14-Dec-09		1012	0		0.0		8.5	11.2			NA	NA	1	
	04-Jan-10		1008	0		0.0		9.1	12.1			NA	NA	1	
	18-Jan-10		1002	0.02		0.0		9.5	12.2			NA	NA	1	
21-Oct-10		1008	0		0.0		7.5	10.7			NA	NA	1		
16-Apr-14	11:25		1013	0.10	0.0	0.5	0.5	14.0	9.6	2	0	NA	NA	1	Good condition.
21-Mar-17	9:27		1004	0.00	0.0	0.0	0.0	0.0	20.6	0	0	NA	NA	1	Good condition.
GB44	18-Jun-09		1023	0		0.0		3.9	17.3			NA	NA	1	
	22-Jun-09		1009	0		0.0		2.2	18.5			NA	NA	1	
	01-Jul-09		990	0		0.0		2.6	17.8			NA	NA	1	
	07-Jul-09		1020	0		0.0		3.1	16.9			NA	NA	1	
	05-Aug-09		1016	0		0.0		3.4	17.6			NA	NA	1	
	11-Aug-09		1002	-0.1		0.0		3.6	16.8			NA	NA	1	
	18-Aug-09		1017	0.03		0.0		3.4	17.3			NA	NA	1	
	01-Sep-09		1011	-0.01		0.0		2.7	17.8			NA	NA	1	
	07-Sep-09		994	0		0.0		3.1	18.1			NA	NA	1	
	15-Sep-09		1017	-0.05		0.0		3.6	17.3			NA	NA	1	
	23-Sep-09		988			0.0		3.7	15.9			NA	NA	1	
	06-Oct-09		1004	-0.06		0.0		4.4	16.2			NA	NA	1	
	15-Oct-09		996	0		0.0		3.9	16.0			NA	NA	1	
	20-Oct-09		1009	0.04		0.0		4.4	16.8			NA	NA	1	
	04-Nov-09		1012	0		0.0		5.1	15.6			NA	NA	1	
	17-Nov-09		1003	0		0.0		5.2	15.6			NA	NA	1	
	01-Dec-09		1014	0		0.0		6.1	14.3			NA	NA	1	
	14-Dec-09		1012	0		0.1		5.1	14.7			NA	NA	1	
	04-Jan-10		1008	-0.01		0.0		5.6	15.2			NA	NA	1	
	18-Jan-10		1002	0		0.0		5.0	16.6			NA	NA	1	
	21-Oct-10		1008	0		0.0		4.6	13.8			NA	NA	1	
16-Apr-14	11:15		1013	0.01	0.1	0.4	0.4	6.1	13.5	1	0	0.00	0.01	1	Good condition
30-Aug-16	14:46		1005	0.00	0.0	0.0	0.0	8.7	10.8	9	9	NA	NA	1	Good condition
21-Mar-17						Well Destroyed									

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB45	18-Jun-09		1023	0		0.0		3.4	18.2			NA	NA	1		
	22-Jun-09		1009	0		0.0		2.1	18.7			NA	NA	1		
	01-Jul-09		990	0		0.0		2.0	18.3			NA	NA	1		
	07-Jul-09		1020	0		0.0		2.3	18.1			NA	NA	1		
	05-Aug-09		1013	0		0.0		3.5	18.1			NA	NA	1		
	11-Aug-09		1002	0.2		0.0		3.6	17.5			NA	NA	1		
	18-Aug-09		1017	0.02		0.0		3.3	17.6			NA	NA	1		
	01-Sep-09		1011	0		0.0		2.9	18.1				NA	NA	1	
	07-Sep-09		994	0		0.0		3.0	19.0				NA	NA	1	
	15-Sep-09		1013	0		0.0		3.1	18.0				NA	NA	1	
	23-Sep-09		988			0.0		3.4	17.1				NA	NA	1	
	06-Oct-09		1004	0		0.0		2.9	18.0				NA	NA	1	
	15-Oct-09		996	0.01		0.0		3.1	17.2				NA	NA	1	
	20-Oct-09		1009	0		0.0		3.1	18.6				NA	NA	1	
	04-Nov-09		1012	0		0.0		3.3	17.9				NA	NA	1	
	17-Nov-09		1003	0		0.0		3.2	17.9				NA	NA	1	
	01-Dec-09		1011	0		0.0		3.9	16.6				NA	NA	1	
	14-Dec-09		1012	0		0.0		3.2	16.2				NA	NA	1	
	04-Jan-10		1008	0		0.0		3.9	16.7				NA	NA	1	
	18-Jan-10		1002	-0.03		0.0		3.0	18.5				NA	NA	1	
	21-Oct-10		1008	0		0.0		4.1	14.7				NA	NA	1	
03-Jul-13	12:25		1020	-0.01	0.0	0.0	0.0	4.5	15.9	0	0	NA	NA	1		
16-Apr-14	12:48		1014	0.00	0.0	0.0	0.0	3.4	16.8	0	0	NA	NA	1	Good condition	
30-Aug-16	14:27		1005	0.00	0.0	0.0	0.0	4.4	16.1	0	0	NA	NA	1	Good condition	
21-Mar-17	9:02		1004	0.00	0.0	0.3	0.0	4.7	16.2	0	0	NA	NA	1	Good condition	
GB46	01-Jul-09		992	0		91.6		2.9	0.0			NA	NA	2		
	07-Jul-09		1020	0		90.8		2.4	0.2			NA	NA	2		
	05-Aug-09		1008	0.44		85.5		3.3	0.0			NA	NA	2		
	11-Aug-09		1000	0.18		86.3		3.4	0.0			NA	NA	2		
	18-Aug-09		1017	0.31		83.3		3.0	0.2			NA	NA	2		
	01-Sep-09		1012	0.21		86.8		3.0	0.0			NA	NA	2		
	07-Sep-09		993	0		71.8		2.8	2.5			NA	NA	2		
	15-Sep-09		1010	0.27		84.2		3.0	0.0			NA	NA	2		
	23-Sep-09		989			95.0		3.2	0.0				NA	NA	2	
	06-Oct-09		1004	-0.07		90.4		2.8	0.3				NA	NA	2	
	15-Oct-09		998	0.08		91.9		2.7	0.0				NA	NA	2	
	20-Oct-09		1008	0.32		85.5		2.6	0.3				NA	NA	2	
	04-Nov-09		1010	0.29		84.3		2.8	0.0				NA	NA	2	
	17-Nov-09		1000	0.14		85.2		2.7	0.0				NA	NA	2	
	01-Dec-09		1009	0.23		86.4		2.6	17.6				NA	NA	2	
	14-Dec-09		1012	0		84.3		1.4	0.0				NA	NA	2	
	04-Jan-10		1009	0.29		87.4		2.2	0.0				NA	NA	2	
	18-Jan-10		1001	0.37		85.4		2.7	0.2				NA	NA	2	
21-Oct-10		1011	0		85.9		2.7	0.0				NA	NA	2		
30-Aug-16															Well Lost / Destroyed	
GB46A	30-Aug-16	11:13	1009	0.50	8	95.9	95.8	4.1	0.0	11	1	7.67	0.33	4	Good condition	
	20-Mar-17	11:25	1006	0.00	0	1.2	0.1	7.9	4.8	1	0	NA	NA	2	Good condition	
GB47	18-Jun-09		1023	0		0.0		1.2	19.6			NA	NA	1		
	22-Jun-09		1011	0.01		0.0		1.6	17.3			NA	NA	1		
	01-Jul-09		992	0		0.0		3.0	16.2			NA	NA	1		
	07-Jul-09		1017	0		0.0		3.1	15.9			NA	NA	1		
	05-Aug-09		1008	0		0.0		5.2	14.0			NA	NA	1		
	11-Aug-09		1000	0		0.0		5.2	13.8			NA	NA	1		
	18-Aug-09		1017	0.02		0.0		5.3	13.4			NA	NA	1		
	01-Sep-09		1012	0		0.0		5.5	13.6			NA	NA	1		
	07-Sep-09		993	-0.01		0.0		4.6	15.5				NA	NA	1	
	15-Sep-09		1010	0		0.0		5.6	13.0				NA	NA	1	
	23-Sep-09		989			0.0		5.8	10.8				NA	NA	1	
	06-Oct-09		1004	0		0.0		6.3	11.0				NA	NA	1	
	15-Oct-09		998	0		0.0		6.0	12.3				NA	NA	1	
	20-Oct-09		1008	0		0.0		6.9	9.3				NA	NA	1	
	04-Nov-09		1010	0		0.0		8.7	6.1				NA	NA	1	
	17-Nov-09		1000	0		0.0		9.8	5.5				NA	NA	1	
	01-Dec-09		1009	0.02		0.0		10.7	6.6				NA	NA	1	
	14-Dec-09		1012	0		0.0		10.7	3.4				NA	NA	1	
	04-Jan-10		1009	0		0.0		10.2	6.2				NA	NA	1	
	18-Jan-10		1001	0.01		0.0		11.5	9.6				NA	NA	1	
21-Oct-10		1011	0		0.0		12.8	0.3				NA	NA	1		
03-Jul-13	15:50		1018	0.06	0.0	0.7	0.7	11.6	0.0	0	0	NA	NA	1		
17-Apr-14	10:06		1012	0.01	0.1	4.3	4.3	15.7	0.0	0	0	0.00	0.02	2	Good condition	
30-Aug-16	9:19		1010	0.00	0.0	0.0	0.0	7.7	5.4	1	1	NA	NA	1	Good condition	
20-Mar-17	11:40		1006	0.00	0.0	0.0	0.0	6.4	14.5	0	0	NA	NA	1	Good condition	
GB48	18-Jun-09		1023	0		0.0		2.8	18.2			NA	NA	1		
	22-Jun-09		1011	0		0.0		2.3	18.8			NA	NA	1		
	01-Jul-09		992	0		0.0		2.0	18.5			NA	NA	1		
	07-Jul-09		1017	0		0.0		2.1	18.3			NA	NA	1		
	05-Aug-09		1012	0		0.0		3.5	16.2			NA	NA	1		
	11-Aug-09		1001	0.07		0.0		3.6	16.8			NA	NA	1		
	18-Aug-09		1017	0		0.0		2.9	17.4			NA	NA	1		
	01-Sep-09		1012	0		0.1		3.6	16.5			NA	NA	1		
	07-Sep-09		993	0		0.0		2.9	18.7			NA	NA	1		
	15-Sep-09		1012	0		0.0		3.7	16.9			NA	NA	1		
	23-Sep-09		988			0.0		3.6	15.7			NA	NA	1		
	06-Oct-09		1004	0		0.0		7.4	10.5			NA	NA	1		
	15-Oct-09		996	0		0.0		7.6	10.9			NA	NA	1		
	20-Oct-09		1008	0		0.0		9.4	10.0			NA	NA	1		
	04-Nov-09		1011	0		0.0		8.0	12.0			NA	NA	1		
	17-Nov-09		1001	0		0.0		5.7	14.9			NA	NA	1		
	01-Dec-09		1011	-0.03		0.1		9.7	8.0			NA	NA	1		
	14-Dec-09		1012	0		0.0		12.0	6.0			NA	NA	1		
	04-Jan-10		1008	0		0.0		11.2	8.2			NA	NA	1		
	18-Jan-10		1001	0		0.0		5.5	15.1			NA	NA	1		
	21-Oct-10		1011	0		0.0		10.5	5.7			NA	NA	1		
	03-Jul-13	14:15		1019	0.00	0.0	7.4	7.4	15.6	0.0	0	0	NA	NA	2	
	16-Apr-14	14:02		1013	0.01	0.1	0.1	0.1	5.7	13.0	0	0	0.00	0.01	1	Water in standpipe cover
	30-Aug-16	13:23		1007	0.00	0.0	0.3	0.0	13.4	3.7	1	1	NA	NA	1	Water in standpipe cover
20-Mar-17	13:10		1005	0.00	0.0	0.0	0.0	6.9	12.6	0	0	NA	NA	1	Good condition	

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB49	18-Jun-09		1023	0		0.0		1.5	20.0			NA	NA	1	
	22-Jun-09		1011	0		0.0		0.9	20.4			NA	NA	1	
	01-Jul-09		992	0		0.0		0.8	20.3			NA	NA	1	
	07-Jul-09		1017	0		0.0		0.9	19.4			NA	NA	1	
	05-Aug-09		1012	-0.15		0.0		1.1	19.9			NA	NA	1	
	11-Aug-09		1000	0		0.0		1.0	20.4			NA	NA	1	
	18-Aug-09		1017	0		0.0		0.9	19.9			NA	NA	1	
	01-Sep-09		1012	0		0.0		0.9	19.8			NA	NA	1	
	07-Sep-09		993	0		0.0		0.8	21.2			NA	NA	1	
	15-Sep-09		1011	0		0.0		0.9	20.0			NA	NA	1	
	23-Sep-09		989			0.0		1.2	19.4			NA	NA	1	
	06-Oct-09		1004	-0.29		0.0		1.8	18.5			NA	NA	1	
	15-Oct-09		998	0		0.0		1.3	19.9			NA	NA	1	
	20-Oct-09		1008	0		0.0		1.6	19.5			NA	NA	1	
	04-Nov-09		1010	0.01		0.4		2.1	17.8			NA	NA	1	
	17-Nov-09		1000	0		0.3		1.7	18.6			NA	NA	1	
	01-Dec-09		1009	0		0.5		3.7	16.0			NA	NA	1	
	14-Dec-09		1012	0.01		0.0		2.4	17.8			NA	NA	1	
	04-Jan-10		1009	0		0.2		2.9	17.7			NA	NA	1	
	18-Jan-10		1001	0.01		0.3		2.0	18.8			NA	NA	1	
21-Oct-10		1011	0		0.2		5.0	14.7			NA	NA	1		
17-Apr-14	9:50		1012	0.01	0.0	0.0	2.8	17.2	0	0	NA	NA	1	Good condition	
30-Aug-16	9:41		1009	0.00	0.0	0.0	1.9	19.2	0	0	NA	NA	1	Good condition	
20-Mar-17	11:55		1007	0.00	0.0	0.0	2.1	18.2	0	0	NA	NA	1	Good condition	
GB50	18-Jun-09		1023	0		0.0		4.8	16.9			NA	NA	1	
	22-Jun-09		1011	0		0.0		3.2	17.5			NA	NA	1	
	01-Jul-09		992	0		0.0		3.6	17.1			NA	NA	1	
	07-Jul-09		1017	0		0.0		3.6	16.7			NA	NA	1	
	05-Aug-09		1012	-0.19		0.0		5.5	15.3			NA	NA	1	
	11-Aug-09		1000	0.22		0.0		5.6	15.2			NA	NA	1	
	18-Aug-09		1017	0.02		0.0		5.7	14.8			NA	NA	1	
	01-Sep-09		1012	0		0.0		6.2	13.9			NA	NA	1	
	07-Sep-09		993	-0.01		0.0		5.4	15.7			NA	NA	1	
	15-Sep-09		1011	0.04		0.0		6.2	13.7			NA	NA	1	
	23-Sep-09		989			0.0		6.1	12.5			NA	NA	1	
	06-Oct-09		1004	0.01		0.0		7.1	12.1			NA	NA	1	
	15-Oct-09		998	0		0.0		7.0	11.9			NA	NA	1	
	20-Oct-09		1008	0		0.0		8.0	11.3			NA	NA	1	
	04-Nov-09		1010	0		0.0		8.9	10.9			NA	NA	1	
	17-Nov-09		1000	0		0.0		8.7	12.5			NA	NA	1	
	01-Dec-09		1009	-0.03		0.0		9.7	10.4			NA	NA	1	
	14-Dec-09		1012	0		0.0		10.3	9.2			NA	NA	1	
	04-Jan-10		1009	0.03		0.0		10.6	10.7			NA	NA	1	
	18-Jan-10		1001	0		0.0		6.7	15.5			NA	NA	1	
21-Oct-10		1011	0		0.0		7.9	9.6			NA	NA	1		
03-Jul-13	15:30		1018	0.00	0.0	0.1	0.0	7.5	11.8	0	0	NA	NA	1	
17-Apr-14	9:43		1012	0.00	0.1	0.0	0.0	4.7	15.4	0	0	0.00	0.00	1	Good condition
30-Aug-16	9:47		1010	0.00	0.0	0.0	0.0	6.2	14.2	0	1	NA	NA	1	Good condition
20-Mar-17	12:00		1007	0.00	0.0	0.0	0.0	4.1	16.9	0	0	NA	NA	1	Good condition
GB51 2.7	01-Jul-09					0.0		0.4	17.4			NA	NA	1	
	07-Jul-09		1017	0		0.0		0.7	16.6			NA	NA	1	
	14-Jul-09		995	0		0.0		0.9	6.6			NA	NA	1	
	21-Jul-09		1004	0		0.0		1.2	16.0			NA	NA	1	
	28-Jul-09		1013	0		0.0		1.3	6.4			NA	NA	1	
	05-Aug-09		1012	0.17		0.0		0.2	15.7			NA	NA	1	
	11-Aug-09		1000	0.04		0.0		2.3	15.4			NA	NA	1	
	18-Aug-09		1017	0.02		0.0		2.1	15.8			NA	NA	1	
	01-Sep-09		1012	0.04		0.0		2.8	14.8			NA	NA	1	
	07-Sep-09		993	0		0.0		2.6	16.6			NA	NA	1	
	15-Sep-09		1011	0.04		0.0		3.2	15.2			NA	NA	1	
	23-Sep-09		988			0.0		3.7	13.4			NA	NA	1	
	06-Oct-09		1004	-0.02		0.0		4.2	13.4			NA	NA	1	
	15-Oct-09		996	0		0.0		3.1	14.2			NA	NA	1	
	20-Oct-09		1008	0		0.0		4.5	13.1			NA	NA	1	
	04-Nov-09		1011	0		0.0		4.5	14.4			NA	NA	1	
	17-Nov-09		1000	0		0.0		5.3	13.4			NA	NA	1	
	01-Dec-09		1009	0		0.0		5.3	14.2			NA	NA	1	
	14-Dec-09		1012	-0.01		0.0		5.3	13.4			NA	NA	1	
	04-Jan-10		1008	-0.02		0.0		2.3	16.0			NA	NA	1	
18-Jan-10		1001	0		0.0		4.7	16.3			NA	NA	1		
21-Oct-10		1011	0		0.0		5.3	13.2			NA	NA	1		
16-Apr-14	15:34		1013	0.01	0.1	0.0	0.0	5.6	15.5	0	0	0.00	0.01	1	Good condition
20-Mar-17	12:10		1006	0.00	0.0	0.0	0.0	5.7	15.5	0	0	NA	NA	1	Good condition
GB51 5.8	01-Jul-09					0.0		6.8	5.8			NA	NA	1	
	07-Jul-09		1017	0		0.0		6.1	6.5			NA	NA	1	
	14-Jul-09		995	0.02		0.0		11.1	7.8			NA	NA	1	
	21-Jul-09		1004	0.4		0.0		8.9	7.9			NA	NA	1	
	28-Jul-09		1013	0.06		0.0		6.2	11.0			NA	NA	1	
	05-Aug-09		1012	0		0.0		8.9	7.0			NA	NA	1	
	11-Aug-09		1000	0		0.0		9.1	6.1			NA	NA	1	
	18-Aug-09		1017	0.03		0.0		9.5	6.8			NA	NA	1	
	01-Sep-09		1012	0		0.0		10.0	5.9			NA	NA	1	
	07-Sep-09		993	0		0.0		7.3	11.0			NA	NA	1	
	15-Sep-09		1011	0.06		0.0		9.8	6.0			NA	NA	1	
	23-Sep-09		988			0.0		9.3	3.4			NA	NA	1	
	06-Oct-09		1004	-0.01		0.0		10.1	6.5			NA	NA	1	
	15-Oct-09		996	0		0.0		9.6	7.2			NA	NA	1	
	20-Oct-09		1008	0		0.0		10.0	5.9			NA	NA	1	
	04-Nov-09		1011	0		0.0		10.5	5.2			NA	NA	1	
	17-Nov-09		1000	0.04		0.0		10.4	5.4			NA	NA	1	
	01-Dec-09		1009	0.01		0.0		10.0	6.4			NA	NA	1	
	14-Dec-09		1012	0		0.0		9.9	5.2			NA	NA	1	
	04-Jan-10		1009	0		0.0		7.9	5.7			NA	NA	1	
18-Jan-10		1001	0.02		0.0		10.6	5.5			NA	NA	1		
21-Oct-10		1011	0		0.0		2.3	6.0			NA	NA	1		
16-Apr-14	15:26		1013	0.01	0.1	0.0	0.0	10.9	0.7	0	0	0.00	0.01	1	Possible blockage
20-Mar-17	12:14		1006	0.00	0.0	0.0	0.0	8.8	9.2	0	0	NA	NA	1	Good condition

Table 2B:
Historical Gas Bore Monitoring

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments	
GB51 7.8	14-Jul-09		995	-5.61		0.0		5.6	0.4			NA	NA	1		
	21-Jul-09		1004	-1.52		0.0		7.5	2.2			NA	NA	1		
	28-Jul-09		1013	-0.27		0.0		6.1	5.4			NA	NA	1		
	05-Aug-09		1012	-0.26		0.0		8.2	2.1			NA	NA	1		
	11-Aug-09		1000	0		0.0		8.6	2.0			NA	NA	1		
	18-Aug-09		1017	0		0.0		9.4	2.4			NA	NA	1		
	01-Sep-09		1012	0		0.0		10.2	1.9			NA	NA	1		
	07-Sep-09		993	0		0.0		7.5	7.9			NA	NA	1		
	15-Sep-09		1011	0.06		0.0		10.1	2.3			NA	NA	1		
	23-Sep-09		988			0.0		9.7	1.6			NA	NA	1		
	06-Oct-09		1004	-0.03		0.0		10.7	3.3			NA	NA	1		
	15-Oct-09		996	0		0.0		9.9	2.1			NA	NA	1		
	20-Oct-09		1008	0.05		0.0		10.6	3.6			NA	NA	1		
	04-Nov-09		1011	0.03		0.0		11.1	3.3			NA	NA	1		
	17-Nov-09		1000	0.1		0.0		11.0	3.8			NA	NA	1		
	01-Dec-09		1009	0		0.0		10.7	4.6			NA	NA	1		
	14-Dec-09		1012	0		0.0		10.1	3.9			NA	NA	1		
	04-Jan-10		1009	0		0.0		7.1	4.9			NA	NA	1		
	18-Jan-10		1001	0		0.0		11.1	4.7			NA	NA	1		
	21-Oct-10		1011	0		0.0		8.5	7.1			NA	NA	1		
16-Apr-14	15:38		1013	0.01	0.1	0.0	0.0	1.9	17.1	0	0	0.00	0.00	1	Good condition. Possible blockage	
20-Mar-17	12:18		1006	0.00	0.0	0.0	0.0	8.1	10.5	0	0	NA	NA	1	Good condition	
GB52	18-Jun-09		1023	0		0.0		1.8	19.7			NA	NA	1		
	22-Jun-09		1011	0		0.0		1.0	20.2			NA	NA	1		
	01-Jul-09		992	0		0.0		1.5	19.2			NA	NA	1		
	07-Jul-09		1017	0		0.0		1.1	19.6			NA	NA	1		
	05-Aug-09		1012	-0.21		0.0		2.5	18.5			NA	NA	1		
	11-Aug-09		1000	0.04		0.0		2.8	18.4			NA	NA	1		
	18-Aug-09		1017	0.01		0.0		2.6	18.1			NA	NA	1		
	01-Sep-09		1012	0		0.0		3.0	17.3			NA	NA	1		
	07-Sep-09		993	0		0.0		3.5	18.1			NA	NA	1		
	15-Sep-09		1011	0.04		0.0		3.5	17.2			NA	NA	1		
	23-Sep-09		988			0.0		4.2	16.1			NA	NA	1		
	06-Oct-09		1004	-0.03		0.0		4.2	16.3			NA	NA	1		
	15-Oct-09		996	0.02		0.0		3.4	18.3			NA	NA	1		
	20-Oct-09		1008	0.02		0.0		3.9	17.6			NA	NA	1		
	04-Nov-09		1011	0		0.0		2.8	18.0			NA	NA	1		
	17-Nov-09		1000	0		0.0		2.0	19.0			NA	NA	1		
	01-Dec-09		1009	0		0.0		2.7	18.1			NA	NA	1		
	14-Dec-09		1012	0		0.0		2.5	11.0			NA	NA	1		
	04-Jan-10		1009	0.01		0.0		1.7	19.3			NA	NA	1		
	18-Jan-10		1001	0		0.0		1.6	19.4			NA	NA	1		
21-Oct-10		1011	0		0.0		3.7	15.8			NA	NA	1			
03-Jul-13	15:10		1018	0.00	0.0	0.1	0.0	2.6	18.3	0	0	NA	NA	1		
16-Apr-14	15:22		1013	0.00	0.1	0.0	0.0	2.7	17.8	0	0	0.00	0.00	1	Good condition, spiders.	
30-Aug-16	10:00		1010	0.00	0.0	0.0	0.0	3.9	16.8	0	0	NA	NA	1	Good condition, spiders.	
20-Mar-17	12:25		1006	0.00	0.0	0.0	0.0	1.7	19.3	0	0	NA	NA	1	Good condition	
GB53	18-Jun-09		1023	0		0.0		1.4	20.0			NA	NA	1		
	22-Jun-09		1011	0		0.0		0.8	20.5			NA	NA	1		
	01-Jul-09		992	0		0.0		1.0	20.0			NA	NA	1		
	07-Jul-09		1017	0		0.0		0.9	19.9			NA	NA	1		
	05-Aug-09		1012	0		0.0		1.5	19.7			NA	NA	1		
	11-Aug-09		1000	0		0.0		1.8	19.6			NA	NA	1		
	18-Aug-09		1017	0		0.0		1.3	19.5			NA	NA	1		
	01-Sep-09		1012	0		0.0		1.4	19.5			NA	NA	1		
	07-Sep-09		993	0		0.0		1.5	20.7			NA	NA	1		
	15-Sep-09		1011	0		0.0		1.4	19.8			NA	NA	1		
	23-Sep-09		988			0.0		1.8	19.1			NA	NA	1		
	06-Oct-09		1004	-0.02		0.0		1.6	19.3			NA	NA	1		
	15-Oct-09		996	0		0.0		1.2	20.0			NA	NA	1		
	20-Oct-09		1008	0		0.0		1.7	19.8			NA	NA	1		
	04-Nov-09		1011	0		0.0		1.9	18.9			NA	NA	1		
	17-Nov-09		1000	0		0.0		1.4	19.5			NA	NA	1		
	01-Dec-09		1009	0.02		0.0		2.4	18.3			NA	NA	1		
	14-Dec-09		1012	0		0.0		1.6	18.9			NA	NA	1		
	04-Jan-10		1008	0		0.0		2.9	18.0			NA	NA	1		
	18-Jan-10		1001	0		0.0		1.3	19.6			NA	NA	1		
21-Oct-10		1011	0		0.0		2.3	17.8			NA	NA	1			
03-Jul-13	15:00		1018	0.00	0.0	0.0	0.0	2.2	19.2	0	0	NA	NA	1		
16-Apr-14	15:16		1012	0.10	0.1	0.0	0.0	1.8	18.8	0	0	0.00	0.00	1	Good condition	
30-Aug-16	10:06		1010	0.00	0.0	0.0	0.0	2.1	19.2	0	1	NA	NA	1	Good condition	
20-Mar-17	12:30		1005	0.00	0.0	0.0	0.0	2.5	18.3	0	0	NA	NA	1	Good condition	
GB54	18-Aug-09		1015	0.02		0.0		1.3	19.1			NA	NA	1		
	01-Sep-09		1012	0		0.0		1.9	18.4			NA	NA	1		
	07-Sep-09		993	0		0.3		2.1	19.2			NA	NA	1		
	15-Sep-09		1012	0		0.0		2.2	18.5			NA	NA	1		
	23-Sep-09		988			0.5		3.7	14.9			NA	NA	1		
	06-Oct-09		1004	0		0.0		4.8	14.2			NA	NA	1		
	15-Oct-09		996	0		0.0		5.2	15.1			NA	NA	1		
	20-Oct-09		1008	0		0.1		5.7	13.8			NA	NA	1		
	04-Nov-09		1011	0		0.2		4.9	14.5			NA	NA	1		
	17-Nov-09		1001	0		0.0		3.7	16.4			NA	NA	1		
	01-Dec-09		1011	0.02		0.0		7.4	10.8			NA	NA	1		
	14-Dec-09		1012	0		0.0		6.2	12.3			NA	NA	1		
	04-Jan-10		1008	0		0.0		9.6	11.7			NA	NA	1		
	18-Jan-10		1001	0		0.0		3.8	16.2			NA	NA	1		
	21-Oct-10		1011	0		0.0		5.3	11.6			NA	NA	1		
	16-Apr-14	15:43		1012	0.01	0.1	0.0	0.0	5.8	13.4	0	0	0.00	0.01	1	Good condition
	30-Aug-16	11:45		1007	0.11	2.2	0.0	0.0	7.0	11.4	0	0	0.00	0.15	2	Good condition
	20-Mar-17	12:28		1005	0.00	0.0	0.0	0.0	7.9	9.5	1	1	NA	NA	1	Good condition
	GB54B	17-Apr-14	12:00	1015	0.16	0.1	13.7	13.7	3.0	0.1	3	0	0.01	0.00	2	Good condition
		31-Aug-16	12:33	1002	0.01	0.3	18.6	18.1	5.9	0.3	1	1	0.06	0.02	2	Possible opening / crack near well cap fitting
20-Mar-17		9:46	1008	0.00	0.0	0.0	0.0	0.3	19.4	0	0	NA	NA	1	Possible opening / crack near well cap fitting	
GB55	17-Apr-14	12:08	1015	0.01	0.3	59.8	59.8	16.2	0.1	2	0	0.18	0.05	2	Good condition	
	31-Aug-16	13:29	1001	0.38	6.4	45.1	45.1	12.4	1.7	5	1	2.89	0.79	3	Good condition	
	20-Mar-17	9:30	1008	0.00	0.0	63.2	63.0	18.5	0.0	1	1	NA	NA	2	Casing damaged and bent, not cracked	
GB56	16-Apr-14	11:21	1015	0.01	0.1	17.8	17.8	1.1	0.3	1	0	0.02	0.00	2	Good condition	
	30-Aug-16	10:30	1010	0.17	3.1	11.5	11.5	2.4	3.3	0	0	0.36	0.07	2	Good condition	
	20-Mar-17	11:00	1007	0.03	0.6	19.7	19.3	1.4	0.0	0	0	0.12	0.01	2	Good condition	

Bore Number	Date	Time	Barometric Pressure (mb)	Relative Pressure (mb)	Stable Flow (L/hour)	Peak Methane (% v/v)	Sustained Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm _v)	Hydrogen Sulfide (ppm _v)	GSV CH ₄	GSV CO ₂	Characteristic Situation ¹	Comments
GB57	17-Apr-14	13:15	1015	0.10	0.3	0.2	0.2	8.6	10.9	2	0	0.00	0.03	1	Good condition
	30-Aug-16	8:37	1012	0.00	0.0	0.0	0.0	7.0	11.6	1	1	NA	NA	1	Good condition
	21-Mar-17	11:30	1004	0.00	0.0	0.0	0.0	6.0	14.3	0	0	NA	NA	1	Good condition
GB58	17-Apr-14	13:25	1015	0.01	0.1	0.0	0.0	6.2	14.3	0	0	0.00	0.01	1	Good condition
	31-Aug-16	9:25	1003	0.00	0.0	0.0	0.0	6.3	12.8	0	0	NA	NA	1	Good condition
	21-Mar-17	11:35	1004	0.00	0.0	0.0	0.0	7.4	13.8	0	0	NA	NA	1	Good condition
GB59	16-Apr-14	9:32	1018	0.00	0.0	0.0	0.0	2.2	19.2	0	0	NA	NA	1	
	31-Aug-16	8:41	1004	-0.08	-1.5	0.0	0.0	5.4	10.0	0	0	NA	NA	1	Good condition
	21-Mar-17	11:54	1004	0.00	0.0	0.0	0.0	2.5	17.7	0	0	NA	NA	1	Good condition
GB60	30-Aug-16	11:37	1008	0.46	7.4	8.6	8.5	0.8	0.0	5	1	0.64	0.06	2	Good condition
	20-Mar-17	14:29	1009	0.27	5.1	6.4	6.4	1.1	0.0	0	1	0.33	0.06	2	Good condition
GB61	31-Aug-16	11:46	1002	0.49	7.9	65.3	65.3	20.6	0.0	5	1	5.16	1.63	4	Good condition
	20-Mar-17	14:23	1007	0.42	7.6	66.2	66.1	19.8	0.0	0	1	5.03	1.50	4	Good condition
GB62	30-Aug-16	11:32	1008	0.50	8.0	17.2	17.1	1.5	0.0	1	0	1.38	0.12	3	Good condition
	20-Mar-17	14:33	1008	0.20	4.0	3.1	3.1	3.3	1.4	0	1	0.12	0.13	2	Good condition
GB63	30-Aug-16	11:25	1008	0.30	5.2	2.4	1.9	0.8	0.6	6	1	0.12	0.04	2	Good condition
	20-Mar-17	11:50	1006	0.06	1.3	2.7	2.7	0.7	4.0	0	1	0.04	0.01	2	Good condition
GB64	31-Aug-16	12:25	1001	0.64	9.7	37.6	37.5	2.9	0.0	5	1	3.65	0.28	4	Good condition
	20-Mar-17	14:12	1008	0.43	7.6	40.0	40.0	2.8	0.0	0	1	3.04	0.21	3	Good condition
GB65	30-Aug-16	9:07	1010	0.00	0.0	0.0	0.0	8.2	9.3	1	0	NA	NA	1	Good condition
	20-Mar-17	11:15	1006	0.00	0.0	1.5	1.5	0.3	18.5	0	1	NA	NA	2	Good condition
GB66	30-Aug-16	11:04	1009	0.31	5.2	20.1	20.1	0.8	0.0	1	0	1.05	0.04	3	Good condition
	21-Mar-17	12:08	1003	0.10	2.1	17.5	14.8	2.2	0.0	0	0	0.37	0.05	2	Good condition
GB67	30-Aug-16	13:34	1007	0.00	0.0	0.0	0.0	4.6	15.0	0	0	NA	NA	1	Good condition
	20-Mar-17	13:17	1005	0.00	0.0	0.0	0.0	4.0	17.3	0	0	NA	NA	1	Good condition
GB68	31-Aug-16	11:29	1002	0.24	4.3	57.8	57.7	18.2	1.4	6	1	2.49	0.78	3	Good condition
	20-Mar-17	14:39	1007	0.15	3.9	53.5	53.4	20.9	0.0	3	1	2.09	0.82	3	Good condition
GB69	31-Aug-16	11:21	1002	0.10	2.0	29.7	29.6	13.8	0.7	1	0	0.59	0.28	2	Good condition
	20-Mar-17	14:06	1008	0.06	1.3	7.2	7.2	14.7	0.0	0	1	0.09	0.19	2	Broken gatic cover. PVC seems ok
GB70	31-Aug-16	11:16	1002	0.00	0.0	1.2	1.2	1.3	16.8	0	0	NA	NA	2	Good condition
	20-Mar-17	14:00	1006	0.05	1.0	0.7	0.7	14.5	0.0	0	1	0.01	0.15	2	Good condition
GB71	31-Aug-16	11:11	1002	0.13	2.5	17.4	17.4	5.2	10.3	0	0	0.44	0.13	2	Good condition
	20-Mar-17	15:31	1004	0.68	11.0	46.1	46.1	7.9	0.0	0	0	5.07	0.87	4	Good condition
GB72	31-Aug-16	11:00	1002	0.00	0.0	0.0	0.0	0.1	21.4	0	0	NA	NA	1	Good condition
	20-Mar-17	15:20	1004	0.00	0.0	0.0	0.0	12.3	6.6	0	0	NA	NA	1	Good condition
GB73	31-Aug-16	10:36	1005	0.00	0.0	12.1	12.1	9.4	1.7	1	1	NA	NA	2	Good condition
	21-Mar-17	8:59	1004	0.00	0.0	41.8	41.8	26.4	0.0	0	0	NA	NA	2	Good condition
GB75	31-Aug-16	9:20	1004	0.00	0.0	2.7	2.7	13.6	0.0	1	0	NA	NA	2	Good condition
	21-Mar-17	11:17	1004	0.00	0.0	0.9	0.9	20.5	0.0	1	0	NA	NA	1	Good condition
GB76	30-Aug-16	15:51	1004	0.00	0.0	0.1	0.1	14.0	0.0	0	0	NA	NA	1	Good condition
	21-Mar-17	10:15	1004	0.00	0.0	0.0	0.0	9.7	11.7	0	0	NA	NA	1	Good condition
GB77	30-Aug-16	15:55	1004	0.00	0.0	0.0	0.0	2.1	18.2	0	0	NA	NA	1	Good condition
	21-Mar-17	10:20	1004	0.00	0.0	0.1	0.1	9.5	11.8	0	0	NA	NA	1	Good condition
GB78	30-Aug-16	15:45	1005	0.00	0.0	0.3	0.0	11.2	5.3	0	0	NA	NA	1	Good condition
	21-Mar-17	10:10	1004	0.00	0.0	0.3	0.0	5.9	16.0	0	0	NA	NA	1	Good condition
GB79	30-Aug-16	15:26	1004	0.00	0.0	0.0	0.0	13.4	4.8	1	0	NA	NA	1	Good condition
	21-Mar-17	9:53	1004	0.00	0.0	0.0	0.0	15.0	6.7	0	0	NA	NA	1	Good condition

 Methane detected >1%

GSV CH₄: Methane Gas Screening Value

GSV CO₂: Carbon Dioxide Gas Screening Value

1: British Standard 8485:2015 Characteristic Gas Situation

Situation	Hazard Potential
1	Very Low
2	Low
3	Moderate
4	Moderate to High
5	High
6	Very High

**Table 3:
Groundwater Well Survey Data**

Well ID	Survey Date	Easting	Northing	Top of casing (mAHD)	Surveyed Stickup (m)
BH4D	9-Sep-16	333412.834	5801161.844	63.951	-
BH06A	20-May-14	333195.770	5800703.287	57.431	0.83
BH07A	20-May-14	333112.948	5800889.416	59.111	0.81
	9-Sep-16	333112.882	5800889.386	59.107	-
BH09	HLA Report-04	333294.565	5800705.033	60.860	0.86
BH09A	20-May-14	333295.142	5800787.764	61.260	0.81
	9-Sep-16	333295.115	5800787.852	61.261	-
BH10	HLA Report-04	333208.669	5801239.912	64.120	-
	20-May-14	333208.559	5801239.893	64.131	-0.100
	23-Mar-17	Well Destroyed - Need to repair and resurvey			
BH11	HLA Report-04	333285.155	5801174.577	61.010	-0.05
	9-Sep-16	Well Destroyed			
BH11A	20-May-14	333283.995	5801174.869	61.676	0.789
BH12	HLA Report-04	333246.998	5801101.750	60.820	-
	9-Sep-16	333246.964	5801101.640	60.931	-
BH15	HLA Report-04	333494.380	5800788.197	61.940	0.90
	9-Sep-16	333494.393	5800788.023	62.910	-
BH16A	20-May-14	333315.460	5800957.002	61.873	0.82
	9-Sep-16	333315.431	5800957.103	61.871	-
BH17	HLA Report-04	333119.003	5800714.434	57.370	0.90
BH18	HLA Report-04	333545.552	5801141.538	62.850	0.83
	9-Sep-16	333545.509	5801141.622	62.859	-
	23-Mar-17	Well Destroyed - Need to repair and resurvey			
BH19	HLA Report-04	333506.507	5800893.779	62.730	0.70
	9-Sep-16	333506.467	5800893.800	62.692	-
	23-Mar-17	Well Destroyed - Need to repair and resurvey			
BH20	HLA Report-04	333507.521	5800865.685	62.800	0.80
	9-Sep-16	333507.504	5800865.579	62.812	-
	23-Mar-17	Well Destroyed - Need to repair and resurvey			
BH21A	20-May-14	333283.302	5800708.292	60.433	0.90
BH22	HLA Report-04	333410.807	5800775.390	60.900	0.80
	9-Sep-16	333410.863	5800775.242	60.901	-
BH24	HLA Report-04	333334.810	5801070.563	62.160	0.29
	9-Sep-16	Well Destroyed			
BH24A	9-Sep-16	333332.387	5801084.998	64.686	-
BH25	HLA Report-04	333258.396	5801089.582	61.520	0.38
BH26	HLA Report-04	333148.735	5801094.258	62.050	0.44
BH28	HLA Report-04	333469.486	5801150.866	62.270	0.94
	9-Sep-16	Well Destroyed			
BH28A	9-Sep-16	333466.979	5801145.967	62.842	-
	23-Mar-17	Well Destroyed - Need to repair and resurvey			
BH29	HLA Report-04	333478.417	5800908.654	61.820	0.50
	9-Sep-16	333478.390	5800908.669	61.671	-
BH30	20-May-14	333235.595	5801019.058	61.045	0.86
BH31	20-May-14	333153.385	5801017.056	59.413	0.89
BH32	20-May-14	333102.198	5800812.459	59.177	0.80
BH32D	20-May-14	333102.097	5800811.121	59.286	0.79
BH33	9-Sep-16	333402.570	5801051.131	65.523	-
BH34	9-Sep-16	333317.489	5801027.384	61.948	-
BH35	9-Sep-16	333401.657	5800867.668	61.901	-
BH36	9-Sep-16	333334.467	5801286.205	62.257	-
BH37	9-Sep-16	333081.433	5800926.900	61.389	-
BH38	9-Sep-16	333172.168	5800597.036	55.895	-
BH39	9-Sep-16	333295.007	5800594.693	58.903	-

Well ID	Date Measured	Top of Well Casing Elevation	Measured height of well stickup	Total Well Depth	Depth to Groundwater	Depth to Groundwater	Groundwater Elevation
		(mAHD)	(m)	(mBTOC)	(mBTOC)	(mBGS)	(mAHD)
BH4D	2-Sep-16	63.951	0.8	8.41	4.400	3.600	59.551
	23-Mar-17	63.951	0.8	8.37	4.213	3.413	59.738
BH06A	16-Apr-14	57.431	0.86	11.96	10.618	9.758	46.813
	2-Sep-16	57.431	0.83	11.98	10.695	9.865	46.736
	23-Mar-17	57.431	0.80	11.96	10.796	9.996	46.635
BH07A	16-Apr-14	59.111	0.80	12.86	10.758	9.958	48.353
	2-Sep-16	59.107	0.81	12.81	11.072	10.262	48.035
	23-Mar-17	59.107	0.80	12.79	11.245	10.445	47.862
BH09	3-Jul-13	60.860	0.86	11.96	10.618	9.758	50.242
	16-Apr-14	60.860	0.40	12.77	Dry	Dry	-
	2-Sep-16	60.860	0.40	12.77	Dry	Dry	-
	23-Mar-17	60.860	0.40	12.77	Dry	Dry	-
BH09A	2-May-14	61.260	1.00	15.66	-	-	-
	2-Sep-16	61.261	0.82	15.57	14.438	13.618	46.823
	23-Mar-17	61.261	0.80	15.23	14.665	13.865	46.596
BH10	3-Jul-13	64.120	Flush	-	Dry	Dry	-
	16-Apr-14	64.120	Flush	11.33	9.569	9.569	54.551
	2-Sep-16	64.131	Flush	9.55	Dry	Dry	-
	23-Mar-17	Well Destroyed					
BH11	16-Apr-14	61.010	Flush	6.50	6.350	6.350	54.660
	2-Sep-16	Well Destroyed					
BH11A	2-May-14	61.676	1.00	11.31	-	-	-
	2-Sep-16	61.676	0.61	-	8.695	8.085	52.981
	23-Mar-17	61.676	0.50	11.34	8.406	7.906	53.270
BH12	16-Apr-14	60.820	Flush	10.94	6.780	6.780	54.040
	2-Sep-16	60.931	0.25	9.24	6.194	5.944	54.737
	23-Mar-17	60.931	0.25	9.91	7.344	7.094	53.587
BH15	3-Jul-13	61.940	0.90	-	7.534	6.634	54.406
	16-Apr-14	61.940	0.90	9.40	7.936	7.036	54.004
	2-Sep-16	62.910	0.92	12.30	7.202	6.282	55.708
	23-Mar-17	62.910	0.90	11.90	7.913	7.013	54.997
BH16A	16-Apr-14	61.873	0.81	12.90	10.011	9.201	51.862
	2-Sep-16	61.871	0.81	12.92	10.614	9.804	51.257
	23-Mar-17	61.871	0.80	10.61	10.595	9.795	51.276
BH17	3-Jul-13	57.370	0.90	-	10.995	10.095	46.375
	16-Apr-14	57.370	0.90	12.17	11.855	10.955	45.515
	2-Sep-16	57.434	0.91	12.17	11.558	10.648	45.876
	23-Mar-17	57.434	0.90	12.22	12.088	11.188	45.346
BH18	3-Jul-13	62.850	0.83	-	4.350	3.520	58.500
	16-Apr-14	62.850	0.83	4.79	4.700	3.870	58.150
	2-Sep-16	62.859	0.75	9.77	4.845	4.095	58.014
	23-Mar-17	Well Destroyed					
BH19	16-Apr-14	62.730	0.70	8.10	6.783	6.083	55.947
	2-Sep-16	62.692	0.78	8.08	6.596	5.816	56.096
	23-Mar-17	Well Destroyed					
BH20	3-Jul-13	62.800	0.80	-	6.769	5.969	56.031
	16-Apr-14	62.800	0.80	11.70	7.065	6.265	55.735
	2-Sep-16	62.812	0.80	11.72	6.786	5.986	56.026
	23-Mar-17	Well Destroyed					
BH21A	16-Apr-14	60.433	0.90	13.10	11.970	11.070	48.463
	2-Sep-16	60.433	0.89	13.10	12.134	11.244	48.299
	23-Mar-17	60.433	0.90	12.08	12.063	11.163	48.370

Well ID	Date Measured	Top of Well Casing Elevation	Measured height of well stickup	Total Well Depth	Depth to Groundwater	Depth to Groundwater	Groundwater Elevation
		(mAHD)	(m)	(mBTOC)	(mBTOC)	(mBGS)	(mAHD)
BH22	3-Jul-13	60.900	0.80	-	5.026	4.226	55.874
	16-Apr-14	60.900	0.80	10.63	5.131	4.331	55.769
	2-Sep-16	60.901	0.73	10.73	4.835	4.105	56.066
	23-Mar-17	60.901	0.80	10.69	5.102	4.302	55.799
BH24	3-Jul-13	62.160	0.29	-	7.546	7.256	54.614
	16-Apr-14	62.160	0.29	11.34	7.768	7.478	54.392
	2-Sep-16	Well Destroyed					
BH24A	2-Sep-16	64.686	0.75	12.84	11.468	10.718	53.218
	23-Mar-17	64.686	0.75	12.82	11.180	10.430	53.506
BH25	3-Jul-13	61.520	0.38	-	5.074	4.694	56.446
	16-Apr-14	61.520	0.38	6.06	5.170	4.790	56.350
	2-Sep-16	61.520	0.20	6.02	5.551	5.351	55.969
	23-Mar-17	61.520	0.20	6.03	5.414	5.214	56.106
BH26	3-Jul-13	62.050	0.44	-	8.748	8.308	53.302
	16-Apr-14	62.050	0.44	10.93	8.912	8.472	53.138
	2-Sep-16	62.050	0.65	10.93	9.605	8.955	52.445
	23-Mar-17	62.050	0.50	10.89	9.632	9.132	52.418
BH28	3-Jul-13	62.270	0.94	-	1.404	0.464	60.866
	16-Apr-14	62.270	0.94	10.50	1.363	0.423	60.907
	2-Sep-16	Well Destroyed					
BH28A	2-Sep-16	62.842	-	8.01	4.063	-	58.779
	23-Mar-17	Well Destroyed					
BH29	3-Jul-13	61.820	0.50	-	3.490	2.990	58.330
	16-Apr-14	61.820	0.50	6.54	3.762	3.262	58.058
	2-Sep-16	61.671	0.58	6.56	3.567	2.987	58.104
	23-Mar-17	61.671	0.60	6.51	3.705	3.105	57.966
BH30	17-Apr-14	61.045	0.84	12.37	9.894	9.054	51.151
	2-Sep-16	61.045	0.84	12.36	10.044	9.204	51.001
	23-Mar-17	61.045	0.80	12.36	9.978	9.178	51.067
BH31	17-Apr-14	59.413	0.74	11.22	8.984	8.244	50.429
	2-Sep-16	59.413	0.87	11.19	9.376	8.506	50.037
	23-Mar-17	59.413	0.80	11.02	9.424	8.624	49.989
BH32	17-Apr-14	59.177	0.77	12.86	12.340	11.570	46.837
	2-Sep-16	59.177	0.77	12.85	Dry	Dry	-
	23-Mar-17	59.177	0.80	12.84	Dry	Dry	-
BH32D	2-May-14	59.286	1.00	15.93	-	-	-
	2-Sep-16	59.286	0.80	15.85	13.588	12.788	45.698
	23-Mar-17	59.286	0.80	15.80	14.290	13.490	44.996
BH33	2-Sep-16	65.523	0.8	10.88	9.221	8.421	56.302
	23-Mar-17	65.523	0.8	10.88	9.407	8.607	56.116
BH34	2-Sep-16	61.948	-	13.30	9.314	-	52.634
	23-Mar-17	61.948	0.7	9.17	9.138	8.438	52.810
BH35	2-Sep-16	61.901	0.73	6.85	3.684	2.954	58.217
	23-Mar-17	61.901	0.7	6.84	3.88	3.180	58.021
BH36	2-Sep-16	62.257	Flush	9.72	6.411	6.411	55.846
	23-Mar-17	62.257	Flush	9.73	6.187	6.187	56.070
BH37	2-Sep-16	61.389	Flush	10.14	8.186	8.186	53.203
	23-Mar-17	61.389	Flush	10.12	7.984	7.984	53.405
BH38	2-Sep-16	55.895	Flush	7.78	3.367	3.367	52.528
	23-Mar-17	55.895	Flush	7.79	4.116	4.116	51.779
BH39	2-Sep-16	58.903	Flush	10.64	8.386	8.386	50.517
	23-Mar-17	58.903	Flush	10.65	8.016	8.016	50.887

mAHD - metres Australian Height Datum

mBTOC - metres below top of casing

mBGS - metres below ground surface

**Table 5:
Historic Water Quality**

Well ID	Date Measured	Sample Method	Purge Rate	Pump Depth	Purge Volume	Depth to Water	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Field Measured Total Dissolved Solids ¹	Laboratory Analysed Total Dissolved Solids	Laboratory Analysed pH	Comments
			(ml/min)	(mBTOC)	(L)	(mBTOC)	(mg/L)	(µS/cm)		(mV)	(°C)	(mg/L)	(mg/L)		
BH4D	29-Aug-16	Micro-purge	100	6.4	3.0	4.443	0.13	2,507	6.79	-93	16.8	1,630	1,970	6.84	Very cloudy, brown, no odour
	24-Mar-17	Micro-purge	100	5.0	3.0	4.227	0.10	3,136	6.51	-109	23.1	2,038	2,030	6.69	Clear, no odour
BH6A	6-Sep-16	Micro-purge	50	10.5	3.5	10.720	0.60	864	5.19	116	16.6	562	467	5.66	Cloudy, brown, no odour
	23-Mar-17	Bailer	-	-	9.0	10.796	1.00	646	5.81	44	17.2	420	10,400	6.08	Turbid, brown, no odour. Well dry at 9L
BH7A	7-Sep-16	Micro-purge	50	12.0	4.0	11.090	2.90	483	3.96	371	17.3	314	292	4.30	Very cloudy, brown, no odour
	22-Mar-17	Micro-purge	50	12.0	3.0	11.093	2.09	473	3.53	230	19.4	307	513	4.23	Slightly cloudy, light brown, no odour
BH9A	2-Sep-16	Micro-purge	100	15.0	4.0	14.438	1.90	2,795	6.13	-22	16.1	1,817	1,600	6.30	Slightly cloudy, light brown, no odour
	22-Mar-17	Bailer	-	-	0.5	14.685	3.50	1,649	5.98	19	21.8	1,072	1,230	6.62	Cloudy, no odour
BH11A	29-Aug-16	Micro-purge	200	10.0	4.0	8.738	0.22	2,280	6.78	-114	18.8	1,482	1,300	7.02	Cloudy, grey, no odour
	28-Mar-17	Bailer	-	-	27.0	8.398	0.45	1,714	6.87	-123	18.4	1,114	1,060	7.14	Very cloudy, black, organic odour
BH12	6-Sep-16	Micro-purge	50	8.5	3.5	7.787	0.93	780	5.68	-20	19.8	507	834	7.45	Cloudy, brown, no odour
	23-Mar-17	Bailer	-	-	22.0	7.306	2.51	1,507	6.89	-99	18.4	980	947	6.99	Cloudy, with organic matter
BH15	6-Sep-16	Watterra	-	-	45	7.364	0.14	1,508	6.49	-40	17.6	980	2,560	6.99	Turbid, grey, no odour
	28-Mar-17	Watterra	-	-	30	7.940	0.90	1,007	6.4	-42	18.7	655	8,080	6.68	Very cloudy, grey, no odour
BH16A	29-Aug-16	Micro-purge	50	11.8	3.0	10.696	0.70	784	6.40	-10	17.8	510	504	6.48	Slightly cloudy, grey, no odour
	23-Mar-17	Micro-purge	50	11.8	3.0	10.605	0.35	779	4.93	65	24.1	506	513	5.29	Slightly cloudy, light brown, no odour
BH17	7-Sep-16	Watterra	-	-	1.0	11.618	3.26	300	5.66	104	18.3	195	14,900	4.04	Insufficient water to purge. Very turbid
BH18	7-Sep-16	Micro-purge	100	7.5	3.0	4.921	0.56	146	4.12	32	18.6	95	463	4.70	Cloudy, orange, no odour
BH19	1-Sep-16	Micro-purge	100	7.0	3.5	6.590	0.08	4,017	6.15	-52	16.9	2,611	2,500	6.27	Very cloudy, dark brown
BH20	1-Sep-16	Micro-purge	100	11.0	4.0	6.820	3.28	1,031	3.77	431	15.9	670	589	4.13	Cloudy, grey, no odour
BH21A	2-Sep-16	Micro-purge	50	12.5	2.5	12.125	2.11	618	4.30	298	15.8	402	406	4.86	Cloudy, brown, no odour. Cannot avoid drawdown
	22-Mar-17	Micro-purge	50	12.5	2.0	12.080	0.97	524	3.99	201	19.3	341	347	4.63	Slightly cloudy, no odour
BH22	2-Sep-16	Micro-purge	100	9.0	3.5	4.780	0.63	3,307	6.39	-30	15.2	2,150	2,140	6.45	Cloudy, black, no odour
	24-Mar-17	Micro-purge	100	7.8	3.5	5.073	0.12	2,461	6.34	-165	19.7	1,600	1,770	6.48	Very cloudy, black, slight odour
BH24A	29-Aug-16	Micro-purge	200	-	4.5	11.504	0.37	920	5.12	117	16.8	598	662	5.56	Slightly cloudy, grey, no odour
	28-Mar-17	Micro-purge	100	12.0	3.0	11.186	0.67	828	5.88	30	19.3	538	551	6.35	Cloudy, light brown, no odour
BH25	6-Sep-16	Bailer	-	-	4.0	5.615	1.20	788	8.31	-95	17.9	512	610	8.17	Cloudy, brown, no odour. Well dry at 3L
	23-Mar-17	Bailer	-	-	0.7	5.423	1.85	1,092	7.87	-27	21.6	710	872	8.13	Cloudy. Dry at 0.7L
BH26	6-Sep-16	Micro-purge	50	10.5	4.0	9.676	0.87	3,249	5.07	170	18.8	2,112	2,020	5.60	Slightly cloudy, grey, no odour
	24-Mar-17	Micro-purge	100	10.0	4.0	9.657	0.68	2,992	5.51	69	20.2	1,945	1,970	6.00	Clear, no odour
BH28A	29-Aug-16	Micro-purge	150	6.1	3.0	4.102	0.26	1,576	7.08	-105	17	1,024	1,600	7.10	Turbid, brown, no odour
BH29	30-Aug-16	Micro-purge	100	-	4.0	3.570	0.28	4,540	6.37	-30	14.8	2,951	2,860	6.50	Cloudy, grey, no odour
	24-Mar-17	Micro-purge	100	5.0	3.0	3.689	0.23	4,161	6.34	-66	21.7	2,705	2,740	6.50	Very cloudy, black, slight odour
BH30	29-Aug-16	Micro-purge	50	11.1	3.5	9.911	0.13	10,880	6.99	-49	17.1	7,072	4,570	6.93	Very cloudy oil-like appearance, sweet odour.
	23-Mar-17	Micro-purge	50	11.1	3.5	9.978	0.04	11,678	6.71	-73	22.1	7,591	4,870	7.24	Clear, slight organic odour
BH31	29-Aug-16	Micro-purge	100	-	5.0	9.412	0.18	2,579	6.05	-51	17.6	1,676	1,470	6.38	Cloudy, brown, no odour
	24-Mar-17	Micro-purge	100	10.0	4.5	9.449	0.27	1,916	6.79	-89	18.6	1,245	1,100	6.65	Clear, no odour
BH32D	7-Sep-16	Micro-purge	50	14.5	4.0	13.585	1.63	435	3.56	421	17.4	283	430	3.90	Slightly cloudy, light brown, no odour
	22-Mar-17	Micro-purge	50	15.2	3.0	14.284	4.07	382	3.39	150	18.7	248	311	3.87	Cloudy, light brown, no odour
BH33	29-Aug-16	Micro-purge	150	10.0	3.0	9.178	0.70	1,468	6.66	-68	17.3	954	1,040	6.61	Slightly cloudy, brown, no odour
	28-Mar-17	Bailer	-	-	15.0	9.373	0.62	1,314	6.52	-40	17.1	854	2,200	6.74	Turbid, orange/brown, no odour
BH34	29-Aug-16	Micro-purge	100	11.3	3.0	9.428	0.43	791	6.22	-4	17.1	514	548	6.71	Cloudy, grey, no odour
	22-Mar-17	Micro-purge	100	11.3	3.0	9.171	0.46	848	6.34	-67	20.6	551	540	6.30	Slightly cloudy, no odour
BH35	2-Sep-16	Micro-purge	100	6.0	3.5	3.674	0.11	4,384	6.79	-330	16.3	2,850	2,930	6.97	Clear, no odour
	24-Mar-17	Micro-purge	200	5.5	4.0	3.872	0.09	3,638	6.70	-184	19.3	2,365	2,690	6.84	Clear, no odour
BH36	6-Sep-16	Micro-purge	100	9.0	3.5	6.422	0.30	520	5.20	63	16.9	338	610	5.79	Very cloudy, brown, no odour
	27-Mar-17	Micro-purge	100	9.0	3.5	6.132	0.51	332	5.76	-38	18.6	216	500	6.10	Slightly cloudy, no odour
BH37	2-Sep-16	Micro-purge	100	9.0	3.0	8.186	5.10	523	4.31	369	15.5	340	374	4.81	Slightly cloudy, light brown, no odour
	23-Mar-17	Micro-purge	100	9.0	3.0	7.984	4.89	640	4.09	128	19.1	416	360	4.75	Slightly cloudy, light brown, no odour
BH38	6-Sep-16	Micro-purge	50	7.0	3.5	3.590	1.44	260	4.04	335	16.1	169	202	4.72	Slightly cloudy, brown, no odour
	27-Mar-17	Micro-purge	100	5.0	3.5	4.114	0.63	228	3.99	221	24.6	148	206	4.84	Clear, no odour
BH39	6-Sep-16	Micro-purge	50	10.0	3.5	8.384	0.59	279	4.61	93	17.8	181	158	4.69	Slightly cloudy, grey/brown, no odour
	27-Mar-17	Micro-purge	100	9	3.5	7.933	0.08	251	4.38	66	25.4	163	626	4.86	Slightly cloudy, brown, no odour

**Table 5:
Historic Water Quality**

Well ID	Date Measured	Sample Method	Purge Rate	Pump Depth	Purge Volume	Depth to Water	Dissolved Oxygen	Electrical Conductivity	pH	Redox Potential	Temperature	Field Measured Total Dissolved Solids ¹	Laboratory Analysed Total Dissolved Solids	Laboratory Analysed pH	Comments
			(ml/min)	(mBTOC)	(L)	(mBTOC)	(mg/L)	(µS/cm)		(mV)	(°C)	(mg/L)	(mg/L)		

Notes:

mBTOC = metres below top of casing

µS/cm = microsiemen per centimetre

mV = millivolts

1: Approximate value determined using the following equation: TDS (mg/L) = EC x 0.65

Table 6A:
Groundwater Results
(August / September 2016)

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷	Field_ID	BH4D	BH06A	BH07A	BH09A	BH11A	BH12	BH15	BH16A	BH17	BH18	BH19	BH20	BH21A	BH22	BH24A							
										SampleCode	29/08/2016	6/09/2016	7/09/2016	2/09/2016	29/08/2016	6/09/2016	6/09/2016	29/08/2016	7/09/2016	7/09/2016	1/09/2016	1/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016	2/09/2016
										EM1610139003	EM1610462004	EM1610462016	EM1610304005	EM1610139013	EM1610462006	EM1610462008	EM1610139006	EM1610462014	EM1610462013	EM1610304009	EM1610304008	EM1610304004	EM1610304003	EM1610139012								
BTEXN																																
Benzene	µg/L	1	950	1		1 ²	10		800	<1	<1	<1	<1	2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1							
Ethylbenzene	µg/L	2		3 ^A		300 ²	3 ^A		NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Toluene	µg/L	2		25 ^A		800 ²	25 ^A		NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Xylene (m & p)	µg/L	2								<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Xylene (o)	µg/L	2	350							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Xylene Total	µg/L	2		20 ^A		600 ²	20 ^A		NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Naphthalene	µg/L	1	16						NL	<5	<5	<5	<1	<5	<5	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5							
Total BTEX	mg/L	0.001								<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001								
HYDROCARBONS																																
C6 - C9	µg/L	20								<20	<20	<20	<20	50	30	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20							
C10 - C14	µg/L	50								<50	<50	<50	70	60	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50							
C15 - C28	µg/L	100								430	130	<100	510	420	310	230	110	<100	<100	1060	<100	<100	500	110	110							
C29 - C36	µg/L	50								<50	<50	<50	<50	50	60	<50	<50	<50	<50	210	<50	<50	<50	<50	<50							
C10 - C36 (Sum of total)	µg/L	50								430	130	<50	580	530	370	230	110	<50	<50	1340	<50	<50	500	110	110							
C6 - C10	mg/L	0.02								<0.02	<0.02	<0.02	<0.02	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02							
C10-C16	mg/L	0.1								<0.1	<0.1	<0.1	0.16	0.14	0.11	<0.1	<0.1	<0.1	<0.1	0.24	<0.1	<0.1	<0.1	<0.1	<0.1							
C16-C34	mg/L	0.1								0.4	0.13	<0.1	0.44	0.39	0.3	0.24	0.12	<0.1	<0.1	1.05	<0.1	<0.1	0.47	0.11	0.11							
C34-C40	mg/L	0.1								<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1							
C10 - C40 (Sum of total)	µg/L	100								400	130	<100	600	530	410	240	120	<100	<100	1290	<100	<100	470	110	110							
C6-C10 less BTEX (F1)	mg/L	0.02							1	<0.02	<0.02	<0.02	<0.02	0.04	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02							
F2-NAPHTHALENE	mg/L	0.1							1	<0.1	<0.1	<0.1	0.16	0.14	0.11	<0.1	<0.1	<0.1	<0.1	0.24	<0.1	<0.1	<0.1	<0.1	<0.1							
INORGANICS																																
Alkalinity (Hydroxide) as CaCO3	µg/L	1000								<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000							
Alkalinity (total) as CaCO3	mg/L	1								1580	146	<1	1040	1140	713	560	203	<1	13	2130	<1	11	1630	215	215							
Anions Total	meq/L	0.01								36.2	8.52	3.76	32.4	26.7	17.2	20.6	9.54	2.62	1.14	52.1	7.67	5.85	44.8	11.1	11.1							
Alkalinity (Bicarbonate as CaCO3)	mg/L	1								1580	146	<1	1040	1140	713	560	203	<1	13	2130	<1	11	1630	215	215							
BOD	mg/L	2								26	<2	<2	3	31	25	<2	5	3	<2	17	<2	<2	33	3	3							
Alkalinity (Carbonate as CaCO3)	mg/L	1								<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1							
Cations Total	meq/L	0.01								35.5	7.83	2.91	30.1	25	16	20.4	8.47	1.59	0.95	47.9	8.69	5.37	40.2	9.96	9.96							
Chloride	mg/L	1		250 ^A			250 ^A	6000		166	164	132	372	127	105	120	193	65	21	339	263	168	168	197	197							
COD	mg/L	10								873	24	95	115	111	220	320	27	920	<10	2040	<10	16	224	<10	<10							
Ferrous Iron	mg/L	0.05								52.4	9.66	<0.05	15.6	12.9	4.41	13.5	6.26	3.71	0.44	36	<0.05	3.64	4.92	22.9	22.9							
Ionic Balance	%	0.01								1.1	4.2	-	3.7	3.26	3.63	0.53	5.94	-	-	4.25	6.21	4.29	5.5	5.33	5.33							
Kjeldahl Nitrogen Total	mg/L	0.1								65.2	0.9	2.3	71.4	59.9	62.5	7.4	4.3	4.4	0.5	50.7	2.5	1.2	9.9	0.4	0.4							
Ammonia as N	µg/L	10	900							59,400	560	30	66,900	47,600	53,600	4140	4100	180	140	19,300	30	330	9350	190	190							
Ammonia as ammonia (8)	µg/L	-		500 ^A			500 ^A			71,874	678	36	80,949	57,596	64,856	5,009	4,961	218	169	23,353	36	399	11,314	230	230							
Nitrate (as N)	mg/L	0.01			25					0.01	0.07	1.43	4.97	0.03	<0.01	0.1	0.15	0.03	0.03	0.15	0.28	2.85	0.01	0.01	0.01							
Nitrate as nitrate (9)	mg/L	-	31,900 ¹²	50 ^A		400	50 ^A			0.04	0.31	6.33	22.02	0.13	-	0.44	0.66	0.13	0.13	0.66	1.24	12.63	0.04	0.04	0.04							
Nitrite (as N)	mg/L	0.01								<0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01							
Nitrite as nitrite (10)	mg/L	-				30				-	0.03	-	-	-	0.03	-	-	0.03	-	-	-	-	-	-	-							
Nitrogen (Total Oxidised)	mg/L	0.01								0.01	0.08	1.43	4.97	0.03	0.01	0.1	0.15	0.04	0.03	0.15	0.28	2.85	0.01	0.01	0.01							
pH (Lab)	pH Units	0.01					<5.5			6.84	5.66	4.3	6.3	7.02	7.45	6.99	6.48	4.04	4.7	6.27	4.13	4.86	6.45	5.56	5.56							
Sulfate as SO4 - Turbidimetric (Filtered)	mg/L	1								<10	47	2	56	17	<1	288	2	38	14	<10	12	43	362	59	59							
Sulfate as S (11)	mg/L	1						1000		-	16	1	19	6	-	96	1	13	5	-	4	14	121	20	20							
TDS	mg/L	10		600 ^A			600 ^A			1970	467	292	1600	1300	834	2560	504	14900	463	2500	589	406	2140	662	662							
TOC	mg/L	1								202	11	5	43	9	27	34	9	9	5	110	4	6	60	19	19							
TSS	mg/L	5								626	128	8470	192	199	220	8210	68	11,000	1250	996	960	2480	469	861	861							
IONS																																
Calcium (Filtered)	mg/L	1				1000				152	6	2	63	131	40	114	15	<1	<1	238	<1	2	172	9	9							
Magnesium (Filtered)	mg/L	1								94	36	7	94	44	14	69	30	2	1	192	36	16	210	36	36							
Potassium (Filtered)	mg/L	1								45	3	1	39	45	25	17	7	3	<1	69	1	<1	31	<1	<1							
Sodium (Filtered)	mg/L	1		180 ^A			180 ^A			275	90	47	310	190	173	168	109	31	20	424	131	91	311	122	122							
METALS																																

Table 6B:
Groundwater Results - Broad Screen
(August / September 2016)

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷						
									Field ID	BH09A	BH18	BH25	BH26	BH36	BH38
									Sampled Date	2/09/2016	7/09/2016	6/09/2016	6/09/2016	6/09/2016	6/09/2016
									EM1610304005	EM1610462013	EM1610462007	EM1610462005	EM1610462003	EM1610462001	
OCPs															
4,4-DDE	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
a-BHC	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Aldrin	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Aldrin + Dieldrin	µg/L	0.5		0.3		0.3 ²	3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
b-BHC	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlordane	µg/L	0.5	0.08	2		2 ²	20		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
cis-Chlordane	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
d-BHC	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DDD	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
DDT	µg/L	2	0.01	9		9 ²	90		<2	<2	<2	<2	<2	<2	
DDT+DDE+DDD	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Dieldrin	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endosulfan I	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endosulfan II	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endosulfan sulphate	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endrin	µg/L	0.5	0.02						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endrin aldehyde	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Endrin ketone	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
g-BHC (Lindane)	µg/L	0.5	0.2	10		10 ²	100		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Heptachlor	µg/L	0.5	0.09	0.3		0.3 ²	3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Heptachlor epoxide	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Hexachlorobenzene	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Methoxychlor	µg/L	2							<2	<2	<2	<2	<2	<2	
trans-chlordane	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
OPPs															
Azinophos methyl	µg/L	0.5	0.02	30		30 ²	10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Bromophos-ethyl	µg/L	0.5		10		10 ²	20		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Carbophenothion	µg/L	0.5		0.5		0.5 ²	1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorfenvinphos	µg/L	0.5		2		2 ²	10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorpyrifos	µg/L	0.5	0.01	10		10 ²	2		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chlorpyrifos-methyl	mg/L	0.0005							<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Demeton-S-methyl	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Diazinon	µg/L	0.5	0.01	4		4 ²	10		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Dichlorvos	µg/L	0.5		5		5 ²	20		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Dimethoate	µg/L	0.5	0.15	7		7 ²	100		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Ethion	µg/L	0.5		4		4 ²	6		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Fenamiphos	µg/L	0.5		0.5		0.5 ²			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Fenthion	µg/L	0.5		7		7 ²			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Malathion	µg/L	0.5	0.05	70		70 ²	100		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Methyl parathion	µg/L	2		0.7		0.7 ²	6		<2	<2	<2	<2	<2	<2	
Monocrotophos	µg/L	2		2		2 ²	2		<2	<2	<2	<2	<2	<2	
Parathion	µg/L	2	0.004	20		20 ²	30		<2	<2	<2	<2	<2	<2	
Pirimphos-ethyl	µg/L	0.5		0.5		0.5 ²	1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Prothiofos	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
PAHs															
Acenaphthene	µg/L	1							<1	<1	<1	<1	<1	<1	
Acenaphthylene	µg/L	1							<1	<1	<1	<1	<1	<1	
Anthracene	µg/L	1							<1	<1	<1	<1	<1	<1	
Benzo(a)anthracene	µg/L	1							<1	<1	<1	<1	<1	<1	
Benzo(a)pyrene	µg/L	0.5		0.01		0.01 ²	0.01		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo(g,h,i)perylene	µg/L	1							<1	<1	<1	<1	<1	<1	
Benzo(k)fluoranthene	µg/L	1							<1	<1	<1	<1	<1	<1	
Chrysene	µg/L	1							<1	<1	<1	<1	<1	<1	
Benzo[b+j]fluoranthene	mg/L	0.001							<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Dibenz(a,h)anthracene	µg/L	1							<1	<1	<1	<1	<1	<1	
Fluoranthene	µg/L	1							<1	<1	<1	<1	<1	<1	
Fluorene	µg/L	1							<1	<1	<1	<1	<1	<1	
Indeno(1,2,3-c,d)pyrene	µg/L	1							<1	<1	<1	<1	<1	<1	
Phenanthrene	µg/L	1							<1	<1	<1	<1	<1	<1	
Pyrene	µg/L	1							<1	<1	<1	<1	<1	<1	
Benzo(a)pyrene TEQ (zero)	µg/L	0.5							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total PAHs	µg/L	0.5	3 ¹³						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
PHENOLS															
2,4,5-trichlorophenol	µg/L	1					1		<1	<1	<1	<1	<1	<1	
2,4,6-trichlorophenol	µg/L	1	20	2 ^A		20 ²	10		<1	<1	<1	<1	<1	<1	
2,4-dichlorophenol	µg/L	1	160	0.3 ^A		200 ²			<1	<1	<1	<1	<1	<1	
2,4-dimethylphenol	µg/L	1							<1	<1	<1	<1	<1	<1	
2,6-dichlorophenol	µg/L	1							<1	<1	<1	<1	<1	<1	
2-chlorophenol	µg/L	1	490	0.1 ^A		300 ²			<1	<1	<1	<1	<1	<1	
2-methylphenol	µg/L	1							<1	<1	<1	<1	<1	<1	
2-nitrophenol	µg/L	1							<1	<1	<1	<1	<1	<1	
3-&4-methylphenol	µg/L	2							<2	<2	<2	<2	<2	<2	
4-chloro-3-methylphenol	µg/L	1							<1	<1	<1	<1	<1	<1	
Pentachlorophenol	µg/L	2	10	10		10 ²	10		<2	<2	<2	<2	<2	<2	
Phenol	µg/L	1	320						<1	<1	<1	<1	<1	<1	

Table 6B:
Groundwater Results - Broad Screen
(August / September 2016)

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷						
									Field ID	BH09A	BH18	BH25	BH26	BH36	BH38
									Sampled Date	2/09/2016	7/09/2016	6/09/2016	6/09/2016	6/09/2016	6/09/2016
									EM1610304005	EM1610462013	EM1610462007	EM1610462005	EM1610462003	EM1610462001	
BROAD SCREEN															
Weak Acid Dissociable Cyanide	mg/L	0.004							<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	
2,2-dichloropropane	µg/L	5							<5	<5	<5	<5	<5	<5	
Hexachlorocyclopentadiene	µg/L	10							<10	<10	<10	<10	<10	<10	
Hexachloroethane	µg/L	2	360						<2	<2	<2	<2	<2	<2	
Pentachlorobenzene	µg/L	2							<2	<2	<2	<2	<2	<2	
Atrazine	mg/L	0.0005	0.013	0.02		0.02 ²			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Bifenthrin	mg/L	0.0005					0.1		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
PCBs (Sum of total)	µg/L	1							<1	<1	<1	<1	<1	<1	
Hexachloropropene	µg/L	2							<2	<2	<2	<2	<2	<2	
VHCS															
1,1,1,2-tetrachloroethane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,1,1-trichloroethane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,1,2,2-tetrachloroethane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,1,2-trichloroethane	µg/L	5	6500						<5	<5	<5	<5	<5	<5	
1,1-dichloroethane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,1-dichloroethene	µg/L	5		30		30 ²	300		<5	<5	<5	<5	<5	<5	
1,1-dichloropropene	µg/L	5							<5	<5	<5	<5	<5	<5	
1,2,3-trichlorobenzene	µg/L	5	10						<5	<5	<5	<5	<5	<5	
1,2,3-trichloropropane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,2,4-trichlorobenzene	µg/L	2	170						<2	<2	<2	<2	<2	<2	
1,2-dibromo-3-chloropropane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,2-dibromoethane	µg/L	5		1		1 ²	10		<5	<5	<5	<5	<5	<5	
1,2-dichlorobenzene	µg/L	2	160	1 [^]		1500 ²	1 [^]		<2	<2	<2	<2	<2	<2	
1,2-dichloroethane	µg/L	5		3		3 ²	30		<5	<5	<5	<5	<5	<5	
1,2-dichloropropane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,3-dichlorobenzene	µg/L	2	260	20 [^]			20 [^]		<2	<2	<2	<2	<2	<2	
1,3-dichloropropane	µg/L	5							<5	<5	<5	<5	<5	<5	
1,4-dichlorobenzene	µg/L	2	60	0.3 [^]		40 ²	0.3 [^]		<2	<2	<2	<2	<2	<2	
2-chlorotoluene	µg/L	5							<5	<5	<5	<5	<5	<5	
4-chlorotoluene	µg/L	5							<5	<5	<5	<5	<5	<5	
Bromobenzene	µg/L	5							<5	<5	<5	<5	<5	<5	
Bromodichloromethane	µg/L	5							<5	<5	<5	<5	<5	<5	
Bromoform	µg/L	5							<5	<5	<5	<5	<5	<5	
Bromomethane	µg/L	50		1		1 ²	10		<50	<50	<50	<50	<50	<50	
Carbon tetrachloride	µg/L	5		3		3 ²	30		<5	<5	<5	<5	<5	<5	
Chlorobenzene	µg/L	5		10 [^]		300 ²	10 [^]		6	<5	<5	<5	<5	<5	
Chlorodibromomethane	µg/L	5							<5	<5	<5	<5	<5	<5	
Chloroethane	µg/L	50							<50	<50	<50	<50	<50	<50	
Chloroform	µg/L	5							<5	<5	<5	<5	<5	<5	
Chloromethane	µg/L	50							<50	<50	<50	<50	<50	<50	
cis-1,2-dichloroethene	µg/L	5							<5	<5	<5	<5	<5	<5	
cis-1,3-dichloropropene	µg/L	5							<5	<5	<5	<5	<5	<5	
cis-1,4-Dichloro-2-butene	µg/L	5							<5	<5	<5	<5	<5	<5	
Dibromomethane	µg/L	5							<5	<5	<5	<5	<5	<5	
Dichlorodifluoromethane	µg/L	50							<50	<50	<50	<50	<50	<50	
Hexachlorobutadiene	µg/L	2		0.7		0.7 ²	7		<2	<2	<2	<2	<2	<2	
Iodomethane	µg/L	5							<5	<5	<5	<5	<5	<5	
Pentachloroethane	µg/L	5							<5	<5	<5	<5	<5	<5	
Trichloroethene	µg/L	5							<5	<5	<5	<5	<5	<5	
Tetrachloroethene	µg/L	5		50		50 ²	500		<5	<5	<5	<5	<5	<5	
trans-1,2-dichloroethene	µg/L	5							<5	<5	<5	<5	<5	<5	
trans-1,3-dichloropropene	µg/L	5							<5	<5	<5	<5	<5	<5	
trans-1,4-Dichloro-2-butene	µg/L	5							<5	<5	<5	<5	<5	<5	
Trichlorofluoromethane	µg/L	50							<50	<50	<50	<50	<50	<50	
Vinyl chloride	µg/L	50		0.3		0.3 ²	3		<50	<50	<50	<50	<50	<50	

1: ANZECC (2000) - Maintenance of Ecosystems - Freshwater 95% Protection
2: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (health based)
^: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (aesthetics based)
3: ANZECC (2000) - Water Quality Guidelines for Agricultural Water Use (Irrigation)
4: ANZECC (2000) - Water Quality Guidelines for Agricultural Water Use (Livestock)
5: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (health based) multiplied by a factor of 10
6: AS 2159-2009 Piling Design and Installation - Limits for mild exposure classification of soil condition A
7: NEPC (2013) - Health Screening Levels for Vapour Intrusion, Low-high density Residential, Sand, 2m to <4m
8: Linear conversion Ammonia = Ammonia as N * 1.21
9: Linear conversion Nitrate = Nitrate as N * 4.43
10: Linear conversion Nitrite = Nitrite as N * 3.29
11: Linear conversion Sulphate as S = Sulphate as SO4 * 0.33
12: NIWA (2002) Memorandum - Nitrate guideline values in ANZECC 2000
13: ANZECC (1992) - Australian Water Quality Guidelines
NL: Not Limiting



Table 7A:
Groundwater Results
(March 2017)

Huntingdale Estate
1221-1249 Centre Rd 22 Talbot Ave
Oakleigh South

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷	Field ID	BH04D	BH6A	BH7A	BH09A	BH11A	BH12	BH15	BH16A	BH21A	BH22	BH24A	BH25	BH26	BH29	BH30							
										Sampled Date	24/03/2017	23/03/2017	22/03/2017	22/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017	28/03/2017	23/03/2017
										SampleCode	EM1703572003	EM1703484005	EM1703386002	EM1703386005	EM1703748002	EM1703484003	EM1703748001	EM1703484006	EM1703386001	EM1703572006	EM1703748004	EM1703484002	EM1703572002	EM1703572004	EM1703484001							
BTEXN																																
Benzene	µg/L	1	950	1		1 ²	10		800	<1	<1	<1	<1	3	2	<1	<1	<1	<1	<1	<1	<1	1	<1	4							
Ethylbenzene	µg/L	2		3 ^A		300 ²	3 ^A		NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	11							
Toluene	µg/L	2		25 ^A		800 ²	25 ^A		NL	<2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	6							
Xylene (m & p)	µg/L	2								<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	9							
Xylene (o)	µg/L	2	350							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	6							
Xylene Total	µg/L	2		20 ^A		600 ²	20 ^A		NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	15							
Naphthalene	µg/L	1	16						NL	<5	<5	<5	<1	<5	<5	<5	<5	<5	<5	<5	<5	<1	<1	<5	9							
Total BTEX	mg/L	0.001								<0.001	<0.001	<0.001	<0.001	0.005	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.036							
HYDROCARBONS																																
C6 - C9	µg/L	20								<20	<20	<20	<20	100	40	<20	<20	<20	<20	<20	<20	<20	<20	<20	200							
C10 - C14	µg/L	50								<50	<50	<50	<50	160	<50	<50	220	<50	<50	<50	<50	<50	<50	<50	4270							
C15 - C28	µg/L	100								440	<100	<100	260	1450	580	<100	2040	<100	420	100	170	<100	240	<100	5730							
C29 - C36	µg/L	50								<50	<50	<50	<50	1240	710	<50	100	<50	50	<50	60	<50	<50	<50	570							
C10 - C36 (Sum of total)	µg/L	50								440	<50	<50	260	2850	1290	<50	2360	<50	470	100	230	<50	240	<50	10,600							
C6 - C10	mg/L	0.02								<0.02	<0.02	<0.02	<0.02	0.1	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.18							
C10-C16	mg/L	0.1								<0.1	<0.1	<0.1	<0.1	0.3	0.16	<0.1	1.47	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4.96							
C16-C34	mg/L	0.1								0.39	<0.1	<0.1	0.24	2.14	1.1	<0.1	0.94	<0.1	0.38	0.11	0.18	<0.1	<0.1	<0.1	4.98							
C34-C40	mg/L	0.1								<0.1	<0.1	<0.1	<0.1	0.82	0.17	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.24							
C10 - C40 (Sum of total)	µg/L	100								390	<100	<100	240	3260	1430	<100	2410	<100	380	110	180	<100	220	<100	10,200							
C6-C10 less BTEX (F1)	mg/L	0.02							1	<0.02	<0.02	<0.02	<0.02	0.3	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.14							
F2-NAPHTHALENE	mg/L	0.1							1	<0.1	<0.1	<0.1	<0.1	0.3	0.16	<0.1	1.47	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4.95							
INORGANICS																																
Alkalinity (Hydroxide) as CaCO3	µg/L	1000								<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000							
Alkalinity (total) as CaCO3	mg/L	1								1590	132	<1	618	977	752	325	126	8	1310	154	590	59	2140	4400								
Anions Total	meq/L	0.01								37.6	6.04	3.6	22	22.8	18.6	15.5	8.19	5.36	33.6	10.1	13.4	32.6	56.7	134								
Alkalinity (Bicarbonate as CaCO3)	mg/L	1								1590	132	<1	618	977	752	325	126	8	1310	154	590	59	2140	4400								
Alkalinity (Carbonate as CaCO3)	mg/L	1								<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1								
BOD	mg/L	2								7	<2	<2	53	35	62	11	<2	<2	21	12	33	6	7	56								
Cations Total	meq/L	0.01								35.2	4.31	3.35	18.1	20.8	17	13.8	6.45	4.73	30.4	8.12	11.3	28.7	49.5	126								
Chloride	mg/L	1		250 ^A			250 ^A	6000		205	91	126	267	115	126	132	199	163	265	216	51	1030	494	1620								
COD	mg/L	10								782	245	<20	280	243	242	234	31	<10	380	37	219	<10	390	1960								
Ferrous Iron	mg/L	0.05								71.6	2.63	0.36	4.69	12.1	0.42	20	6.61	4.96	1.41	28.5	0.07	25	14.6	1.88								
Ionic Balance	%	0.01								3.26	16.6	3.58	9.74	4.47	4.6	5.7	11.9	6.24	5.02	11	8.42	6.35	6.75	2.26								
Kjeldahl Nitrogen Total	mg/L	0.1								71.9	0.7	0.7	7	63.7	70.5	11.9	2.3	0.4	9.6	0.1	14.6	0.8	11.9	767								
Ammonia as N	µg/L	10	900							70,600	660	60	6950	60,500	68,900	3610	1810	260	9510	90	6260	460	9340	887,000								
Ammonia as ammonia (8)	µg/L	-		500 ^A			500 ^A			85,426	799	73	8,410	73,205	83,369	4,368	2,190	315	11,507	109	7,575	557	11,301	1,073,270								
Nitrate (as N)	mg/L	0.01			25					0.01	0.19	0.82	0.32	<0.01	0.03	0.03	0.15	0.18	0.02	0.02	0.03	0.03	0.08	0.04								
Nitrate as nitrate (9)	mg/L	-	31,900 ¹²	50 ^A		400	50 ^A			0.04	0.84	3.63	1.42	-	0.13	0.13	0.66	0.80	0.09	0.09	0.13	0.13	0.35	0.18								
Nitrite (as N)	mg/L	0.01								<0.01	0.02	<0.01	0.21	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01								
Nitrite as nitrite (10)	mg/L	-				30				-	0.07	-	0.69	0.03	-	-	-	-	0.03	-	-	-	-	-								
Nitrogen (Total Oxidised)	mg/L	0.01								0.01	0.21	0.82	0.53	0.01	0.03	0.03	0.15	0.18	0.02	0.03	0.03	0.03	0.08	0.04								
pH (Lab)	pH Units	0.01						<5.5		6.69	6.08	4.23	6.62	7.14	6.99	6.68	5.29	4.63	6.48	6.35	8.13	6	6.5	7.24								
Sulfate as SO4 - Turbidimetric (Filtered)	mg/L	1								<10	40	2	100	<1	3	254	3	29	<1	46	8	116	<10	<1								
Sulfate as S (11)	mg/L	-						1000		-	13	1	33	-	1	85	1	10	-	15	3	39	-	-								
TDS (Filtered)	mg/L	10		600 ^A		600 ^A				2030	10400	513	1230	1060	947	8080	513	347	1770	551	872	1970	2740	4870								
TOC	mg/L	1								251	17	3	46	32	80	40	10	4	114	9	18	7	97	466								
TSS	mg/L	5								442	11,500	6660	10,500	462	600	11,200	78	26	96	449	444	8	310	35								
IONS																																
Calcium (Filtered)	mg/L	1				1000				224	3	1	92	117	45	74	10	2	105	3	13	32	148	8								
Magnesium (Filtered)	mg/L	1								97	17	11	68	35	17	46	24	14	155	34	9	87	208	23								
Potassium (Filtered)	mg/L	1								46	1	<1	12	36	31	12	4	<1	22	<1	19	1	19	338								
Sodium (Filtered)	mg/L	1		180 ^A			180 ^A			226	63	55	174	158	176	139	89	80	273	119	217	459	564	1230								
METALS																																
Arsenic (Filtered)	mg/L	0.001		0.01		0.5	0.1			0.371	0.016	<0.001	0.016	0.002	0.004	0.009	0.002	0.01	0.011	0.077	0.004	0.037										

Table 7A:
Groundwater Results
(March 2017)

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷	Field_ID	BH31	BH32D	BH33	BH34	BH35	BH36	BH37	BH38	BH39
										SampleDate	24/03/2017	22/03/2017	28/03/2017	22/03/2017	24/03/2017	27/03/2017	27/03/2017	27/03/2017	
										SampleCode	EM1703572001	EM1703386003	EM1703748003	EM1703386004	EM1703572005	EM1703689003	EM1703484004	EM1703689001	EM1703689002
BTEXN																			
Benzene	µg/L	1	950	1		1 ²	10	800	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	2		3 ^A		300 ²	3 ^A	NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toluene	µg/L	2		25 ^A		800 ²	25 ^A	NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (m & p)	µg/L	2							<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene (o)	µg/L	2	350						<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene Total	µg/L	2		20 ^A		600 ²	20 ^A	NL	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Naphthalene	µg/L	1	16					NL	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total BTEX	mg/L	0.001							<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
HYDROCARBONS																			
C6 - C9	µg/L	20							<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C10 - C14	µg/L	50							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
C15 - C28	µg/L	100							240	<100	450	<100	210	<100	<100	<100	<100	<100	<100
C29 - C36	µg/L	50							<50	<50	120	<50	<50	<50	<50	<50	<50	<50	<50
C10 - C36 (Sum of total)	µg/L	50							240	<50	570	<50	210	<50	<50	<50	<50	<50	<50
C6 - C10	mg/L	0.02							<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
C10-C16	mg/L	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C16-C34	mg/L	0.1							0.2	<0.1	0.5	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C34-C40	mg/L	0.1							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C10 - C40 (Sum of total)	µg/L	100							200	<100	500	<100	200	<100	<100	<100	<100	<100	<100
C6-C10 less BTEX (F1)	mg/L	0.02						1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
F2-NAPHTHALENE	mg/L	0.1						1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
INORGANICS																			
Alkalinity (Hydroxide) as CaCO3	µg/L	1000							<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (total) as CaCO3	mg/L	1							733	<1	318	306	2140	64	3	4	23	23	23
Anions Total	meq/L	0.01							23.9	2.78	17	9.89	55	3.47	6.11	1.63	1.66	1.66	1.66
Alkalinity (Bicarbonate as CaCO3)	mg/L	1							733	<1	318	306	2140	64	3	4	23	23	23
Alkalinity (Carbonate as CaCO3)	mg/L	1							<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
BOD	mg/L	2							8	<2	12	2	7	4	<2	5	2	2	2
Cations Total	meq/L	0.01							22.4	2.44	14.3	8.81	50	3.26	5.01	1.69	1.65	1.65	1.65
Chloride	mg/L	1		250 ^A			250 ^A	6000	322	92	161	66	292	49	213	43	36	36	36
COD	mg/L	10							87	47	900	47	224	17	<10	102	102	102	102
Ferrous Iron	mg/L	0.05							26.9	0.18	14.4	21.3	2.11	4.69	<0.05	0.31	3.74	3.74	3.74
Ionic Balance	%	0.01							3.34	-	8.53	5.78	4.66	3.13	9.93	1.84	0.47	0.47	0.47
Kjeldahl Nitrogen Total	mg/L	0.1							41.6	1	2.2	2.2	8.1	0.4	0.7	0.2	1.5	1.5	1.5
Ammonia as N	µg/L	10	900						40,600	50	1800	1930	8030	60	100	40	70	70	70
Ammonia as ammonia (8)	µg/L	-		500 ^A			500 ^A		49,126	61	2,178	2,335	9,716	73	121	48	85	85	85
Nitrate (as N)	mg/L	0.01			25				0.05	0.05	0.02	0.01	0.11	<0.01	1.65	0.14	0.4	0.4	0.4
Nitrate as nitrate (9)	mg/L	-	31,900 ¹²	50 ^A		400	50 ^A		0.22	0.22	0.09	0.04	0.49	-	7.31	0.62	1.77	1.77	1.77
Nitrite (as N)	mg/L	0.01							<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as nitrite (10)	mg/L	-				30			-	-	-	-	-	-	-	-	-	-	-
Nitrogen (Total Oxidised)	mg/L	0.01							0.05	0.05	0.02	0.01	0.11	<0.01	1.65	0.14	0.4	0.4	0.4
pH (Lab)	pH Units	0.01						<5.5	6.65	3.87	6.74	6.3	6.84	6.1	4.75	4.84	4.86	4.86	4.86
Sulfate as SO4 - Turbidimetric (Filtered)	mg/L	1							9	9	292	92	190	39	2	16	9	9	9
Sulfate as S (11)	mg/L	-						1000	3	3	97	31	63	13	1	5	3	3	3
TDS (Filtered)	mg/L	10		600 ^A			600 ^A		1100	311	2200	540	2690	500	360	206	626	626	626
TOC	mg/L	1							30	5	56	15	78	3	3	2	17	17	17
TSS	mg/L	5							151	4330	47,300	241	16	154	73	73	1400	1400	1400
IONS																			
Calcium (Filtered)	mg/L	1				1000			22	1	56	30	354	<1	1	<1	2	2	2
Magnesium (Filtered)	mg/L	1							60	9	43	36	220	<1	19	2	4	4	4
Potassium (Filtered)	mg/L	1							19	<1	9	<1	45	<1	<1	<1	<1	<1	<1
Sodium (Filtered)	mg/L	1		180 ^A			180 ^A		298	38	178	100	302	75	78	35	28	28	28
METALS																			
Arsenic (Filtered)	mg/L	0.001		0.01	0.1	0.5	0.1		0.442	<0.001	0.002	0.062	0.002	0.043	<0.001	<0.001	0.003	0.003	0.003
Barium (Filtered)	mg/L	0.001		2			20		-	-	-	-	-	0.007	-	0.01	-	-	-
Beryllium (Filtered)	mg/L	0.001		0.06	0.1		0.6		-	-	-	-	-	<0.001	-	<0.001	-	-	-
Boron (Filtered)	mg/L	0.05	0.37	4	0.5		40		-	-	-	-	-	<0.05	-	<0.05	-	-	-
Cadmium (Filtered)	mg/L	0.0001	0.0002	0.002	0.01	0.01	0.02		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (hexavalent) (Filtered)	mg/L	0.01	0.001	0.05	0.1		0.5		-	-	-	-	-	<0.01	-	<0.01	-	-	-
Chromium (Filtered)	mg/L	0.001				1			<0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001	0.001	0.001	0.001
Cobalt (Filtered)	mg/L	0.001			0.05		1		-	-	-	-	-	<0.001	-	0.002	-	-	-
Copper (Filtered)	mg/L	0.001	0.0014	1 ^A	0.2	0.4	1 ^A		<0.001	0.105	<0.001	<0.001	<0.001	<0.001	0.027	0.02	<0.001	<0.001	<0.001
Lead (Filtered)	mg/L	0.001	0.0034		2	0.1	0.05		<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Manganese (Filtered)	mg/L	0.001	1.9	0.1	0.2		0.1		-	-	-	-	-	0.046	-	0.015	-	-	-
Mercury (Filtered)	mg/L	0.0001	0.0006	0.002	0.002	0.002	0.001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel (Filtered)	mg/L	0.001	0.011	0.2	1		0.1		0.007	0.059	0.01	0.008	0.004	0.003	0.027	0.018	0.009	0.009	0.009
Selenium (Filtered)	mg/L	0.01	0.011	0.02	0.02		0.01		-	-	-	-	-	<0.01	-	<0.01	-	-	-
Vanadium (Filtered)	mg/L	0.01		0.1					-	-	-	-	-	<0.01	-	<0.01	-	-	-
Zinc (Filtered)	mg/L	0.005	0.008	3	2	20	3		0.059	0.483	0.007	0.047	<0.005	0.029					

Table 7B:
Groundwater Results - Broad Screen
(March 2017)

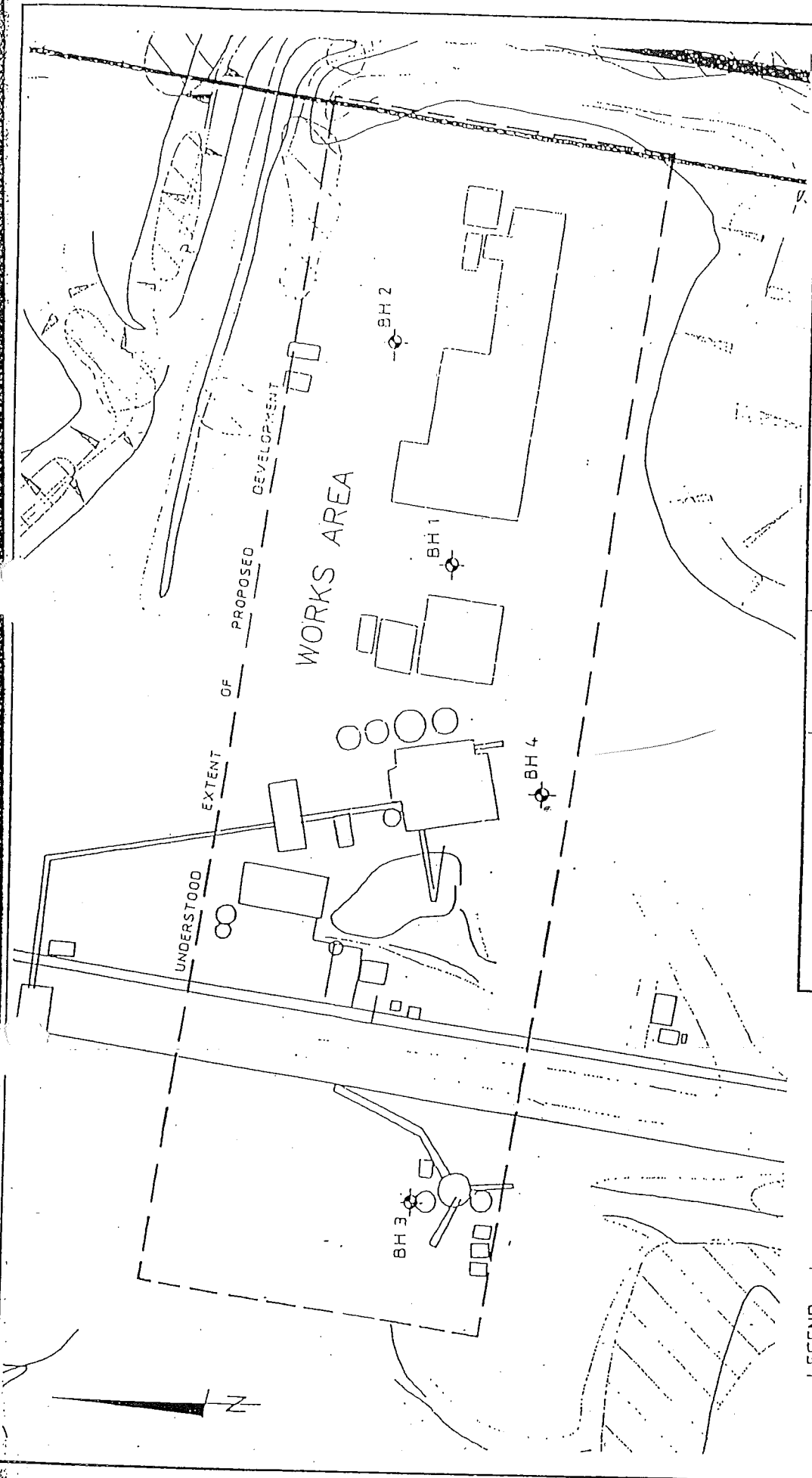
ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷	Field ID	BH09A	BH25	BH26	BH36	BH38
										Sampled Date	22/03/2017	23/03/2017	24/03/2017	27/03/2017	27/03/2017
										SampleCode	EM1703386005	EM1703484002	EM1703572002	EM1703689003	EM1703689001
OCPs															
4,4-DDE	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
a-BHC	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Aldrin + Dieldrin	µg/L	0.5		0.3		0.3 ²	3			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
b-BHC	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlordane	µg/L	0.5	0.08	2		2 ²	20			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-Chlordane	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
d-BHC	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DDD	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
DDT	µg/L	2	0.01	9		9 ²	90			<2	<2	<2	<2	<2	<2
DDT+DDE+DDD	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dieldrin	µg/L	0.5					1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan I	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan II	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endosulfan sulphate	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin	µg/L	0.5	0.02				1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin aldehyde	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Endrin ketone	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
γ-BHC (Lindane)	µg/L	0.5	0.2	10		10 ²	100			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor	µg/L	0.5	0.09	0.3		0.3 ²	3			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Heptachlor epoxide	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobenzene	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methoxychlor	µg/L	2								<2	<2	<2	<2	<2	<2
trans-chlordane	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OPPs															
Azinophos methyl	µg/L	0.5	0.02	30		30 ²	10			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromophos-ethyl	µg/L	0.5		10		10 ²	20			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbophenothion	µg/L	0.5		0.5		0.5 ²	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorfenvinphos	µg/L	0.5		2		2 ²	10			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos	µg/L	0.5	0.01	10		10 ²	2			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorpyrifos-methyl	mg/L	0.0005								<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Demeton-S-methyl	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon	µg/L	0.5	0.01	4		4 ²	10			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorvos	µg/L	0.5		5		5 ²	20			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	0.5	0.15	7		7 ²	100			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	µg/L	0.5		4		4 ²	6			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenamiphos	µg/L	0.5		0.5		0.5 ²				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenthion	µg/L	0.5		7		7 ²				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Malathion	µg/L	0.5	0.05	70		70 ²	100			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl parathion	µg/L	2		0.7		0.7 ²	6			<2	<2	<2	<2	<2	<2
Monocrotophos	µg/L	2		2		2 ²	2			<2	<2	<2	<2	<2	<2
Parathion	µg/L	2	0.004	20		20 ²	30			<2	<2	<2	<2	<2	<2
Pirimphos-ethyl	µg/L	0.5		0.5		0.5 ²	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Prothiofos	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PAHs															
Acenaphthene	µg/L	1								<1	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	1								<1	<1	<1	<1	<1	<1
Anthracene	µg/L	1								<1	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	1								<1	<1	<1	<1	<1	<1
Benzo(a)pyrene	µg/L	0.5		0.01		0.01 ²	0.01			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	µg/L	1								<1	<1	<1	<1	<1	<1
Benzo(k)fluoranthene	µg/L	1								<1	<1	<1	<1	<1	<1
Chrysene	µg/L	1								<1	<1	<1	<1	<1	<1
Benzo(b+j)fluoranthene	mg/L	0.001								<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenz(a,h)anthracene	µg/L	1								<1	<1	<1	<1	<1	<1
Fluoranthene	µg/L	1								<1	<1	<1	<1	<1	<1
Fluorene	µg/L	1								<1	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	1								<1	<1	<1	<1	<1	<1
Phenanthrene	µg/L	1								<1	<1	<1	<1	<1	<1
Pyrene	µg/L	1								<1	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ (zero)	µg/L	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total PAHs	µg/L	0.5	3 ¹³							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PHENOLS															
2,4,5-trichlorophenol	µg/L	1					1			<1	<1	<1	<1	<1	<1
2,4,6-trichlorophenol	µg/L	1	20	2 [^]		20 ²	10			<1	<1	<1	<1	<1	<1
2,4-dichlorophenol	µg/L	1	160	0.3 [^]		200 ²				<1	<1	<1	<1	<1	<1
2,4-dimethylphenol	µg/L	1								<1	<1	<1	<1	<1	<1
2,6-dichlorophenol	µg/L	1								<1	<1	<1	<1	<1	<1
2-chlorophenol	µg/L	1	490	0.1 [^]		300 ²				<1	<1	<1	<1	<1	<1
2-methylphenol	µg/L	1								<1	<1	<1	<1	<1	<1
2-nitrophenol	µg/L	1								<1	<1	<1	<1	<1	<1
3-&4-methylphenol	µg/L	2								<2	<2	<2	<2	<2	<2
4-chloro-3-methylphenol	µg/L	1								<1	<1	<1	<1	<1	<1
Pentachlorophenol	µg/L	2	10	10		10 ²	10			<2	<2	<2	<2	<2	<2
Phenol	µg/L	1	320							<1	<1	<1	<1	<1	<1
BROAD SCREEN															
Weak Acid Dissociable Cyanide	mg/L	0.004								<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
2,2-dichloropropane	µg/L	5								<5	<5	<5	<5	<5	<5
Hexachlorocyclopentadiene	µg/L	10								<10	<10	<10	<10	<10	<10
Hexachloroethane	µg/L	2	360							<2	<2	<2	<2	<2	<2


Table 7B:
Groundwater Results - Broad Screen
(March 2017)

ChemName	Units	EQL	Maintenance of Ecosystems ¹	Potable Water Supply ²	Agriculture Parks and Gardens ³	Stock Watering ⁴	Primary Contact and Recreation ⁵	Buildings and Structures ⁶	Human Health ⁷	Field ID	BH09A	BH25	BH26	BH36	BH38
										Sampled Date	22/03/2017	23/03/2017	24/03/2017	27/03/2017	27/03/2017
										SampleCode	EM1703386005	EM1703484002	EM1703572002	EM1703689003	EM1703689001
Pentachlorobenzene	µg/L	2								<2	<2	<2	<2	<2	<2
Atrazine	mg/L	0.0005	0.013	0.02		0.02 ²				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Bifenthrin	mg/L	0.0005								<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
PCBs (Sum of total)	µg/L	1					0.1			<1	<1	<1	<1	<1	<1
Hexachloropropene	µg/L	2								<2	<2	<2	<2	<2	<2
VHCs															
1,1,1,2-tetrachloroethane	µg/L	5								<5	<5	<5	<5	<5	<5
1,1,1-trichloroethane	µg/L	5								<5	<5	<5	<5	<5	<5
1,1,2,2-tetrachloroethane	µg/L	5								<5	<5	<5	<5	<5	<5
1,1,2-trichloroethane	µg/L	5	6500							<5	<5	<5	<5	<5	<5
1,1-dichloroethane	µg/L	5								<5	<5	<5	<5	<5	<5
1,1-dichloroethene	µg/L	5		30		30 ²	300			<5	<5	<5	<5	<5	<5
1,1-dichloropropene	µg/L	5								<5	<5	<5	<5	<5	<5
1,2,3-trichlorobenzene	µg/L	5	10							<5	<5	<5	<5	<5	<5
1,2,3-trichloropropane	µg/L	5								<5	<5	<5	<5	<5	<5
1,2,4-trichlorobenzene	µg/L	2	170							<2	<2	<2	<2	<2	<2
1,2-dibromo-3-chloropropane	µg/L	5								<5	<5	<5	<5	<5	<5
1,2-dibromoethane	µg/L	5		1		1 ²	10			<5	<5	<5	<5	<5	<5
1,2-dichlorobenzene	µg/L	2	160	1 [^]		1500 ²	1 [^]			<2	<2	<2	<2	<2	<2
1,2-dichloroethane	µg/L	5		3		3 ²	30			<5	<5	<5	<5	<5	<5
1,2-dichloropropane	µg/L	5								<5	<5	<5	<5	<5	<5
1,3-dichlorobenzene	µg/L	2	260	20 [^]			20 [^]			<2	<2	<2	<2	<2	<2
1,3-dichloropropane	µg/L	5								<5	<5	<5	<5	<5	<5
1,4-dichlorobenzene	µg/L	2	60	0.3 [^]		40 ²	0.3 [^]			<2	<2	<2	<2	<2	<2
2-chlorotoluene	µg/L	5								<5	<5	<5	<5	<5	<5
4-chlorotoluene	µg/L	5								<5	<5	<5	<5	<5	<5
Bromobenzene	µg/L	5								<5	<5	<5	<5	<5	<5
Bromodichloromethane	µg/L	5								<5	<5	<5	<5	<5	<5
Bromoform	µg/L	5								<5	<5	<5	<5	<5	<5
Bromomethane	µg/L	50		1		1 ²	10			<50	<50	<50	<50	<50	<50
Carbon tetrachloride	µg/L	5		3		3 ²	30			<5	<5	<5	<5	<5	<5
Chlorobenzene	µg/L	5		10 [^]		300 ²	10 [^]			<5	<5	<5	<5	<5	<5
Chlorodibromomethane	µg/L	5								<5	<5	<5	<5	<5	<5
Chloroethane	µg/L	50								<50	<50	<50	<50	<50	<50
Chloroform	µg/L	5								<5	<5	<5	<5	<5	<5
Chloromethane	µg/L	50								<50	<50	<50	<50	<50	<50
cis-1,2-dichloroethene	µg/L	5								<5	<5	<5	<5	<5	<5
cis-1,3-dichloropropene	µg/L	5								<5	<5	<5	<5	<5	<5
cis-1,4-Dichloro-2-butene	µg/L	5								<5	<5	<5	<5	<5	<5
Dibromomethane	µg/L	5								<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane	µg/L	50								<50	<50	<50	<50	<50	<50
Hexachlorobutadiene	µg/L	2		0.7		0.7 ²	7			<2	<2	<2	<2	<2	<2
Iodomethane	µg/L	5								<5	<5	<5	<5	<5	<5
Pentachloroethane	µg/L	5								<5	<5	<5	<5	<5	<5
Trichloroethene	µg/L	5								<5	<5	<5	<5	<5	<5
Tetrachloroethene	µg/L	5		50		50 ²	500			<5	<5	<5	<5	<5	<5
trans-1,2-dichloroethene	µg/L	5								<5	<5	<5	<5	<5	<5
trans-1,3-dichloropropene	µg/L	5								<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	µg/L	5								<5	<5	<5	<5	<5	<5
Trichlorofluoromethane	µg/L	50								<50	<50	<50	<50	<50	<50
Vinyl chloride	µg/L	50		0.3		0.3 ²	3			<50	<50	<50	<50	<50	<50


1: ANZECC (2000) - Maintenance of Ecosystems - Freshwater 95% Protection
2: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (health based)
^: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (aesthetics based)
3: ANZECC (2000) - Water Quality Guidelines for Agricultural Water Use (Irrigation)
4: ANZECC (2000) - Water Quality Guidelines for Agricultural Water Use (Livestock)
5: NHMRC/NRMMC (2015) - Australian Drinking Water Guidelines (health based) multiplied by a factor of 10
6: AS 2159-2009 Piling Design and Installation - Limits for mild exposure classification of soil condition A
7: NEPC (2013) - Health Screening Levels for Vapour Intrusion, Low-high density Residential, Sand, 2m to <4m
8: Linear conversion Ammonia = Ammonia as N * 1.21
9: Linear conversion Nitrate = Nitrate as N * 4.43
10: Linear conversion Nitrite = Nitrite as N * 3.29
11: Linear conversion Sulphate as S = Sulphate as SO4 * 0.33
12: NIWA (2002) Memorandum - Nitrate guideline values in ANZECC 2000
13: ANZECC (1992) - Australian Water Quality Guidelines
NL: Not Limiting

Appendix C – Borelogs



		SITE PLAN GEOTECHNICAL INVESTIGATION TALBOT AVENUE QUARRY, SOUTH OAKLEIGH	
Drawn: F.O.C.	Date: 25/01/00	Project No: 00612002	Proj. No: 002001
Checked: PS	Date: 31/1/00		
Revision: A	Date: 17/02/00		
Scale: 1:1000	A4		

LEGEND

 BH 2 Approximate location of Borehole



REPORT OF BOREHOLE: BH 1

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90°

SHEET: 1 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 20-1-00
 CHECKED: B DATE: 17/2/00

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0	0.20			CI	FILL-CONCRETE SLAB		
			1	1.00			CH	FILL-CLAY, dark grey (hydrocarbon odour), trace brick	M-W	
			2	2.30	SPT @ 1.5m 11W/450mm		CH	FILL-CLAY, high plasticity, dark grey, trace sand	VS	
			3	3.00	SPT @ 3.0m 3, 4, 6 N=10		CI	FILL-Sandy CLAY, pale grey brown, fine to medium quartz sand	SI	
			4	3.60			CH	FILL-Silty CLAY, pale brown, trace medium sand		
			5	5.40	SPT @ 4.5m 12, 16, 20 N=35		SP	Clayey SAND, medium grained, pale grey trace orange brown, trace fine quartz gravel	D	
			6	6.00	SPT @ 6.0m 20, 30/150mm		SW	SAND, fine to coarse quartz sand, pale grey and orange brown	M	
			7	7.00			SP	SAND, fine to medium quartz sand, pale grey	VD	
			8		SPT @ 7.5m 13, 30/150mm					
			9		SPT @ 9.0m 26, 30/130mm					
			10	10.00						

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 1

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90'

SHEET: 2 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 20-1-00
 CHECKED: PS DATE: 17/2/00

Drilling			Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC System	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			10		SPT @ 10.5m 12, 17, 25 N=42		SP	SAND, fine to medium grained, orange brown, trace of low plasticity fines		
			12		SPT @ 12.0m 20, 30/100mm					
			12.90							
			13		SPT @ 13.5m 30/150mm			Brown, trace coarse quartz sand		
			14							
			14.40					medium to coarse grained, brown		
			15		SPT @ 15.0m 30/130mm				M	VD
			15.90					fine to medium grained		
			16		SPT @ 16.5m 22, 30/110mm					
			17							
			17.60					with coarse grained quartz sand, fine gravel		
			18		SPT @ 18.0m 30/150mm No Recovery					
			18.60							
			19					Clayey SAND, fine to coarse grained, dark grey, low plasticity fines		
			20		SPT @ 19.5m 20, 22, 16 N=38					
			20.00							

Washbore

FULL PAGE 2002G001 GPJ GLDR AUS GDT 17-2-00

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 1

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL m DATUM: AHD
 INCLINATION: -90°

SHEET: 3 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 20-1-00
 CHECKED: PS DATE: 17 2 00

Drilling			Sampling			Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
			20											
			21		SPT @ 21.0m 13, 9, 10 N=19				Clayey SAND, fine to coarse grained, dark grey, low plasticity fines					
			22											
			23		SPT @ 22.5m 20, 25, 23 N=48									
			24											
			24.95		SPT @ 24.5m 11, 12, 14 N=26									
END OF BOREHOLE @ 24.95m GROUNDWATER NOT OBSERVED														

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 2

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: .90°

SHEET: 1 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJB DATE: 19-1-00
 CHECKED: PS DATE: 11/2/00

Drilling				Sampling			Field Material Description			
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0.40					GW FILL-GRAVEL, fine to coarse, round to angular		
			0.60					SP FILL-SAND, fine grained, light brown and brown bricks, trace straw	D	J
			0.60					GP FILL-GRAVEL, medium to coarse, angular		
			1.20					SC FILL-Clayey SAND, fine grained, dark grey, (hydrocarbon odour), and brown grey, trace gravel, trace wire		
					SPT @ 1.5m 2, 3, 2 N=5			light brown grey		
									VL-L	
			2.30							
					SPT @ 3.0m HW, 0, 0					
			5.00					CH FILL-CLAY, high plasticity, grey brown, with trace fine sand	W	
					SPT @ 6.0m HW, 0, 0					
									VS	
			9.10		SPT @ 9.0m HW, 2, 2 N=4			SW Clayey SAND, fine to coarse grained, pale grey, quartz sand	M	VL
			10.00							

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 2

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90'

SHEET: 2 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 19-1-00
 CHECKED: PS DATE: 17/2/00

Drilling			Sampling			Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			10					SP SAND, fine to medium grained quartz sand, pale grey, trace of low plasticity fines		
			11	11.40	SPT @ 10.5m 10, 12, 15 N=27			medium to coarse grained	MD	
			12		SPT @ 12.0m 12, 30/150mm Double Bouncing					
			13	13.00				fine to medium grained, trace coarse		
			14		SPT @ 13.7m 19, 30/70mm					
			15	14.50				fine to medium grained	M VD	
			16		SPT @ 15.0m 18, 30/110mm					
			17	17.20	SPT @ 16.5m 41/150mm			medium to coarse grained		
			18		SPT @ 18.0m 30, 30/80mm					
			19	19.00						
			20	20.00	SPT @ 19.5m 22, 20, 20 N=40			SP Clayey SAND, fine to coarse, dark green grey, low plasticity fines	D	

Report of borehole must be read in conjunction with accompanying notes and abbreviations.



REPORT OF BOREHOLE: BH 2

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: 90°

SHEET: 3 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 19-1-00
 CHECKED: PS DATE: 17/2/00

Drilling			Sampling			Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			20					SP Clayey SAND, fine to coarse sand, dark green grey, low plasticity fines				
			21		SPT @ 21.0m 11, 12, 12 N=24							
			22									
			23	23.10	SPT @ 22.5m 12, 11, 9 N=20			fine grained, with silt				
			24									
			24.95	24.95	SPT @ 24.5m 10, 10, 9 N=19							
								END OF BOREHOLE @ 24.95m GROUNDWATER NOT OBSERVED				

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 3

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM. AHD
 INCLINATION: -90°

SHEET: 1 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 21-1-00
 CHECKED: PS DATE: 17/2/00

Drilling			Sampling	Field Material Description				
METHOD	PENETRATION RESISTANCE	DEPTH (metres)	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		0.20			SP	FILL-CONCRETE SLAB		
		0.80				FILL-SAND, fine to medium grained, black	D-41	
		1.00			SC	dark grey brown		
			SPT @ 1.5m 2, 2, 2 N=4			FILL-Clayey SAND, fine to medium grained, black, brown grey, pale grey and orange brown, trace glass, trace brick, trace carbonate deposit	VL	
			SPT @ 3.0m 15, 9, 8 N=17				M	
		3.50				with refuse (methane odour), plastic, brick, wood, cloth, wool, wire	MD	
			SPT @ 4.5m 7, 4, 10 N=14					
			SPT @ 7.5m 1, 2, 2 N=4 No Recovery				W VL	
		10.00						

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 3

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90°

SHEET: 2 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 21-1-00
 CHECKED: PS DATE: 17/2/00

Drilling				Sampling			Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SPT	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			10						SW SAND, fine to coarse quartz sand, pale brown grey				
					SPT @ 10.5m 13, 30/150mm No Recovery								
					SPT @ 12.0m 24, 30/150mm								
				13.00					SP SAND, fine to medium grained, pale grey and brown				
					SPT @ 13.5m 24, 30/150mm								
				14.40					grey brown				
					SPT @ 15.0m 40/150mm								
					SPT @ 16.5m 26, 30/150mm No Recovery								
				17.40									
					SPT @ 18.0m 20, 12, 26 N=38				SP Clayey SAND, fine to coarse sand, dark grey, low plasticity fines				
					SPT @ 19.5m 13, 15, 11 N=26				trace coarse quartz sand				
				19.50									
				20.00									

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 3

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 B.N.O.: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL m DATUM: AHD
 INCLINATION: -90°

SHEET: 3 OF 3
 DRILL RIG: Fox B40L
 LOGGED: BJF DATE: 21-1-00
 CHECKED: PS DATE: 17/2/00

Drilling			Sampling			Field Material Description				
PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
		20					SP Clayey SAND, fine to coarse sand, dark grey, low plasticity fines			
		21		SPT @ 21.0m 15, 16, 17 N=33						
		22								
		23		SPT @ 22.5m 16, 22, 23 N=45						
		24								
			24.95	SPT @ 24.5m 5, 8, 8 N=16						
				END OF BOREHOLE @ 24.95m GROUNDWATER NOT OBSERVED						

Report of borehole must be read in conjunction with accompanying notes and abbreviations



Golder Associates

REPORT OF BOREHOLE: BH 4

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m. DATUM: AHD
 INCLINATION: -90°

SHEET: 1 OF 3
 DRILL RIG: Fox B40L
 LOGGED: DP DATE: 14-2-00
 CHECKED: PS DATE: 17/2/00

Drilling				Sampling		Field Material Description				
PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		0.20				FILL-Sandy GRAVEL, with some cobbles, hard, subangular, subgrade				
				SPT @ 1.5m 1, 2, 3 N=5		FILL-SAND, brown, with rounded quartz pebbles, trace brick, approximately 20% silt fines, fine to medium grained sand, trace brick fragments				
				SPT @ 3.0m 3, 2, 150mm, HW						
		4.20				FILL-Clayey SAND, dark grey, fine, approximately 40% high plasticity fines				
				SPT @ 4.5m 4, 1, 2 N=3						
				SPT @ 6.0m RW, 150mm/1, 2 N=3						
		7.10				FILL-Silty SAND, light grey, fine, approximately 40% silt, low plasticity				
				SPT @ 7.5m 3, 5, 7 N=12						
		8.40				FILL-Silty CLAY, yellow brown, high plasticity, with trace medium sand, rounded fragments (6-10mm)				
				U63 @ 9.0m pp=40kPa to >600kPa						
		9.30				SAND, pale grey, fine to coarse quartz, rounded grains				
		10.00								

Report of borehole must be read in conjunction with accompanying notes and abbreviations



REPORT OF BOREHOLE: BH 4

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90°

SHEET: 2 OF 3
 DRILL RIG: Fox B40L
 LOGGED: DP DATE: 14-2-00
 CHECKED: PS DATE: 17/2/00

Drilling		Sampling		Field Material Description				
PERFORATION RESISTANCE	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC S/mast	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
						SW SAND, pale grey, fine to coarse quartz		
	11.70		SPT @ 10.5m 13, 30/90mm					
						trace orange brown staining		
	12.20		SPT @ 12.0m 3, 12, 30/100mm					
						fine to medium grained, some orange staining		
	13.10		SPT @ 13.5m 30/150mm					
						light brown orange, fine to coarse grains		
	14.20		SPT @ 15.0m 11, 30/90mm					
	16.20		SPT @ 16.5m 12, 30/150mm			SP Silty SAND, brown orange, with trace coarse quartz sand fragments, approximately 20% silt fraction, medium plasticity, black		
	18.70		SPT @ 18.0m 9, 26, 30/90mm					
						SP Clayey SAND, grey, fine to coarse grained, trace quartz fragments, low plasticity fines		
	20.00		SPT @ 19.5m 10, 26, 30/125mm					

Report of borehole must be read in conjunction with accompanying notes and abbreviations



Golder Associates

REPORT OF BOREHOLE: BH 4

CLIENT: Pioneer International
 PROJECT: Talbot Avenue Quarry
 LOCATION: South Oakleigh
 JOB NO: 00612002

BOREHOLE LOCATION: Refer to Site Plan
 SURFACE RL: m DATUM: AHD
 INCLINATION: -90°

SHEET: 3 OF 3
 DRILL RIG: Fox B40L
 LOGGED: DP DATE: 14-2-00
 CHECKED: PS DATE: 17/2/00

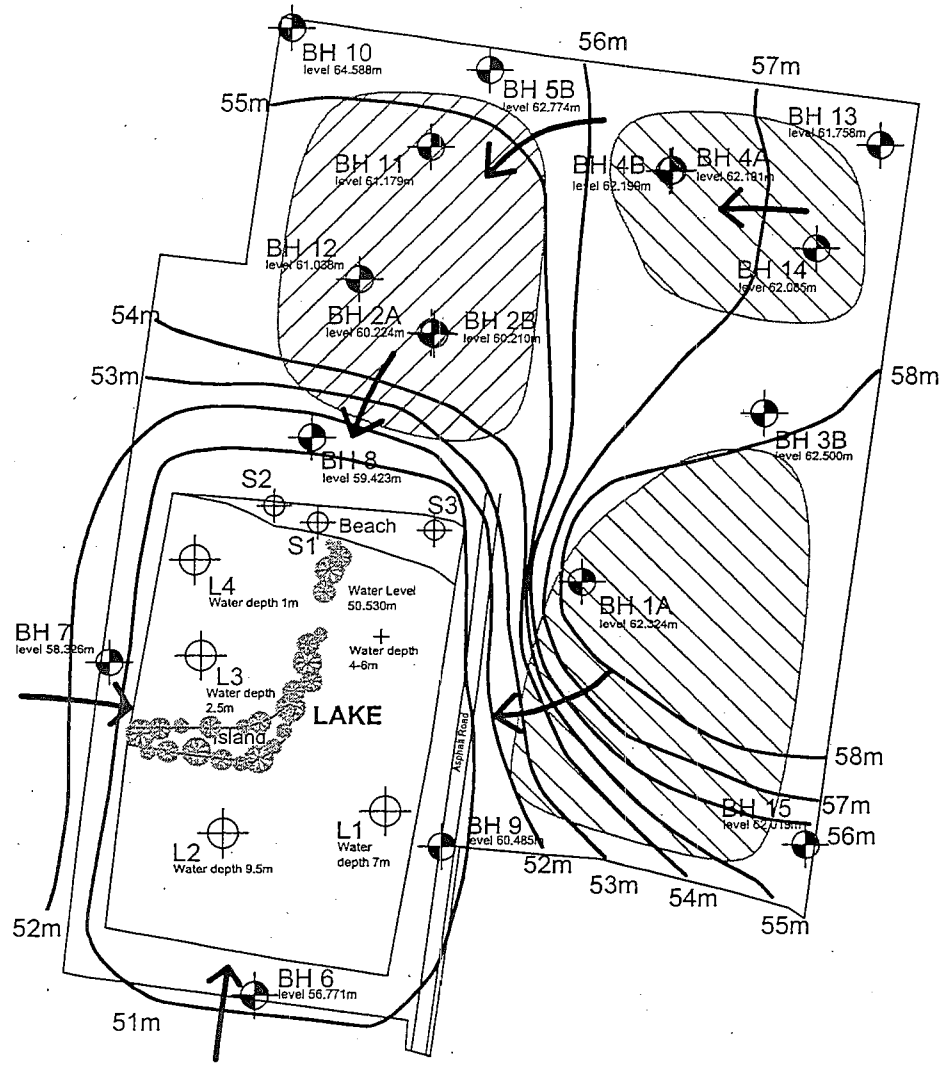
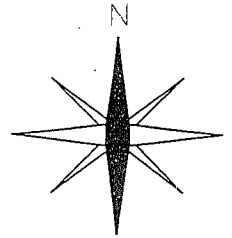
Drilling			Sampling		Field Material Description			
METHOD	PENETRATION RESISTANCE	DEPTH (metres)	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L	20						
		21	SPT @ 21.0m 8, 14, 12 N=26		SP	Clayey SAND, grey, fine to coarse grained, trace quartz fragments, low plasticity fines	VD	
		22	SPT @ 22.5m 7, 16, 21 N=37					
		23						
		24						
		24.95	SPT @ 24.5m 12, 16, 14 N=30					
						END OF BOREHOLE @ 24.95m GROUNDWATER NOT OBSERVED		

Report of borehole must be read in conjunction with accompanying notes and abbreviations

GROUNDWATER CONTOUR PLAN

FIG.3

Talbot Avenue,
Oakleigh



- LEGEND**
- Water/Silt sample location
 - Stream water sample location
 - Borehole Location
 - Dead Trees
 - Approximate location of landfill
 - Approximate location of clay slimes pit
 - Equipotential lines - groundwater contours (mAHD)
 - Approximate direction of groundwater flow in Brighton Group Sands Formation and landfill

Scale 1:4000

NBS	09-08-2002	V500/3
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BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 12.02.02	Ex-Pioneer Quarry Site	
drilling method Pioneer 400	logged by D Macleod	Talbot Avenue	
power auger/wash bore	checked by G Black	Oakleigh	
H' casing			
location: refer figure 1 333259E, 5800752N		level RL 62.2m	
BOREHOLE No 1 B		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
0.6	FILL: Sandy Gravel (GP), dense, fine to coarse grained, grey brown, dry		0.0 D 0.5
	FILL: Clay (CL-CI), stiff, medium plasticity, brown orange brown, W≈Wp, trace plastic, wood, concrete		
2.0			2.0
	FILL: Sand (SP), medium dense, fine to medium grained, grey brown, dry to moist, some timber & concrete	7,8,6 N=14	D 2.45
	becoming loose to medium dense, dark grey at 3m		
	becoming loose, wet at 3.5m		
4.0	no SPT sample recovered at 4m, borehole caving 4-5.5m, 'H' casing installed		4.0 D
		1 for 450mm N=0	4.45
5.5			
	SAND (SW) loose to medium dense, fine to medium grained, yellow white brown, wet		
6.0		2,2,2 N=4	D 6.45
	becoming medium dense, grey, moist to wet at 6.5m		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no V 2	date 12.02.02	Ex-Pioneer Quarry Site	
drilling method Pioneer 400	logged by D Macleod	Talbot Avenue	
power auger/wash bore	checked by G Black	Oakleigh	
H' casing			
location: refer figure 1. 333259E, 5800752N		level RL 62.2m	
BOREHOLE No 1 B		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
	SAND (SW) medium dense, fine to medium grained, grey, moist to wet	4,6,3 N=9	D 8.45
10.0			
	End Bore 1 at 10m		
	Note: 4m of 'H' casing left in hole due to obstructions (concrete) in fill.		
	<p style="text-align: center;">1A - RL 62.2m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>benonite pellets 5-6m</p> <p>sand 6-10m</p> <p>screen 8-10m</p>		
12.0			
	<p style="text-align: center;">1B - RL 62.3m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>benonite pellets 0-3m</p> <p>sand 3-5m</p> <p>screen 3-5m</p>		
14.0			
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	13.02.02
drilling method	Pioneer 400	logged by	D Macleod
power auger/wash bore	H' casing	checked by	G Black
location: refer figure 1 333176E, 5800889N		level RL 60.2m	
BOREHOLE No 2B		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
2.0	FILL: Sand (SP), medium dense, fine to medium grained, pale brown, moist		
	becoming Gravelly Sand at 1.3m becoming orange grey, trace steel at 1.5m	10,13,11 N=24	1.5 D 1.95
4.0	becoming black dark grey sand at 2m		
	becoming wet at 3.5m		
5.5	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p style="text-align: center;">2A - RL 60.2m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 0-2.5m sand 2.5-4.5m screen 2.5-4.5m</p> </div>	2,5,8 N=13	3.5 D 3.95
		becoming wet at 5m	
6.0	FILL: Refuse (metal, plastic, wood) mixed with sand	4,7,15 N=22	5.5 D 5.95
	very hard objects detected, steel and/or concrete, slow drilling below 7-8m		
8.0		12,18,16 N=34	7.5 D 7.95
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V 2	date	13.02.02
drilling method	Pioneer 400	logged by	D Macleod
power auger/wash bore	H' casing	checked by	G Black
location: refer figure 1 333176E, 5800889N		level RL 60.2m	
BOREHOLE No 2B		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
10.0	FILL: Refuse, metal, plastic, wood with sand		
	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p style="text-align: center;">2B - RL 60.2m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 5-6m sand 6-8.5m screen 6-8.5m</p> </div>	23,14,14 N=28	9.5 D 9.95
12.0	cobbles, gravel, glass at 11.5m (sample faint smell)		
		4,9,10 N=19	11.5 D 11.95
14.0	no SPT attempted at 13.5m, very hard object detected unable to advance 'H' casing past 14.5m. Borehole redrilled using 'H' casing.		
		13,11,11 N=22	14.5 D 14.95
15.5	washbored to maximum depth of 15.5m, encountered drill bit refusal at 15.5m in refuse		
	End Bore 2 at 15.5m Refusal in refuse		
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	12.02.02
drilling method	Pioneer 400	logged by	D Macleod
power auger/wash bore	H' casing	checked by	G Black
location: refer figure 1 333359E, 5800847N		level	RL 62.5m
BOREHOLE No 3A		sheet	1 of 1
		datum	AHD
depth metres	material description	tests	sample
	FILL: Gravelly Sand (SP), loose, fine to coarse grained, brown, dry to moist, trace brick, concrete, wire		
2.0	FILL: Clayey Sand (SP), loose, fine to medium grained, grey, brown, wet		
	becoming fine grained, white, grey, moist at 3m	1,1,1 N=2	2.5 D 2.95
4.0	(sand appeared natural)		
4.9	End Bore 3A at 4.9m	3,4,5 N=9	4.5 D 4.95
6.0	<div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">3A - RL 62.5m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>bentonite pellets 1.5-2m</p> <p>sand 2.0-2.8m</p> <p>screen 2-2.8m</p> </div> <p>Note: When standpipe installed there was believed to be natural soil below 3m. When Bore 3B was drilled the soil confirmed to be fill to 10.5m.</p>		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 12.02.02		
drilling method Pioneer 400	logged by D Macleod	Ex-Pioneer Quarry Site	
power auger/wash bore	checked by G Black	Talbot Avenue	
H' casing		Oakleigh	
location: refer figure 1 333358E, 5800846N		level RL 62.4m	
BOREHOLE No 3B		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
2.0	FILL: Silty Sand (SM), medium dense, fine to coarse grained, brown, dry to moist, trace wire, brick, with gravel between 0.5-1m		
3.0			
4.0	FILL: Sandy Clay (CH), firm to soft, high plasticity, pale brown, grey, W>>Wp		
6.0			
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 12.02.02		
drilling method Pioneer 400	logged by D Macleod	Ex-Pioneer Quarry Site	
power auger/wash bore	checked by G Black	Talbot Avenue	
H' casing		Oakleigh	
location: refer figure 1 333358E, 5800846N		level RL 62.4m	
BOREHOLE No 3B		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
10.0	FILL: Sandy Clay (CH), soft, high plasticity, pale brown, grey, W>>Wp		
10.5			
12.0	CLAYEY SAND (SC) dense, fine to medium grained, grey, moist to wet		
14.0			
14.5			
14.5	End Bore 3B at 14.5m		
16.0	Note: Borehole advanced with water flush and 'H' casing only to 11.5m. Wash bored below 11.5m		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	12.02.02
drilling method	Pioneer 400	logged by	D Macleod
power auger/wash bore	H' casing	checked by	G Black
location: refer figure 1 333306E, 5800980N		level	RL 62.1m
BOREHOLE No 4 B		sheet	1 of 3
datum		AHD	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, grey, moist, trace gravel		
	becoming loose, black, wet at 1.5m		
2.0		2,1,2 N=3	D
			2.45
4.0			4.0
4.2		2,3,3 N=6	D
4.6	FILL: Clayey Sand (SC), medium dense, fine to medium grained, grey brown, moist		4.45
	FILL: Silty Clay (CI-CH), firm to soft, medium to high plasticity, brown, W>>>Wp		
	becoming soft, grey brown, very fine sand at 5.5m		
6.0		UOW	D
		1,1,1 N=2	D
			6.45
	becoming Silty Sandy Clay, pale orange brown, W>>Wp at 7m		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V. 2	date	12.02.02
drilling method	Pioneer 400	logged by	D Macleod
power auger/wash bore	H' casing	checked by	G Black
location: refer figure 1 333306E, 5800980N		level	RL 62.1m
BOREHOLE No 4 B		sheet	2 of 3
datum		AHD	
depth metres	material description	tests	sample
	FILL: Silty Sandy Clay (CI-CH), soft, medium to high plasticity, pale orange brown, W>>Wp, very fine sand	1 for 450mm N=0	D
		UOW	D
			8.45
			9.3
10.0			
			11.0
		UOW	D
12.0			11.9
			14.0
14.0		UOW	D
	becoming dark grey at 14.5m		
			15.0
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to N = Standard Penetration Test UOW = under own weight			
samples refer to D = Disturbed Sample			
groundwater refer to Report No V500-2R			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 12.02.02		
drilling method Pioneer 400	logged by D Macleod	Ex-Pioneer Quarry Site	
power auger/wash bore	checked by G Black	Talbot Avenue	
H' casing		Oakleigh	
location: refer figure 1 333306E, 5800980N		level RL 62.1m	

BOREHOLE No 4 B sheet 3 of 3 datum AHD

depth metres	material description	tests	sample
18.0	FILL: Silty Sandy Clay (CI-CH), soft, medium to high plasticity, dark grey, W>>Wp, very fine sand		
18.5		3,3,3 N=6	D
20.0	SILTY SAND (SM) medium dense, fine to coarse grained, grey, moist		
21.5		8,10,11 N=21	D
22.0	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;">4A - RL 62.1m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>bentonite pellets 18-19.5m</p> <p>sand 18-19.5m</p> <p>screen 19.5-21.5m</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">4B - RL 62.2m</p> <p style="text-align: center;"><i>Standpipe Details:</i></p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>bentonite pellets 7.5-8.5m</p> <p>sand 8-10m</p> <p>screen 8-10m</p> </div>		
24.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to N = Standard Penetration Test UOW = under own weight

samples refer to D = Disturbed Sample

groundwater refer to Report No V500-2R

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 12.02.02		
drilling method Pioneer 400	logged by D Macleod	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
power auger/wash bore H' casing	checked by G Black		
location: refer figure 1 333205E, 5501032N		level RL 63.1m	

BOREHOLE No 5 B sheet 1 of 2 datum AHD

depth metres	material description	tests	sample
1.6	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, dry to moist becoming Clayey Sand, moist, trace gravel at 1m		
2.0	FILL: Sand (SP), medium dense to dense, fine to medium grained, grey brown, dry to moist	4,7,12 N=19	D
	FILL: Sandy Clay (CI-CH), stiff, medium to high plasticity, grey orange brown, W>Wp, concrete pieces becoming W>Wp, brown at 3m		
4.0		4,1,5 N=6	D
6.0			
6.2	SANDY CLAY (CL-CH) very stiff to hard, medium to high plasticity, grey, grey brown,	11,22,33 N=55	D
8.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to N = Standard Penetration Test UOW = under own weight
 samples refer to D = Disturbed Sample
 groundwater refer to Report No V500-2R

BLACK GEOTECHNICAL PTY LTD		project	
job no V. 2	date 12.02.02		
drilling method Pioneer 400	logged by D Macleod	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
power auger/wash bore H' casing	checked by G Black		
location: refer figure 1 333205E, 5501032N		level RL 63.1m	





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
depth metres	material description	tests	sample
	CLAYEY SAND (SC) dense to very dense, fine to coarse grained, grey, moist to wet	18,32, 30 for 105mm N>62	D 8.405
10.0			10.0
		11,26, 30 for 120mm N>56	D 10.42
19.0			
	End Bore 5 at 19m		
	5A - RL 63.1m Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 1.5-2m sand 2-4m screen 2-4m		
14.0			
	5B - RL 62.7m Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 5.5-6.5m sand 6.5-19m screen 16-19m		
16.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to N = Standard Penetration Test
 samples refer to D = Disturbed Sample
 groundwater refer to Report No V500-2R

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02		
drilling method	logged by N Schofield	Ex-Pioneer Quarry Site	
Pioneer 400 power auger	checked by G Black	Talbot Avenue Oakleigh	
location: south of lake, refer figure 1		level RL 56.77 m	
BOREHOLE No 6		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
0.8	SILTY SAND (SM) loose to medium dense, fine to medium grained, dark brown, moist		
2.0	SANDY CLAY (CI) stiff, medium plasticity, brown, W>Wp		
4.0	becoming moist to wet at 3.5m		
6.0			
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 6.5m			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02		
drilling method	logged by N Schofield	Ex-Pioneer Quarry Site	
Pioneer 400 power auger	checked by G Black	Talbot Avenue Oakleigh	
location: south of lake, refer figure 1		level RL 56.77 m	
BOREHOLE No 6		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
10.0	SILTY SAND (SM) medium dense to dense, fine to coarse grained, grey, wet		
10.1	End Bore 6 at 10.1m		
12.0	Note: Material logged as fill. Pioneer advise that the area has been filled.		
14.0	Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 5.1-5.6m sand 5.6-10.1m screen 6.1-10.1m		
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 6.5m			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-3	date	15-25.07.02
drilling method	logged by	Ex-Pioneer Quarry Site	
Dingo K2-9 drill rig	N Schofield	Talbot Avenue	
	checked by	Oakleigh	
	G Black		
location: west of lake, refer figure 1		level RL	58.33 m
BOREHOLE No 7		sheet	1 of 2
		datum	AHD
depth metres	material description	tests	sample
0.2	 SILTY CLAYEY SAND (SC) loose to medium dense, fine to medium grained, dark brown, moist becoming orange at 0.15m  SILTY SAND (SM) medium dense, fine to medium grained, pale brown, moist		
1.5	 SANDY CLAY (CI) stiff, medium plasticity, orange/brown, W>Wp		
2.0			
3.0	 CLAYEY SAND (SC) medium dense, fine to coarse grained, orange, moist becoming grey at 3.3m becoming pale orange at 5.5m		
4.0			
6.0			
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 7.0m			

BLACK GEO INICAL PTY LTD		project	
job no	V500-3	date	15-25.07.02
drilling method	logged by	Ex-Pioneer Quarry Site	
Dingo K2-9 drill rig	N Schofield	Talbot Avenue	
	checked by	Oakleigh	
	G Black		
location: west of lake, refer figure 1		level RL	58.33 m
BOREHOLE No 7		sheet	2 of 2
		datum	AHD
depth metres	material description	tests	sample
	 CLAYEY SAND (SC) medium dense, fine to coarse grained, pale orange, moist		
10.0			
10.1	End Bore 7 at 10.1m		
12.0	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">Standpipe Details:</p> Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 2.7-3.2m sand 3.2-9.0m screen 3.7-9.71m </div>		
14.0			
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 7.0m			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north of lake, refer figure 1		level RL 59.42 m	
BOREHOLE No 8 B		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, moist		
	metal, large gravel (sandstone) at 1m		
2.0	metal at 2m		
4.0			
5.0	cloth material at 5m		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater assumed level of water at 8.5m due to cave in			

BLACK GEOT NICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north of lake, refer figure 1		level RL 59.42 m	
BOREHOLE No 8 B		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, moist, metal, large gravel (sandstone), cloth material		
10.0			
11.5	End Bore 8 at 11.5m		
12.0			
14.0			
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater assumed level of water at 8.5m due to cave in			

Standpipe Details:
Class 18 50mm diameter PVC Pipe
0.4mm machine cut screen, threaded joint
bentonite pellets 6.0-7.0m
sand 7.0-10.0m
screen 7.5-11.5m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: east of lake, refer figure 1		level RL 60.49 m	
BOREHOLE No 9		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
0.5	SILTY GRAVELLY SAND (SM) loose, fine to coarse grained, brown, moist		
2.0	SILTY SAND (SM) medium dense, fine to medium grained, dark brown, moist becoming brown at 1.5m becoming orange at 2.4m becoming slightly clayey, pale brown at 2.8m becoming orange/grey, not clayey at 3.2m		
4.0			
5.5	becoming clayey, grey at 4.9m		
6.0	CLAYEY SAND (SC) medium dense, fine to coarse grained, grey, moist		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 10m			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: east of lake, refer figure 1		level RL 60.49 m	
BOREHOLE No 9		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
10.0	CLAYEY SAND (SC) medium dense, fine to coarse grained, grey, moist		
12.0			
13.0	End Bore 9 at 13m		
14.0	Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 7.5-8.0m sand 8.0-10.5m screen 8.5-12.5m		
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 10m			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-3	date	15-25.07.02
drilling method	Pioneer 400 power auger	logged by	N Schofield
		checked by	G Black
location: north of corner, refer figure 1		level RL	64.59 m
BOREHOLE No 10		sheet	1 of 2
datum		AHD	
depth metres	material description	tests	sample
0.0	SILTY SAND (SM) medium dense, fine grained, brown, dry		
1.0	becoming pale grey at 1m		
2.0	becoming fine to medium grained, pale brown at 1.9m		
3.0	with clay, becoming dry to moist at 3m		
4.0			
5.0	becoming orange brown at 4.5m		
6.0			
6.5	SILTY CLAY (CI) very stiff, medium plasticity, orange brown, W _s W _p , with sand		
7.5	GRAVELLY SILTY CLAY (CI) very stiff, medium plasticity, orange brown, W _s W _p , gravel fine grained, alluvial		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 10m			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-3	date	15-25.07.02
drilling method	Pioneer 400 power auger	logged by	N Schofield
		checked by	G Black
location: north of corner, refer figure 1		level RL	64.59 m
BOREHOLE No 10		sheet	2 of 2
datum		AHD	
depth metres	material description	tests	sample
0.0	GRAVELLY SILTY CLAY (CI) very stiff, medium plasticity, orange brown, W _s W _p , gravel fine grained, alluvial		
9.0			
9.6	CLAYEY SAND (SM) medium dense, fine to medium grained, pale brown, moist, trace fine grained gravel		
10.0	SAND (SP) medium dense to dense, medium to coarse grained, pale grey/brown, moist becoming wet at 10m		
12.0	End Bore 10 at 12m		
14.0	Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 5.8-6.5m sand 6.5-10.5m screen 8.4-11.4m		
16.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 10.0m			

BLACK GEOTECHNICAL PTY LTD		project
job no V500-3	date 15-25.07.02	
drilling method Pioneer 400 power auger	logged by N Schofield	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh
	checked by G Black	
location: north side within landfill, refer figure 1		level RL - 61.18 m
BOREHOLE No 11	sheet 1 of 1	datum AHD

depth metres	material description	tests	sample
2.0	FILL: SILTY SAND (SM) loose to medium dense, fine to medium grained, black, moist concrete & rebar at 0.5m		
2.1			
4.0	FILL: SILTY SAND (SM) loose to medium dense, fine to medium grained, dark brown, moist, with some medium grained, pale yellow sandstone becoming fine to coarse grained, black, with some medium grained, black gravel <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 4.0-4.7m sand 4.7-7.2m screen 5.2-7.2m </div>	13,22,28 N=50	3.0 D
			3.45
5.5			2, 1.5, 1.5 N=3
6.0	FILL: Refuse, metal, rubber, plastic, wire, rope wood, moist becoming wet at 6.5m		
7.2			
8.0	End Bore 11 at 7.2m		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to N = Standard Penetration Test

samples refer to D = Disturbed Sample

groundwater in at 6.5m

BLACK GEOTECHNICAL PTY LTD		project
job no V500-3	date 15-25.07.02	
drilling method	logged by N Schofield	Ex-Pioneer Quarry Site
Pioneer 400 power auger	checked by G Black	Talbot Avenue Oakleigh
location: west side within landfill, refer figure 1		level RL 61.04 m

BOREHOLE No 12  sheet 1 of 2 datum AHD

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, moist		
2.0	becoming moist to wet at 2m		
		3,3,4 N=7	D
		3.45	
4.0		4.5	
		4,10,13 N=23	D
		4.95	
6.0		6.0	
	becoming refuse, plastic bags, metal, cloth at 6.5m	7,9,7 N=16	D
		6.45	
8.0			

Refer to figure 1A for summary of descriptive terms.


Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to N = Standard Penetration Test

samples refer to D = Disturbed Sample

groundwater in at 5m

BLACK GEOTECHNICAL PTY LTD		project
job no V500-3	date 15-25.07.02	
drilling method	logged by N Schofield	Ex-Pioneer Quarry Site
Pioneer 400 power auger	checked by G Black	Talbot Avenue Oakleigh
location: west side within landfill, refer figure 1		level RL 61.04 m

BOREHOLE No 12  sheet 2 of 2 datum AHD

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, wet, becoming refuse, plastic bags, metal, cloth		
10.0			
10.3	End Bore 12 at 10.3m		
	Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 4.0-5.5m sand 5.5-10.3m screen 7.3-10.3m		
12.0			
14.0			
16.0			

Refer to figure 1A for summary of descriptive terms.

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to N = Standard Penetration Test

samples refer to D = Disturbed Sample

groundwater in at 5m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north west corner, refer figure 1		level RL 61.76 m	
BOREHOLE No 13 B	sheet 1 of 2	datum AHD	
depth metres	material description	tests	sample
1.9	FILL: Silty Clay (CI-CH), firm, medum to high plasticity, dark brown, W _z W _p		
2.0			
4.0	FILL: Silty Clay (CH), soft, high plasticity, pale brown, W>>W _p		
6.0			
8.0	becoming soft to firm, grey, with fine grained sand at 7.5m		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north west corner, refer figure 1		level RL 61.76 m	
BOREHOLE No 13 B	sheet 2 of 2	datum AHD	
depth metres	material description	tests	sample
10.0	FILL: Silty Clay (CH), soft to firm, high plasticity, grey, W>>W _p , with fine grained sand		
12.0	End Bore 13 at 10m		
14.0	Note: hole collapsed near base		
16.0	Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 3.6-5.8m sand 5.8-9.3m screen 6.3-9.3m		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north east, refer figure 1		level RL 62.09 m	
BOREHOLE No 14 B		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
1.3	FILL: Silty Clay (CI-CH), firm, medium to high plasticity, dark brown, W _z W _p		
2.0	FILL: Silty Clay (CH), soft, high plasticity, pale brown, W _z >>W _p		
4.0			
6.0			
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-3	date 15-25.07.02	Ex-Pioneer Quarry Site	
drilling method	logged by N Schofield	Talbot Avenue	
Pioneer 400 power auger	checked by G Black	Oakleigh	
location: north east, refer figure 1		level RL 62.09 m	
BOREHOLE No 14 B		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
10.0	FILL: Silty Clay (CH), soft, high plasticity, pale brown, W _z >>W _p becoming sandy at 8.1m		
12.0	End Bore 14 at 10.0m		
14.0			
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p style="text-align: center;">Standpipe Details:</p> <p>Class 18 50mm diameter PVC Pipe</p> <p>0.4mm machine cut screen, threaded joint</p> <p>bentonite pellets 5.5-6.5m</p> <p>sand 6.5-10.0m</p> <p>screen 7.0-10.0m</p> </div>			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-3	date	15-25.07.02
drilling method	Pioneer 400 power auger	logged by	N Schofield
		checked by	G Black
location: south east corner, refer figure 1		level RL 62.02 m	
BOREHOLE No 15		sheet 1 of 2	datum AHD
depth metres	material description	tests	sample
0.2	FILL: Sand (SW), loose, fine to medium grained, grey, dry, with cobbles		
	SILTY SAND (SM) loose to medium dense, fine to medium grained, pale brown, dry		
2.0	becoming orange brown at 2m		
4.0	becoming grey, moist at 4m		
6.0	becoming wet at 5.5m		
6.5	becoming moist at 6m		
8.0	CLAYEY SAND (SC) medium dense to dense, medium to coarse grained, grey, moist becoming wet at 7m		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 7.0m			

BLACK GEOTECHNICAL PTY LTD		project	
job no	J-3	date	15-25.07.02
drilling method	Pioneer 400 power auger	logged by	N Schofield
		checked by	G Black
location: south east corner, refer figure 1		level RL 62.02 m	
BOREHOLE No 15		sheet 2 of 2	datum AHD
depth metres	material description	tests	sample
	CLAYEY SAND (SC) medium dense to dense, medium to coarse grained, grey, wet		
10.0			
11.6			
12.0	End Bore 15 at 11.6m		
14.0			
16.0			
Standpipe Details: Class 18 50mm diameter PVC Pipe 0.4mm machine cut screen, threaded joint bentonite pellets 4.5-5.0m sand 5.0-11.6m screen 8.6-11.6m			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater in at 7.0m			

job no	V500	LID	date	subject
excavation method				
Komatsu 30 tonne tracked excavator			logged by G Black	Pioneer Quarry Site: Talbot Avenue Oakleigh
location: refer figure 1			checked by A Hansen	
TEST PIT No 1			level: not levelled	
sheet 1 of 1			datum	

depth metres	material description	tests	sample
0.0 - 1.0	FILL: Clayey Sand (SC), medium dense, fine to medium grained, dark grey brown, moist, some bricks & concrete cobbles, trace timber, some clay, some odour		
1.0 - 1.8	FILL: Soil & refuse, timber, bricks, brick pieces, steel (approx 20% refuse)		
1.8 - 2.9	FILL: Clay (CH), very soft, high plasticity, yellow brown, W>Wp (slimes) End Pit 1 at 2.9m When the clay slimes were encountered, the clay rose quickly in the pit to a depth of about 0.5m. The moisture content of the clay is so high that it behaves as a fluid.		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater in at 1.7m (isolated perched ground water)

job no	V500	LID	date	subject
excavation method				
Komatsu 30 tonne tracked excavator			logged by G Black	Pioneer Quarry Site: Talbot Avenue Oakleigh
location: refer figure 1			checked by A Hansen	
TEST PIT No 2			level: not levelled	
sheet 1 of 1			datum	

depth metres	material description	tests	sample
0.0 - 2.1	FILL: Sandy Clay/Clayey Sand with bricks, concrete rubble, steel, timber		
2.1 - 4.0	FILL: Clay (CH), very soft, high plasticity, yellow brown (slimes) End Pit 2 at 2.1m When the clay slimes were encountered, the clay rose quickly in the pit to a depth of about 0.5m. The moisture content of the clay is so high that it behaves as a fluid.		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater none encountered

GEOTECHNICAL PIT 3 LTD		project
V500	date 12.11.01	
excavation method	logged by G Black	Pioneer Quarry Site Talbot Avenue Oakleigh
by 30 tonne tracked excavator	checked by A Hansen	
refer figure 1		level not levelled
PIT No 3	sheet 1 of 1	datum

depth metres	material description	tests	sample
	<p>FILL: Sandy Clay (CL-CH), stiff, medium to high plasticity, brown, yellow brown, W>Wp, trace bricks & timber, some odour becoming 10-15% timber at 0.8m</p> <p>becoming trace timber at 1.7m becoming dark brown at 2m with about 5% non soil fill</p> <p>becoming 10-20% non soil fill below 2.5m</p> <p>becoming soft below 3m</p> <p>concrete piece 1 diameter at 3.75m becoming brown with concrete pieces up to 0.5m below 4m</p>		
	<p>End Pit 3 at 5.5m</p> <p>Pit collapsing below 2.4m</p>		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater perched groundwater in fill at 2.4m

BLACK GEOTECHNICAL PTY LTD		project
job no V500	date 12.11.01	
excavation method	logged by G Black	Pioneer Quarry Site Talbot Avenue Oakleigh
Komatsu 30 tonne tracked excavator	checked by A Hansen	
location: refer figure 1		level not levelled
TEST PIT No 4	sheet 1 of 1	datum

depth metres	material description	tests	sample
	<p>FILL: Sandy Clay/Clayey Sand, brown, dark brown with bricks (25%) and timber (25%), trace metal and concrete</p> <p>becoming about 25% non soil fill below 1.5m</p>		
2.0			
2.1	<p>FILL: Clay (CH), soft, high plasticity, yellow brown, W>>Wp (slimes)</p> <p>End Pit 4 at 2.1m</p> <p>When the clay slimes were encountered, the clay rose quickly in the pit to a depth of about 0.5m. The moisture content of the clay is so high that it behaves as a fluid</p>		
4.0			
6.0			
8.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater none encountered

GEOTECHNICAL PTY LTD		project	
job no V500	date 12.11.01	Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by G Black		
30 tonne tracked excavator	checked by A Hansen		
refer figure 1		level	not levelled
PIT No 5	sheet 1 of 1	datum	
	material description	tests	sample
	FILL: Clay (CL-CH), stiff, medium to high plasticity, brown, orange brown, W>Wp, trace brick pieces, plastic, timber		
	FILL: Gravel (GP), dense/cemented, medium grained, pale grained (crushed concrete)		
	FILL: Sand (SP), medium dense, fine to medium grained, grey, brown, yellow brown, moist, some timber & concrete pieces to 1m		
	some black ash & concrete pieces to 2m diameter at 5m		
	SAND (SP) loose, fine to medium grained, yellow brown, wet		
	End Pit 5 at 6m		
	Note: Sand could be fill but appeared to be natural		
Refer to figure 1A for summary of descriptive terms. Descriptions are based on visual & tactile assessment unless there are test results. Tests refer to Samples refer to Groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date 12.11.01	Pioneer Quarry Talbot Avenue Oakleigh	
excavation method	logged by G Black		
Komatsu 30 tonne tracked excavator	checked by A Hansen		
location: refer figure 1		level	not levelled
TEST PIT No 6	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Clay (CL-CH), stiff, medium to high plasticity, brown, yellow brown, W>Wp, trace bricks, plastic		
	becoming dark brown with brick & concrete pieces at 1m		
2.0	some grey Sandy Clay at 2m		
	becoming dark brown/grey, trace concrete pieces to 0.5m at 2.5m becoming firm below 3m		
4.0			
	pit collapsing below 2m when depth at 5.5m		
6.0			
	End Pit 6.0m		
	Pit collapsing, concrete or rubble at base		
8.0			
Refer to figure 1A for summary of descriptive terms. Descriptions are based on visual & tactile assessment unless there are test results. Tests refer to Samples refer to Groundwater large water inflow from 5.75m of south side and from 3m on east side - not regional groundwater			

BLACK GEOTECHNICAL PTY LTD		project	
V500	date 12.11.01	Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by G Black		
30 tonne tracked excavator	checked by A Hansen		
refer figure 1		level	not levelled
PIT No 7	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), fine to medium grained, dark grey/black, moist		
	FILL: Clayey Sand/Sandy Clay (SC/CL-CI), loose to medium dense/stiff, fine to medium grained/medium to high plasticity, brown, trace concrete cobbles to 0.3m, trace bricks		
	FILL: Gravelly Clay (CL), stiff, medium plasticity, brown & grey, some cobbles		
	FILL: Clayey Sand (SC), loose to medium dense, medium grained, dark grey brown, moist to wet, trace concrete pieces to 0.5m, some Sandy Clay, stiff, high plasticity, yellow brown		
	End Pit 7 at 6.8m		
	Limit of reach of machine		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date	Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by G Black		
Komatsu 30 tonne tracked excavator	checked by A Hansen		
location: refer figure 1		level	not levelled
TEST PIT No 8	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Gravelly Clay (CL-CH), stiff, medium to high plasticity, dark brown, brown, yellow brown, Siltstone gravel to 150mm, some concrete gravel		
	pieces of concrete to 1m at 1.2m		
2.0	becoming Clayey Sand/Sandy Clay, dark grey brown at 2m		
	some concrete & bricks below 3m, very slow penetration		
	some steel & concrete below 3.5m		
4.0	FILL: Soil & waste (timber, steel, wood, concrete pieces, brick pieces)		
6.0	FILL: Clay (CH), firm to stiff, high plasticity, yellow brown & grey (old slimes, see note below)		
6.5	End Pit 8 at 6.5m		
	Note: excavating below water level, hard to tell if below the waste level		
8.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater in at 4.2m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date 12.11.01	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
location: refer figure 1	level not levelled		
TEST PIT No 9	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Sandy Clay (CL-CH), firm, medium to high plasticity, red brown, W>Wp, some gravel		
1.0	FILL: Sand (SP), loose to medium dense, fine to medium grained, pale brown, trace bricks, wire, concrete pieces at 0.5m		
2.0	FILL: Gravel (GP), loose, fine grained, brown, moist to wet		
2.4	FILL: Sand (SM), loose to medium dense, fine grained, pale brown, white, moist		
2.8	FILL: Sandy Clay (CH), soft, high plasticity, pale grey		
4.0	FILL: Sand/Clayey Sand (SP/SC), loose to medium dense, fine to coarse grained, pale brown, white, moist		
5.0	End Pit 10 at 5m		
6.0	Note: Sand/Clayey sand stratum may be natural		
8.0			

Refer to figure 1A for summary of descriptive terms

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to

groundwater in at 2m (gravel fill), not regional groundwater

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date 12.11.01	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
location: refer figure 1	level not levelled		
TEST PIT No 10	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Sandy Clay (CL-CH), firm, medium to high plasticity, red brown, W>Wp, some gravel		
1.0	FILL: Sand (SP), loose to medium dense, fine to medium grained, pale brown, trace bricks, wire, concrete pieces at 0.5m		
2.0	FILL: Gravel (GP), loose, fine grained, brown, moist to wet		
2.4	FILL: Sand (SM), loose to medium dense, fine grained, pale brown, white, moist		
2.8	FILL: Sandy Clay (CH), soft, high plasticity, pale grey		
4.0	FILL: Sand/Clayey Sand (SP/SC), loose to medium dense, fine to coarse grained, pale brown, white, moist		
5.0	End Pit 10 at 5m		
6.0	Note: Sand/Clayey sand stratum may be natural		
8.0			

Refer to figure 1A for summary of descriptive terms

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to

groundwater in at 2m (gravel fill), not regional groundwater

Refer to figure 1A for summary of descriptive terms.

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to

groundwater none encountered

SEOTECHNICAL PTY LTD	project
1/500	date 12 11 01
excavation method	logged by G Black
30 tonne tracked excavator	checked by A Hansen
refer figure 1	level not levelled
PIT No 11	sheet 1 of 1
	datum

depth metres	material description	tests	sample
	FILL: Clayey Sand (SC), medium dense, medium grained, brown, moist, trace bricks becoming sand, black at 0.2m becoming pale brown with some clay, some cemented cobbles at 0.5m becoming pale brown/white at 1m		
	becoming Clayey Sand/Sandy Clay, dark brown with 50% bricks & brick pieces at 2m		
	trace timber at 3m		
	concrete pieces to 0.5m below 3.5m		
	End Pit 11 at 4.5m		
	Pit sides collapsing when pit at 3.5m. Unable to advance pit beyond 4.5m due to major pit collapse		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater in at 3m from side of pit

BLACK GEOTECHNICAL	date 12 11 01	Project
job no	logged by G Black	Pioneer Quarry Site
excavation method	checked by A Hansen	Talbot Avenue Oakleigh
Komatsu 30 tonne tracked excavator		level not levelled
location: refer figure 1		datum
TEST PIT No 12	sheet 1 of 1	

depth metres	material description	tests	sample
	FILL: Sand (SP), medium dense, fine to medium grained, dark brown, moist becoming brown with concrete cobbles & bricks/brick pieces at 0.3m		
2.0	FILL: Clay (CH), stiff, high plasticity, yellow brown, W>Wp becoming soft to firm at 3m		
4.0			
5.5	End Pit 12 at 5.5m		
6.0	Pit side stayed open to 5.5m then major circular collapse		
	Clay fill appears to be consolidated slime		
8.0			

Refer to figure 1A for summary of descriptive terms
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater perched ground water at 1.75m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date 12 11 01	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
refer figure 1	level not levelled		
PIT No 13	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, moist becoming grey, trace concrete boulders at 0.3m becoming dark brown, trace boulders, brick pieces at 1m		
	trace timber, trace fabric, concrete pieces up to 1.2m diameter at 2m		
	becoming loose, black, wet at 3.5m (pit collapsing)		
	End Pit 13 at 5.0m		
	Major pit collapse at 5m Unable to advance pit below this depth		
Refer to figure 1A for summary of descriptive terms			
Descriptions are based on visual & tactile assessment unless there are test results			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500	date 12 11 01	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
location: refer figure 1	level not levelled		
TEST PIT No 14	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.6	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist		
2.0	FILL: Clay (CH), firm, high plasticity, brown, orange brown, yellow brown, W>Wp (slimes) becoming very soft, yellow brown, W>>>Wp at 1.75m		
4.0	End Pit 14 at 2m When tracked excavator penetrated past 2m, clay slimes heaved into pit and rose to a depth of about 0.5m in 5 mins. Ground shaking as excavator dumps spoil on surface		
6.0			
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

V500		date 12.11.01	project	
method	logged by G Black	checked by A Hansen	Pioneer Quarry Talbot Avenue Oakleigh	
30 tonne tracked	level not levelled		datum	
refer figure 1	sheet 1 of 1	datum		
TEST No 15	sheet 1 of 1			

depth metres	material description	tests	sample
0.2	FILL: Sand & Clay, brown, orange brown & black		
1.3	FILL: Sand, loose to medium dense, medium grained, grey brown, moist becoming dense/cemented, black, with sandstone gravel at 1.2m trace wire rope at 2m no cementing below 3m		
5.0	FILL: Refuse (paper, timber, plastic, metal) and sand		
7.0	End Pit 15 at 7m		

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater none encountered

BLACK GEOTECHNICAL		date 12.11.01	project	
job no V500	logged by G Black	checked by A Hansen	Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	level not levelled		datum	
Komatsu 30 tonne tracked excavator	sheet 1 of 1		datum	
location refer figure 1	TEST PIT No 15A			

depth metres	material description	tests	sample
0.2	FILL: Silty Sand (SM), loose, fine to medium grained, dark brown, moist FILL: Silty Clay (CL-CH), stiff, medium to high plasticity, orange brown & grey		
1.3	FILL: Silty Sand (SM), dense/cemented, fine to medium grained, black/dark grey, moist, trace cobbles		
3.5	FILL: Sandy Clay (CH), very stiff, high plasticity, brown & gray, W>Wp, some concrete pieces trace steel & bricks at 4.5m		
5.0	FILL: Sand/Clay Refuse Mix, 10% refuse, becoming 50% at 5.5m		
6.0	End Pit 15A at 6m		

Refer to figure 1A for summary of descriptive terms
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to
 groundwater slight inflow at 0.5m from south side of pit

BLACK GEOTECHNICAL PTY LTD		project	
job no	12.11.0	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
location: refer figure 1	level	not levelled	
TEST PIT No 16	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Clay with wood, plastic, hessian, concrete		
	SANDY CLAY/CLAYEY SAND (SC/CL-CH) very stiff/medium dense, medium to high plasticity/medium grained, mottled orange brown & pale brown, W>Wp		
	End Pit 16 at 3.0m		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	12.11.0	Pioneer Quarry Site	
excavation method	logged by G Black	Talbot Avenue	
Komatsu 30 tonne tracked excavator	checked by A Hansen	Oakleigh	
location: refer figure 1	level	not levelled	
TEST PIT No 17	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose, medium grained, pale grey brown, moist becoming dark brown/dark grey, with sandstone gravel & cobbles to 100mm at 0.4m		
2.0	becoming dense/cemented at 3m		
4.0	becoming loose to medium dense, pale brown, wet at 3.75m		
7.0	End Pit 17 at 7m		
8.0	Household refuse at 7m - limit of machine		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

GEOTECHNICAL PTY LTD		project	
excavation method V500	date 12.11.01	Pioneer Quarry Talbot Avenue Oakleigh	
30 tonne tracked	logged by G Black	level not levelled	
refer figure 1	checked by A Hansen	datum	
PIT No 18	sheet 1 of 1	datum	
	material description	tests	sample
	FILL: Sandy Clay (CL-CH), stiff, medium to high plasticity, orange brown, grey, W>Wp (bund fill)		
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, moist, trace metal, plastic		
	trace timber at 3.5m		
	End Pit 18 at 4m unable to dig deeper on slope		
to figure 1A for summary of descriptive terms.			
options are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		12.11.01	
excavation method Komatsu 30 tonne tracked excavator	logged by G Black	Pioneer Quarry Site Talbot Avenue Oakleigh	
location: refer figure 1	checked by A Hansen	level not levelled	
TEST PIT No 19	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Sand (SP), medium dense, fine to medium grained, pale brown, moist		
2.0	becoming dense/cemented, dark brown/black at 1.6m		
4.0	becoming brown & grey brown with cemented cobbles at 3m		
6.0	FILL: Refuse (metal, plastic, timber, household waste) and sand		
7.0	End Pit 18 at 7m		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to			
groundwater some water in at 3.5m when pit at 4.5m			

GEOTECHNICAL LTD		Project	
date 12.11.01		Pioneer Quarry Site	
logged by G Black		Talbot Avenue	
checked by A Hansen		Oakleigh	
level		not levelled	
PIT No 20	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Sand (SP), loose to medium dense, fine to medium grained, pale brown & brown		
	becoming brown, grey & black, trace timber, plastic, bricks at 2.2m pit collapsing above 2.2m when pit depth at 2.5m		
	becoming black, wet at 4m		
5	End Pit 20 at 5.5m Not possible to excavate below 5.5m due to major pit collapse		
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results			
tests refer to			
samples refer to			
groundwater seepage at 4m			

GEOTECHNICAL PTY LTD		12.11.01	
excavation method V500		logged by G Black	
excavator Matsui 30 tonne tracked		checked by A Hansen	
location: refer figure 1		level not levelled	
TEST PIT No 21	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), loose to medium dense, medium grained, black, brown some sandstone gravel & cobbles at 1m		
2.0			
3.0	FILL: Sandy Clay (CH), stiff, high plasticity, grey & pale grey		
4.0			
5.5	FILL: Refuse (timber, plastic, bricks, household waste) and sand		
6.0	End Pit 21 at 6m pit sides collapsing		
8.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results			
tests refer to			
samples refer to			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333090E, 5801038N	level	not levelled
TEST PIT No 23	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey brown, dry		D
0.7			
1.0	FILL: Sandy Clay (CL-CI), very stiff, low to medium plasticity, orange brown, W<Wp, dry to moist		D
1.2			
2.0	FILL: Sand (SM), medium dense, fine to medium grained, grey, white, dry to moist, trace brick, gravel		
	End Pit 23 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333087E, 5800990N	level	not levelled
TEST PIT No 24	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, dry to moist, trace steel, rubble, brick		D
0.6			
1.0	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, dry, odour		D
1.2			
2.0	FILL: Sand (SM), medium dense, fine to medium grained, grey, moist becoming pale brown, moist to wet at 1.8m		
	End Pit 24 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333084E, 5800944N		level not levelled	
TEST PIT No 25	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, moist, with medium grained gravel, trace rubble, steel, concrete		D 0.1
0.7	FILL: Silty Clay (CI-CH), stiff to very stiff, medium to high plasticity, grey brown, W>Wp, odour, roots		0.9 D 1.0
1.0	FILL: Sand (SW), medium dense, fine to medium grained, grey, moist		1.0
1.8	FILL: Silty Clay (CI-CH), stiff to very stiff, medium to high plasticity, grey, orange brown, W>Wp		1.9 D 2.0
2.0	End Pit 25 at 2.2m		2.0
2.2			
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333077E, 5800901N		level not levelled	
TEST PIT No 26	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black brown, dry to moist		D 0.1
0.5	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey, moist, odour		0.9 D 1.0
0.9	FILL: Sand, black, with brick, fabric, steel, concrete, wood - refuse		1.0
1.0	becoming wet at 1.8m		1.9 D 2.0
2.0	End Pit 26 at 2.2m		2.0
2.2			
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333069E, 5800852N		level not levelled	
TEST PIT No 27	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist, trace gravel 50mm diameter		D 0.1
	trace concrete, rags, paper at 0.8m		0.9 D
1.0			1.0
	trace steel, plastic at 1.2m		
	becoming sand/refuse (50/50) mix at 1.6m		1.9 D
2.0			2.0
2.4	End Pit 27 at 2.4m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333143E, 5801031N		level not levelled	
TEST PIT No 28	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist		D 0.1
0.6			
	FILL: Silty Clay (CI-CH), stiff to very stiff, medium to high plasticity, grey orange brown, mottled, W _p ≥ 20, some sand (compacted clay fill)		0.9 D
1.0			1.0
2.0			1.9 D
	End Pit 28 at 2m		2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333197E, 5801028N		level not levelled	

TEST PIT No 29 sheet 1 of 1 datum

depth metres	material description	tests	sample
0.5	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, dry to moist		0.1 D
			0.9 D
1.0	FILL: Silty Clay/Sand (CI-CH), stiff to very stiff, medium to high plasticity, orange brown, W>Wp		1.0 D
1.7			1.9 D
2.0	FILL: Silty Sand/Refuse 20%, odour, refuse is paper, plastic, glass		2.0 D
2.2	End Pit 29 at 2.2m		
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333257E, 5801010N		level not levelled	

TEST PIT No 30 sheet 1 of 1 datum

depth metres	material description	tests	sample
0.4	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey, dry, trace rubbish (paper, wrappers)		0.1 D
			0.9 D
1.0	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, dry		1.0 D
1.7			1.9 D
2.0	becoming moist, 10% refuse at 1.4m		2.0 D
2.2	End Pit 30 at 2m		
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333319E, 5801008N		level not levelled	
TEST PIT No 31	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, brown, dry becoming grey black, trace rubble, plastic, steel at 0.2m		D 0.1
1.0	becoming pale grey brown, wet, with bricks, wire at 1m		0.9 D 1.0
1.7	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp		1.9 D
2.0	End Pit 31 at 2m		2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater in at 1.7m above clay, oil film in water			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333367E, 5801004N		level not levelled	
TEST PIT No 32	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, dry		D 0.1
1.0	becoming fine to coarse grained gravel, cobbles, moist, trace rubble, steel, brick at 1.5m		0.9 D 1.0
2.0	End Pit 32 at 2m		1.9 D 2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333415E, 5800977N		level not levelled	
TEST PIT No 33		sheet 1 of 1	datum

depth metres	material description	tests	sample
0.3	FILL: Silty Sand/Sandy Gravel (SM/GP)), medium dense, fine to coarse grained, pale brown, dry		0.1 D
	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp		0.9 D
1.0			1.0 D
			1.9 D
2.0	End Pit 33 at 2m		2.0 D
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to D = Disturbed Sample

groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333400E, 5800956N		level not levelled	
TEST PIT No 34		sheet 1 of 1	datum

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey brown, moist		0.1 D
			0.9 D
1.0			1.0 D
	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp		1.9 D
2.0	End Pit 34 at 2m		2.0 D
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to D = Disturbed Sample

groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333349E, 5800958N		level not levelled	
TEST PIT No 35	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey, dry		D 0.1
	trace steel, rubble at 0.5m		
	becoming sand, grey, moist, trace rubble at 0.8m		D 0.9
1.0			1.0
1.6	FILL: Sand/Refuse, black, wet, refuse is paper, plastic, grass, metal		D 1.9
2.0	FILL: Silty Clay (CI-CH), stiff to very stiff, medium to high plasticity, grey, W>Wp		2.0
2.2	End Pit 35 at 2.2m		
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333301E, 5800963N		level not levelled	
TEST PIT No 36	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist		D 0.1
0.3	FILL: Sand, medium dense, fine to medium grained, grey, moist		
	30% refuse, 70% sand at 0.8m, refuse is paper, plastic, metal, glass		D 0.9
1.0			1.0
2.0	becoming Sandy Gravel, wet at 1.8m		D 1.9
2.2	End Pit 36 at 2.2m		2.0
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater in at 1.8m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333252E, 5800967N		level not levelled	
TEST PIT No 37	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Gravelly Silty Sand (SP), medium dense, fine to coarse grained, grey brown, dry		D
			0.1
			0.9
1.0			D
			1.0
1.8			
2.0	FILL: Sand/Refuse 20%, refuse is paper, plastic, glass, metal		1.9
			D
			2.0
	End Pit 37 at 2m		
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater in at 2m

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333197E, 5800976N		level not levelled	
TEST PIT No 38	sheet 1 of 1	datum	

depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey, dry becoming black, dry to moist at 0.2m		D
			0.1
0.8			
1.0	FILL: Sand (SP), medium dense, fine to coarse grained, grey, moist		0.9
			D
			1.0
2.0			
			1.9
			D
			2.0
	End Pit 38 at 2m		
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333141E, 5800983N	level	not levelled
TEST PIT No	39	sheet	1 of 1
datum			
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey brown, dry		D 0.1
	becoming black, dry to moist, with fabric, steel, rubble at 0.8m		0.9 D 1.0
1.0			
			1.9 D 2.0
2.0			
	End Pit 39 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333134E, 5800940N	level	not levelled
TEST PIT No	40	sheet	1 of 1
datum			
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey, black, dry		D 0.1
	trace sandstone cobbles 100mm diameter at 0.8m		0.9 D 1.0
1.0			
			1.9 D 2.0
2.0			
	refuse (plastic, steel, fabric) 30% at 1.8m		
3.0			
	End Pit 40 at 2m		
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project
job no V500-2	date 01.03.02	
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh
Tracked Excavator - 12 tonne	checked by G Black	
location: refer figure 1 333188E, 5800932N		level not levelled
TEST PIT No 41	sheet 1 of 1	datum

depth metres	material description	tests	sample
0.4	FILL: Sand (SW), medium dense, fine to medium grained, grey, dry		D 0.1
1.0	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist, trace sandstone cobbles to 100mm diameter refuse 10% at 1m		D 0.9 1.0
2.0	End Pit 41 at 2m		D 1.9 2.0
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to D = Disturbed Sample

groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project
job no V500-2	date 01.03.02	
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh
Tracked Excavator - 12 tonne	checked by G Black	
location: refer figure 1 333242E, 5800924N		level not levelled
TEST PIT No 42	sheet 1 of 1	datum

depth metres	material description	tests	sample
0.5	FILL: Silty Sandy Clay (CL-CI), stiff, low to medium plasticity, orange brown, W _s W _p , trace rubble		D 0.1
1.0	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, brown, moist becoming grey, trace paper, plastic at 1.5m		D 0.9 1.0
1.8			
2.0	FILL: Sandy Clay (CL), stiff, medium plasticity, grey, W>W _p		D 1.9
2.0	End Pit 42 at 2m		D 2.0
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms

Descriptions are based on visual & tactile assessment unless there are test results.

tests refer to

samples refer to D = Disturbed Sample

groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333291E, 5800918N		level not levelled	
TEST PIT No 43	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Sand (SW), medium dense, fine to medium grained, brown, dry		D
	becoming grey, dry to moist, with plastic, steel, metal drum, bricks, rubble at 0.4m		0.1
			0.9
1.0			D
			1.0
1.8			1.9
2.0	FILL: Silt (ML), medium to medium dense/slightly cemented, fine grained, grey		D
	End Pit 43 at 2m		2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333340E, 5800911N		level not levelled	
TEST PIT No 44	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Sandy Clay (CL-CI), stiff, low to medium plasticity, orange brown, W<Wp		D
			0.1
0.6			0.9
	FILL: Sand (SW), medium dense, fine to medium grained, grey, dry, with steel, plastic bottles, steel sheets, rubble		D
1.0			1.0
2.0			1.9
	End Pit 44 at 2m		D
			2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333393E, 5800901N		level not levelled	
TEST PIT No 45	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Clay (CL-CI), very stiff, low to medium plasticity, orange brown, W<Wp		D 0.1
1.0			0.9 D
	FILL: Sand (SW), medium dense, fine to medium grained, grey, dry, with bricks, sandstone rubble		1.0
1.6			1.9 D
	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp		2.0
2.0			
2.5			
	End Pit 45 at 2.5m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333383E, 5800859N		level not levelled	
TEST PIT No 46	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Mixed Cobbles & Sand, with bricks, bedsprings, steel, bluestone blocks, concrete blocks		D 0.1
1.0			0.9 D
	odour at 0.8m		1.0
	becoming wet, more odour at 1.3m		1.9 D
2.0			2.0
	End Pit 46 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater in at 1.3m (odour in water)			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333240E, 5800886N		level	not levelled
TEST PIT No 49	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.4	FILL: Sandy Gravel (GP), loose, fine to coarse grained, grey, dry, with rubble		D 0.1
1.0	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, grey brown, moist		0.9 D 1.0
1.5	FILL: Sand (SP), loose to medium dense, fine to coarse grained, grey, wet		1.9 D 2.0
2.2	End Pit 49 at 2.2m Note: test pit adjacent to small (20m diameter) water filled depression.		2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333184E, 5800890N		level	not levelled
TEST PIT No 50	sheet 1 of 1	datum	
depth metres	material description	tests	sample
1.0	FILL: Sand (SW), loose to medium dense, fine to medium grained, grey, dry becoming black, dry to moist, trace rubble at 0.7m		D 0.1 0.9 D 1.0
2.0	becoming medium dense, grey, moist to wet at 1.7m		1.9 D 2.0
2.0	End Pit 50 at 2m		2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333133E, 5800899N		level not levelled	
TEST PIT No 51	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.4	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, grey, dry		D 0.1
	FILL: Gravelly Sand (SW), medium dense, fine to medium grained, black, moist, trace refuse		0.9 D 1.0
2.0			1.9 D 2.0
	End Pit 51 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
excavation method	logged by D Macleod/S Tacey		
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333124E, 5800848N		level not levelled	
TEST PIT No 52	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.5	FILL: Gravelly Sand (SW), loose to medium dense, fine to coarse grained, brown, dry to moist		D 0.1
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, moist, trace refuse		0.9 D 1.0
2.0			1.9 D 2.0
	End Pit 52 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333174E, 5800840N	level	not levelled
TEST PIT No	53	sheet	1 of 1
datum			
depth metres	material description	tests	sample
0.6	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, black, moist		D 0.1
	FILL: Clayey Sand (SC), medium dense, fine to medium grained, black, moist to wet		0.9
	FILL: Sand (SW), loose to medium dense, fine to medium grained, grey, wet		D 1.0
	FILL: Silty Sand (SM), medium dense, fine to medium grained, black, brown, moist, with sandstone		1.9
2.0		D	2.0
	End Pit 53 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1	333229E, 5800833N	level	not levelled
TEST PIT No	54	sheet	1 of 1
datum			
depth metres	material description	tests	sample
0.6	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, brown, dry to moist		D 0.1
	FILL: Gravelly Silty Sand (SM), medium dense, fine to coarse grained, dark brown, moist to wet, with cobbles to 200mm diameter		0.9
1.0		D	1.0
	becoming medium to coarse grained, grey brown, moist at 1.5m		1.9
2.0		D	2.0
	End Pit 54 at 2m		
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project		
job no	V500-2	date	01.03.02	
excavation method	logged by	Ex-Pioneer Quarry Site		
Tracked Excavator - 12 tonne	D Macleod/S Tacey	Talbot Avenue		
	checked by	Oakleigh		
	G Black			
location: refer figure 1 333277E, 5800826N		level	not levelled	
TEST PIT No 55	sheet 1 of 1	datum		
depth metres	material description	tests	sample	
	FILL: Silty Sand (SM), medium dense, fine to coarse grained, grey, moist, with rubble, brick, concrete pieces, steel, wire, very large concrete piece (at least 2m diameter, protruding into pit)		D	
		0.1		
1.0			0.9	D
			1.0	
2.0		1.9	D	
	End Pit 55 at 2m	2.0		
3.0				
4.0				
Refer to figure 1A for summary of descriptive terms.				
Descriptions are based on visual & tactile assessment unless there are test results.				
tests refer to				
samples refer to D = Disturbed Sample				
groundwater none encountered				

BLACK GEOTECHNICAL PTY LTD		project		
job no	V500-2	date	01.03.02	
excavation method	logged by	Ex-Pioneer Quarry Site		
Tracked Excavator - 12 tonne	D Macleod/S Tacey	Talbot Avenue		
	checked by	Oakleigh		
	G Black			
location: refer figure 1 333326E, 5800821N		level	not levelled	
TEST PIT No 56	sheet 1 of 1	datum		
depth metres	material description	tests	sample	
	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, grey brown, moist becoming medium dense, brown, moist to wet at 0.5m		D	
		0.1		
1.0			0.9	D
			1.0	
1.5				
	FILL: Sandy Clay (CL-CI), very stiff, low to medium plasticity, orange brown, W _s W _p			
1.9				
	FILL: Silty Clay (CH), firm to stiff, high plasticity, grey, W _s >W _p			
2.0			D	
	End Pit 56 at 2m	2.0		
3.0				
4.0				
Refer to figure 1A for summary of descriptive terms.				
Descriptions are based on visual & tactile assessment unless there are test results.				
tests refer to				
samples refer to D = Disturbed Sample				
groundwater none encountered				

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333369E, 5800816N		level	not levelled
TEST PIT No 57	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Sand (SM), medium dense, fine to medium grained, grey brown, dry to moist, with gravel, bricks, rubble, steel, wheels, concrete pieces		D 0.1
1.0			0.9
1.1	FILL: Sandy Clay (CL-Cl), very stiff, low to medium plasticity, grey brown, W _s W _p		D 1.0
2.0			1.9
	End Pit 57 at 2m		D 2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333362E, 5800750N		level	not levelled
TEST PIT No 58	sheet 1 of 1	datum	
depth metres	material description	tests	sample
	FILL: Silty Clay (CI-CH), stiff, medium to high plasticity, orange brown, W _s W _p		D 0.1
0.4	FILL: Gravelly Silty Clay (CI), very stiff, medium plasticity, brown, W _s W _p , with bricks, rubble		0.9
1.0			D 1.0
1.7	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, grey, moist		1.9
2.0	End Pit 58 at 2m		D 2.0
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh
excavation method	logged by D Macleod/S Tacey	
Tracked Excavator - 12 tonne	checked by G Black	
location: refer figure 1 333359E, 5800718N		level not levelled
TEST PIT No 59	sheet 1 of 1	datum

depth metres	material description	tests	sample
0.1	FILL: Gravelly Silty Clay (CL-CI), very stiff, low to medium plasticity, orange brown, W<Wp		D
0.7			0.1
1.0	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp, with bricks & rubble		0.9
			D
			1.0
2.0			1.9
			D
	End Pit 59 at 2m		2.0
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh
excavation method	logged by D Macleod/S Tacey	
Tracked Excavator - 12 tonne	checked by G Black	
location: refer figure 1 333313E, 5800727N		level not levelled
TEST PIT No 60	sheet 1 of 1	datum

depth metres	material description	tests	sample
0.1	FILL: Mixed Sand/Refuse (30/20%), sand is medium dense, fine to medium grained, grey brown, dry to moist, refuse is bricks, rubble, wood, steel, concrete		D
0.9			0.1
1.0			0.9
			D
			1.0
2.0	sand becoming black, odourous at 1.5m		1.9
			D
	End Pit 60 at 2m		2.0
3.0			
4.0			

Refer to figure 1A for summary of descriptive terms.
 Descriptions are based on visual & tactile assessment unless there are test results.
 tests refer to
 samples refer to D = Disturbed Sample
 groundwater none encountered

BLACK GEOTECHNICAL PTY LTD		project		
job no V500-2	date 01.03.02			
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue		
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh		
location: refer figure 1 333311E, 5800766N		level not levelled		
TEST PIT No 61	sheet 1 of 1	datum		
depth metres	material description	tests	sample	
	FILL: Gravelly Silty Clay (CI), very stiff, medium plasticity, brown, W<Wp, with rubble, some bricks		D	
			0.1	
1.0				0.9
				D
			1.0	
2.0			1.9	
			D	
	End Pit 61 at 2m		2.0	
3.0				
4.0				
Refer to figure 1A for summary of descriptive terms.				
Descriptions are based on visual & tactile assessment unless there are test results.				
tests refer to				
samples refer to D = Disturbed Sample				
groundwater none encountered				

BLACK GEOTECHNICAL PTY LTD		project		
job no V500-2	date 01.03.02			
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue		
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh		
location: refer figure 1 333265E, 5800736N		level not levelled		
TEST PIT No 62	sheet 1 of 1	datum		
depth metres	material description	tests	sample	
	FILL: Gravelly Silty Clay (CI), very stiff, medium plasticity, brown, W<Wp, with rubble, brick		D	
			0.1	
1.0				0.9
				D
	FILL: Silty Clay (CH), stiff, high plasticity, grey, W>Wp		1.0	
2.0			1.9	
			D	
	End Pit 62 at 2m		2.0	
3.0				
4.0				
Refer to figure 1A for summary of descriptive terms.				
Descriptions are based on visual & tactile assessment unless there are test results.				
tests refer to				
samples refer to D = Disturbed Sample				
groundwater none encountered				

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333220E, 5800732N		level not levelled	
TEST PIT No 63	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Silty Sand (SM), medium dense, fine to coarse grained, brown, dry, with building rubble, bricks, cobbles, steel		D
0.9			D
1.0			D
1.5	FILL: Gravelly Silty Sand (SM), loose to medium dense, fine to medium grained, grey, dry to moist		
1.9			D
2.0	End Pit 63 at 2m		D
2.0			D
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICAL PTY LTD		project	
job no V500-2	date 01.03.02	Ex-Pioneer Quarry Site	
excavation method	logged by D Macleod/S Tacey	Talbot Avenue	
Tracked Excavator - 12 tonne	checked by G Black	Oakleigh	
location: refer figure 1 333223E, 5800788N		level not levelled	
TEST PIT No 64	sheet 1 of 1	datum	
depth metres	material description	tests	sample
0.1	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, pale brown, dry to moist becoming medium dense, fine to coarse grained, black, moist, trace gravel, rubble at 0.5m		D
0.9			D
1.0			D
1.8	FILL: Sandy Silty Clay (CI-CH), stiff, medium to high plasticity, grey orange brown, W>Wp, with gravel		
1.9			D
2.0	End Pit 64 at 2m		D
2.0			D
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

BLACK GEOTECHNICALS PTY LTD		project	
job no	V500-2	date	01.03.02
excavation method	logged by D Macleod/S Tacey	Ex-Pioneer Quarry Site Talbot Avenue Oakleigh	
Tracked Excavator - 12 tonne	checked by G Black		
location: refer figure 1 333266E, 5800790N		level	not levelled
TEST PIT No	65	sheet	1 of 1
		datum	
depth metres	material description	tests	sample
0.4	FILL: Silty Sand (SM), loose to medium dense, fine to medium grained, grey, dry to moist		D 0.1
1.0	FILL: Gravelly Silty Sand (SM), loose to medium dense, fine to medium grained, moist, trace cobbles, steel, brick		D 0.9
1.8			
2.0	End Pit 65 at 2m		D 1.9
3.0			
4.0			
Refer to figure 1A for summary of descriptive terms.			
Descriptions are based on visual & tactile assessment unless there are test results.			
tests refer to			
samples refer to D = Disturbed Sample			
groundwater none encountered			

**Appendix C:
Soil Boring, Groundwater Well &
LFG Logs**



HLA
 46 Clarendon St
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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB01

PROJECT NUMBER <u>M4008202</u>	DATE <u>19-12-2003</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 8.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 8.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.15m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB01_0.8		1		FILL. Road surface gravel with silt, bricks, large gravel grading into medium grained gravel.	1.20	<p>Cement seal Bentonite seal 50 mm uPVC Blank Casing 0.8mm graded sand 50 mm uPVC Slotted Screen</p>
					2		SAND. Medium grained natural rounded quartz sand with minor gravel sandstone. Becoming medium grained, dark brown to orange, organic rich, slightly moist sand.	2.50	
					3		Sandy CLAY. Grey brown, slightly moist, medium grained with minor clay component.	4.00	
			GB01_4.0	*	4		CLAY. Grey brown, slightly moist. Medium plasticity. Becoming harder and dryer with depth. Cuttings coming up as balls.	5	
					5			6	
					6			7	
			GB01_8.0	*	8		Total Depth: 8.00 m	8.00	

BORING / WELL CONSTRUCTION LOG_JANDAROO.GPJ_HLA_SYD.GDT 02-03-04



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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB02

PROJECT NUMBER <u>M4008202</u>	DATE <u>19-12-2003</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 8.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 8.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.25m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB02_1.0	*	0.25	TOPSOIL.		0.25	Cement seal
					1.30	SAND. Dark brown to black with organic rich content.			Bentonite seal
					2.0	SAND. Orange medium grained, moist to wet with occasional fine grained quartz gravel.			50 mm uPVC Blank Casing
					3.0	Grading to brown slightly moist.			
					4.0				
					5.0	0.8mm graded sand			50 mm uPVC Slotted Screen
			GB02_5.0		5.50	Becoming medium to coarse grained sand with increasing depth.			
					6.0	Sandy CLAY. Grey brown, moderate plasticity, moist.			
					7.0	Moisture decreasing.			
			GB02_8.0	*	8.00	Total Depth: 8.00 m			

BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG GB03

PROJECT NUMBER <u>M4008202</u>	DATE <u>19-12-2003</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 7.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 7.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.3m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0.50		FILL. Gravelly sand, loose with minor brick.		
					1.00		FILL. Medium grained sand, brown, dry, loose with rounded to medium to fine gravel.		
			GB03_2.0	*	2.00		FILL. Dark brown, medium grained, slightly moist, occasional gravel and wood inclusions.		
					3.00		FILL. Grey brown, sandy clay / clayey sand, moist, minor brick chips.		
					4.00		SAND. Grey white, medium to coarse grained, wet to moist.		
			GB03_4.8	*	5.00				
					6.00		Sandy CLAY. Grey brown, moist with natural appearance.		
			GB03_7.0	*	7.00		Total Depth: 7.00 m		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG GB04

PROJECT NUMBER <u>M4008202</u>	DATE <u>06-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 0.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0.5m - 2.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 2.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>M Charge</u>	
COMMENTS <u>Two attempts met refusal at 0.8m.</u>	

PIID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
0.5					0.5	[Cross-hatched pattern]	FILL. Grass surface. Red brown, sandy fill with gravel, minor brick.		[Well diagram showing top section with labels: Cement seal, 50 mm uPVC Blank Casing, Bentonite seal]
1		✓	GB04_1.5_QC03	*	1.0	[Cross-hatched pattern]	FILL. Dark grey, sandy clay, very moist, becoming blacker with increasing depth.	1.00	[Well diagram showing middle section with label: 0.8mm graded sand, 50 mm uPVC Slotted Screen]
0.8					2.80	[Cross-hatched pattern]	FILL. Slimes. Grey, fine sandy silt, saturated.	2.80	[Well diagram showing bottom section with label: Cave in]
					4.00	[Cross-hatched pattern]	Total Depth: 4.00 m	4.00	

BORING / WELL CONSTRUCTION LOG JANDARCO.GPJ HLA_SYD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG GB05

PROJECT NUMBER	M4008202	DATE	06-01-2004
PROJECT NAME	Jandaro Pty Ltd	BLANK	0.0m - 0.5m
LOCATION	Talbot Avenue, Oakleigh	SCREEN	0.5m - 2.5m
DRILLING METHOD	Solid Auger	GRAVEL PACK	0.4m - 2.5m
SAMPLING METHOD	Grab	SANITARY SEAL/BENTONITE	0.2m - 0.4m
SURFACE ELEVATION		STABILISED WATER LEVEL	
WELL HEAD/TOC	0 m	GROUND WATER ELEVATION	
LOGGED BY	M Charge		
COMMENTS	First attempt met refusal at 2.0m.		

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
1.2			GB05_1.0	*	1		FILL. Grass surface. Mid brown sandy gravel, slightly moist firm fill material.	1.00	<p>Cement seal 50 mm uPVC Blank Casing Bentonite seal</p> <p>0.8mm graded sand 50 mm uPVC Slotted Screen</p> <p>Cave in</p>
					2		FILL. Dark grey sandy clay, moist, with minor gravel fragments.	2.00	
					3		FILL. Slimes. Grey, fine sandy silt, very soft, very moist / wet saturated material.		
1.8			GB05_4.0	*	4		Total Depth: 4.00 m	4.00	

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB06

PROJECT NUMBER M4008202 DATE 06-01-2004
 PROJECT NAME Jandaro Ply Ltd BLANK 0.0m - 0.5m
 LOCATION Talbot Avenue, Oakleigh SCREEN 0.5m - 5.5m
 DRILLING METHOD Solid Auger GRAVEL PACK 0.4m - 5.5m
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE 0.2m - 0.4m
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC 0 m GROUND WATER ELEVATION _____
 LOGGED BY M Charge
 COMMENTS First attempt met refusal at 0.3m.

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
0.6					1		FILL. Grass surface. Mixture of gravel and medium grained sand, dry, soft.	1.50	
2.4			GB06_2.5		2		SAND. Fine grained, soft, dry, minor gravel.	3.00	
3.8					3		SAND. Light brown, coarse to medium grained, slightly moist.	4.50	
2.5					4		SAND. Pale / medium brown, medium to coarse grained, moist.	6.50	
2.2					5				
2.8			GB06_6.0	*	6		Very moist.		
							Total Depth: 6.50 m		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04

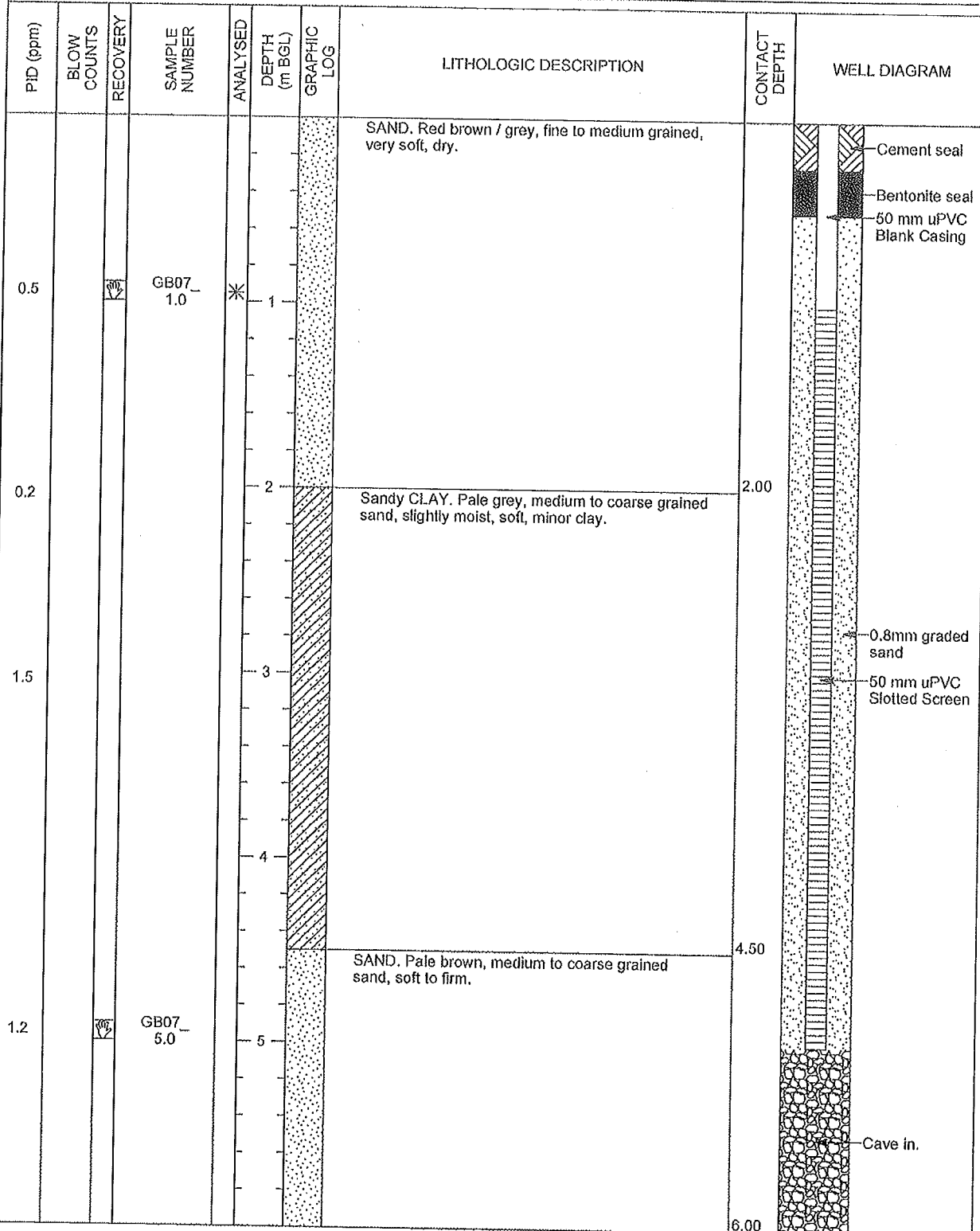


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South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB07

PROJECT NUMBER <u>M4008202</u>	DATE <u>06-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 5.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 5.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.25m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>M Charge</u>	

COMMENTS _____



Total Depth: 6.00 m



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BORING / WELL CONSTRUCTION LOG GB08

PROJECT NUMBER <u>M4008202</u>	DATE <u>07-01-2003</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 6.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 6.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.25m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB08_0.8		0.8		Light brown, fine grained, dry, loose, minor rootlets, becoming darker with depth.		<p>Cement seal</p> <p>Bentonite seal</p> <p>50 mm uPVC Blank Casing</p> <p>0.8mm graded sand</p> <p>50 mm uPVC Slotted Screen</p> <p>Sand at bottom</p>
					2.0				
					3.5				
			GB08_4.0		4.0		SANDY Clay. Orange brown, medium to coarse grained, minor clay.	3.50	
					4.0		SANDY Clay. Red brown, medium to coarse grained, slightly moist.	4.00	
			GB08_5.5	*	5.5		SANDY Clay. Creamy yellow, coarse grained with fine grained quartz gravel, slightly moist becoming wet at the base.	5.00	
			GB08_6.5		6.5		Becoming wet at base.	6.50	
					6.5		Total Depth: 6.50 m		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB09

PROJECT NUMBER <u>M4008202</u>	DATE <u>07-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 6.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 6.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB09_0.8		0.8	[Dotted pattern]	SAND. Brown, fine grained, losse, dry.		<p> Cement seal Bentonite seal 50 mm uPVC Blank Casing 0.8mm graded sand 50 mm uPVC Slotted Screen </p>
					1.0	[Dotted pattern]	Organic rich.		
			GB09_2.5	*	2.5	[Diagonal hatching]	SAND. Light cream becoming dark brown, well graded, dry. SANDY Clay. Brown sand with grey mottled clay, well graded,	2.00 2.20	
					3.0	[Diagonal hatching]			
					4.0	[Diagonal hatching]	Sandy CLAY. Brown, low plasticity, slightly moist.	3.50	
			GB09_5.5	*	5.5	[Diagonal hatching]	Sandy CLAY. Orange, medium to coarse grained with fine grained quartz gravel, slightly moist.	5.00	
					6.0		Total Depth: 6.00 m	6.00	

BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB10

PROJECT NUMBER <u>M4008202</u>	DATE <u>07-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 5.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 5.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS <u>First attempt met refusal at 1.2m.</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB10_0.8		0.8		SAND. Light brown, fine grained, loose, dry.		<p>Cement seal Bentonite seal 50 mm uPVC Blank Casing 0.8mm graded sand 50 mm uPVC Slotted Screen Sand at bottom Cave in</p>
					1.2		Dark organic rich.		
			GB10_3.0	*	3.0		Sandy CLAY. Grey with orange mottling, moderate plasticity, firm.	3.00	
					4.50		Sandy CLAY. Grey band becoming orange. Slightly moist.	4.50	
					5.00		Sandy CLAY. Orange, low plasticity.	5.00	
			GB10_5.5	*	5.5		Moist becoming wet (5.5m - 6.0m)		
					6.00		Total Depth: 6.00 m	6.00	

BORING / WELL CONSTRUCTION LOG JANDAROC.GPJ HLA_SYD.GDT 02-03-04



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 46 Clarendon St
 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB11

PROJECT NUMBER <u>M4008202</u>	DATE <u>07-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 6.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 6.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS <u>First attempt refused at 4.0m.</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0		FILL. Silty sand, loose, dry with fragments of construction, wood and demolition material, glass.		<p>Cement seal Bentonite seal 50 mm uPVC Blank Casing</p>
			GB11_2.5 QC05_07/01/04 QC05T_07/01/04	*	2.5		FILL. Sand with clay balls, dry.	2.00	
					3.0		Sandy CLAY. Creamy brown, well graded, moist.	3.00	
					4.5		Sandy CLAY. Grey brown, medium plasticity, stiff.	4.50	
			GB11_5.0	*	5.0		Alternating bands of sandy clay / clayey sand.		
					6.0		Total Depth: 6.00 m	6.00	<p>0.8mm graded sand 50 mm uPVC Slotted Screen</p>

BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ_HLA_SYD.GDT 02-03-04



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46 Clarendon St
South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB12

PROJECT NUMBER M4008202

DATE 07-01-2004

PROJECT NAME Jandaro Ply Ltd

BLANK 0.0m - 1.0m

LOCATION Talbot Avenue, Oakleigh

SCREEN 1.0m - 6.5m

DRILLING METHOD Solid Auger

GRAVEL PACK 0.5m - 6.5m

SAMPLING METHOD Grab

SANITARY SEAL/BENTONITE 0.2m - 0.5m

SURFACE ELEVATION

STABILISED WATER LEVEL

WELL HEAD/TOC 0m

GROUND WATER ELEVATION

LOGGED BY P Stapleton

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB12_0.9	*	0.9		FILL. Black, Silty sand, loose, dry, with fragments of metal, slag / ash, minor sandstone gravel.		
			GB12_1.5		1.5		Grading to fine grained black sand with few inclusions.		
			GB12_3.1	*	3.1		Clayey SAND. Creamy brown, well graded, slightly moist.	3.00	
					5.0		Sandy CLAY. Brown, moderate plasticity, stiff. Grading into clayey SAND from 6.5m.	5.00	
					7.0		Becoming moist at 7.0m.		
					7.30		Total Depth: 7.30 m	7.30	

BORING /WELL CONSTRUCTION LOG - JANDAROO.GPJ_HLA_SYD.GDI 02-03-04



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South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB13

PROJECT NUMBER <u>M4008202</u>	DATE <u>23-12-2003</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 0.7m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0.7m - 2.7m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 2.7m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS <u>First attempt refused at 1.5m.</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
20			GB13_0.5 QC02 23/12/03	*	0.5		FILL. Black, silty sand, dry. Minor demolition and construction fragments. Refusal / EOH at 3.0m.		
29			GB13_1.8		1.8		Grading to black sand, minor silt, limited inclusions no odours.		
					2.7		Band of sandstone gravels at 2.7m, becoming moist.		
					2.9		Drilling becoming hard at 2.9m.		
					3.0		Total Depth: 3.00 m	3.00	

BORING / WELL CONSTRUCTION LOG - JANDAROD.GPJ HLA_SYD.GDT 02-09-04



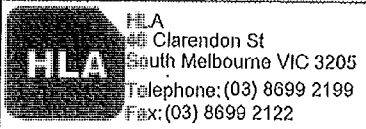
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 49 Clarendon St
 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB14

PROJECT NUMBER M4008202	DATE 22-12-2003
PROJECT NAME Jandaro Pty Ltd	BLANK 0.0m - 1.0m
LOCATION Talbot Avenue, Oakleigh	SCREEN 1.0m - 6.5m
DRILLING METHOD Solid Auger	GRAVEL PACK 0.5m - 6.5m
SAMPLING METHOD Grab	SANITARY SEAL/BENTONITE 0.2m - 0.5m
SURFACE ELEVATION	STABILISED WATER LEVEL
WELL HEAD/TOC 0 m	GROUND WATER ELEVATION
LOGGED BY P Stapleton	
COMMENTS Hole left open for 2 hours.	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
85		Y	GB14_1.0		1		FILL. Dark grey, silty sandy gravel, moist, strong anaerobic odour possibly including Hydrocarbons. Fragments of demolition and construction fragments.		
108		Y	GB14_1.5 QC01 22/12/03	*	1.5				
3.5		Y	GB14_2.2		2		CLAY. Cream brown, low plasticity, soft, moist.	2.00	
		Y	GB14_3.0	*	3		Silty SAND. White, medium to fine grained.	3.00	
					4		Sandy CLAY. Orange, low plasticity, soft, slightly moist.	4.20	
					5				
					6				
					7		Moisture increasing with depth. Sand component increasing with depth - becoming coarse grained.		
					7.50		Clayey SAND, coarse grained with rounded fine grained quartz gravel.	7.50	
					8				
					9		Sandler with depth. Moist to wet 8.5m - 9.0m.	9.00	
					9		Total Depth: 9.00 m		

BORING / WELL CONSTRUCTION LOG_JANDAROO.GPJ_HLA_SYD.GDT_02-03-04



BORING / WELL CONSTRUCTION LOG GB15

PROJECT NUMBER M4008202 DATE 22-12-2003
 PROJECT NAME Jandaro Ply Ltd BLANK 0.0m - 1.0m
 LOCATION Talbot Avenue, Oakleigh SCREEN 1.0m - 6.5m
 DRILLING METHOD Solid Auger GRAVEL PACK 0.5m - 6.5m
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE 0.2m - 0.5m
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC 0 m GROUND WATER ELEVATION _____
 LOGGED BY P Stapleton
 COMMENTS PID possibly affected by moisture.

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
50			GB15_1.0		1	[Cross-hatched pattern]	FILL. Dark grey, silty sand, slightly moist, organic rich, anaerobic.		
130		GB15_1.7	*	2	[Cross-hatched pattern]	Possibly VOC odour.			
3		GB15_2.8		3	[Dotted pattern]	SAND. Grey creamy, medium grained, loose, dry. Becoming dark grey with clay pockets, slightly moist.	2.50		
				4	[Dotted pattern]				
				5	[Dotted pattern]				
				6	[Diagonal hatched pattern]	Sandy CLAY. Brown grey with orange bading, low plasticity, firm slightly moist.	5.50		
		GB15_7.0	*	7	[Diagonal hatched pattern]	Becoming stiffer and harder at 7m.			
						Total Depth: 7.70 m	7.70		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-05-04



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46 Clarendon St
South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB16

PROJECT NUMBER <u>M4008202</u>	DATE <u>22-12-2003</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 6.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 6.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.15m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0				
			GB16_2.0		2.0		SAND. Dark grey to grey, fine to medium grained, loose, dry, no odour.		
			GB16_2.8		2.60		SAND. Creamy brown, loose, with sandstone gravel, no odour.		
					3.30		Gravelly SAND. Orange brown, loose		
					4.50		SAND. Brown, medium grained with gravel, dry with minor white clay.		
					6.00		Clayey SAND. Orange, compacted alternating bands of sand and clayey SAND.		
			GB16_6.5	*	6.5		Sandy CLAY. Orange white, moderate plasticity, stiff, dry.		
					7.00		Total Depth: 7.00 m		

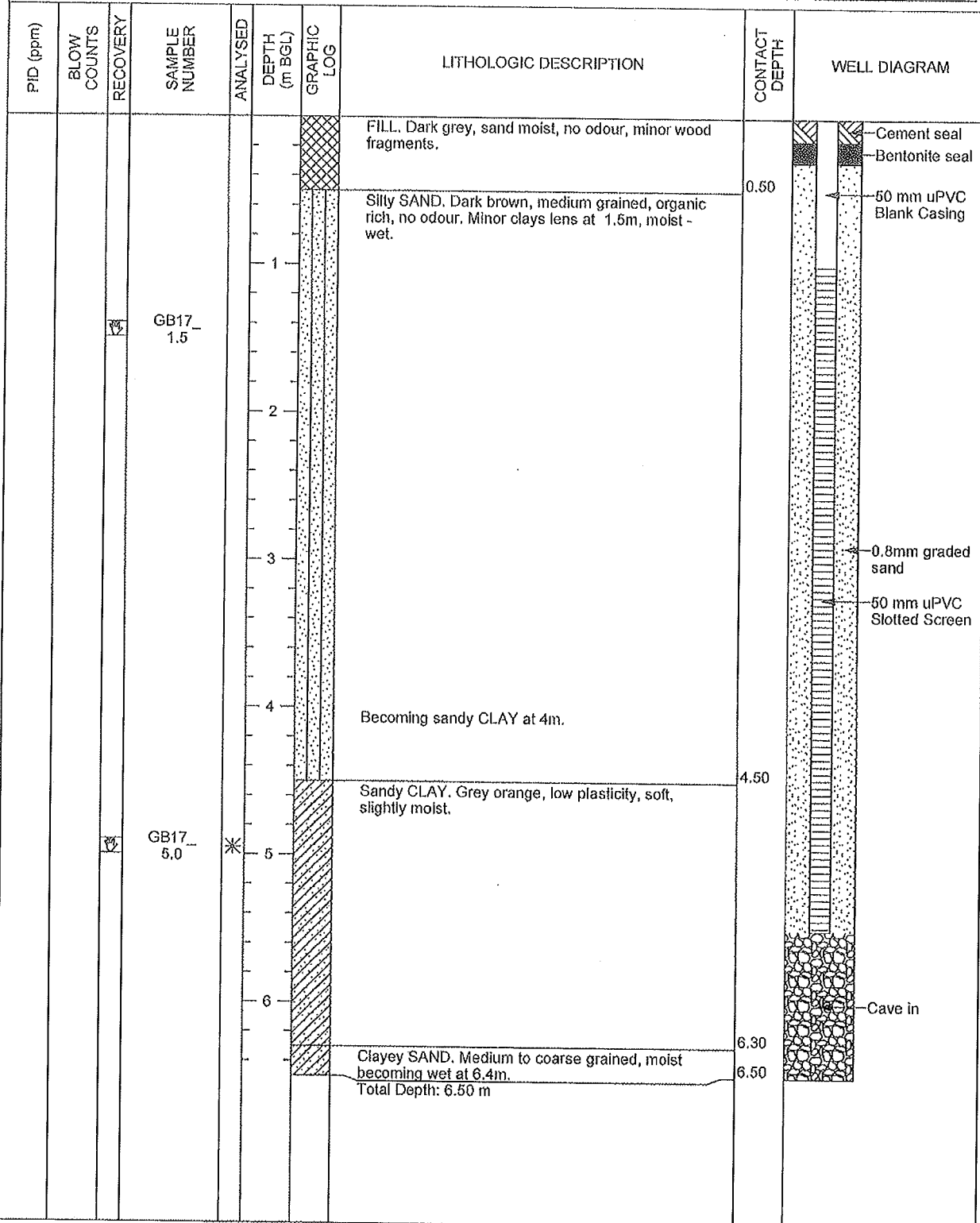
BORING / WELL CONSTRUCTION LOG - JANDAROC.GPJ HLA_SYD.GDT 02-03-04



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 46 Clarendon St
 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB17

PROJECT NUMBER <u>M4008202</u>	DATE <u>22-12-2003</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 5.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.3m - 5.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.15m - 0.3m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	



BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ - HLA_SYD.GDT - 02-03-04



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 46 Clarendon St
 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB18

PROJECT NUMBER <u>M4008202</u>	DATE <u>22-12-2003</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 5.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 5.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0.0		FILL, Sandy clay.	0.0	<p>Cement seal Bentonite seal 50 mm uPVC Blank Casing 0.8mm graded sand 50 mm uPVC Slotted Screen Cave In</p>
					1.0		SAND. Brown grey, medium grained, loose.	1.00	
					1.50		Sandy CLAY. Low plasticity, soft, moist.	1.50	
					2.0				
					3.0				
					3.50		Clayey SAND. Medium to coarse grained.	3.50	
					4.0		Sandy CLAY. Orange, low plasticity, moist.	4.00	
					5.0				
			GB18 5.5	*	5.5		Moisture increasing		
					5.80		Clayey SAND. Coarse grained, moist. EOH 6m.	5.80	
					6.00		Total Depth: 6.00 m	6.00	

BORING / WELL CONSTRUCTION LOG - JANDARCO.GPJ_HLA_SYD.GDT 02-03-04



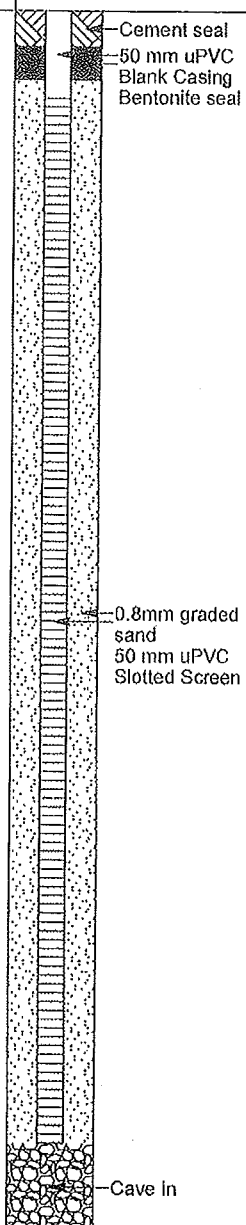
HLA
46 Clarendon St
South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB19

PROJECT NUMBER <u>M4008202</u>	DATE <u>06-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 0.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0.5m - 6.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 6.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>M Charge</u>	

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
							FILL. Surface grass. Red Brown, silty clayey SAND, slightly moist, some organic fragments.		
24.5					1		CLAY. Grey brown to red brown, slightly moist, no odours.	1.00	
34.5					2				
82.1		✓	GB19-2.5	*	3		Sandy CLAY. Soft, slightly moist.	3.00	
62					4		Clayey SAND. Grey, medium grained sand, soft. Increasing moisture with depth.	4.00	
101		✓	GB19-5.5	*	5		Clayey SAND. Orange brown, firm, dry, slightly moist.	5.50	
					6				
					6.50		Clayey SAND. Orange brown, medium to coarse grained, moist to very moist.	6.50	
					7		Total Depth: 7.00 m	7.00	



BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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46 Clarendon St
South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB20

PROJECT NUMBER <u>M4008202</u>	DATE <u>06-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 6.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.6m - 6.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.35m - 0.6m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>M Charge</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
21.2		✓	GB20_1.0	*	1		SAND. Brown, fine grained, dry, grass surface.	1.00	<p>Cement seal</p> <p>Bentonite seal 50 mm uPVC Blank Casing</p> <p>0.8mm graded sand 50 mm uPVC Slotted Screen</p>
80.4		✓	GB20_2.5	*	2		Clayey SAND. Orange brown, firm, slightly moist.	2.50	
67					3		Sandy CLAY. Sandy clay lenses, slightly moist.	3.50	
					4		Clayey SAND, moist.	5.00	
22.1					5		Clayey SAND Grey, moist, minor clay. EOH 6.5m	6.50	
15		✓	GB20_6.0	*	6		Total Depth: 6.50 m		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ_HLA_SYD.GDT 02-03-04



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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB21

PROJECT NUMBER M4008202	DATE 06-01-2004
PROJECT NAME Jandaro Pty Ltd	BLANK 0.0m - 0.5m
LOCATION Talbot Avenue, Oakleigh	SCREEN 0.6m - 2.0m
DRILLING METHOD Solid Auger	GRAVEL PACK 0.4m - 2.0m
SAMPLING METHOD Grab	SANITARY SEAL/BENTONITE 0.15m - 0.4m
SURFACE ELEVATION	STABILISED WATER LEVEL
WELL HEAD/TOC 0 m	GROUND WATER ELEVATION
LOGGED BY M Charge	

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					1		SAND. Soft sandy gravel.	1.00	
3.5			GB21-1.5	*	2		SAND: Black, medium grained, moist, soft, minor gravel fragments.	2.00	
2.5					3		FILL. Slimes. Grey, fine sandy silt, very soft, very moist / wet saturated material. Minor sandy gravel fragments.		
1.8					4				
1.7					5				
					6				
2.2			GB21-7.0	*	7				
					7.50		Material wrapped on auger. Total Depth: 7.50 m		

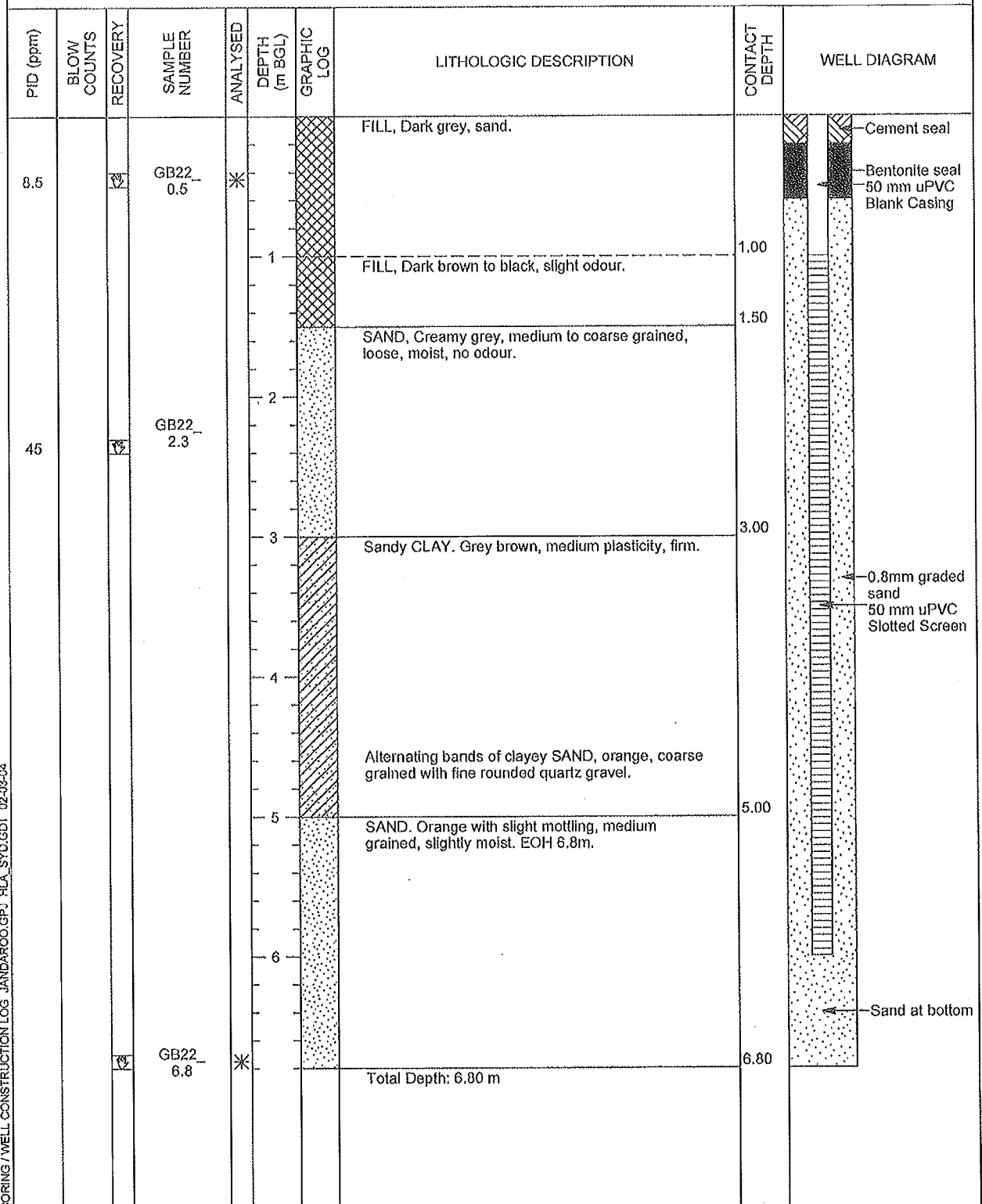
BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ - HLA - SYD.GDT - 02-05-04



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 46 Clarendon St
 South Melbourne VIC 3205
 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB22

PROJECT NUMBER	M4008202	DATE	07-01-2004
PROJECT NAME	Jandaro Ply Ltd	BLANK	0.0m - 1.0m
LOCATION	Talbot Avenue, Oakleigh	SCREEN	1.0m - 6.0m
DRILLING METHOD	Solid Auger	GRAVEL PACK	0.6m - 6.0m
SAMPLING METHOD	Grab	SANITARY SEAL/BENTONITE	0.2m - 0.6m
SURFACE ELEVATION		STABILISED WATER LEVEL	
WELL HEAD/TOC	0 m	GROUND WATER ELEVATION	
LOGGED BY	P Stapleton		
COMMENTS			



BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ, HLA_SYD.GDT 02-03-04



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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB23

PROJECT NUMBER M4008202 DATE 07-01-2004
 PROJECT NAME Jandaro Pty Ltd BLANK 0.0m - 1.0m
 LOCATION Talbot Avenue, Oakleigh SCREEN 1.0m - 3.50m
 DRILLING METHOD Solid Auger GRAVEL PACK 0.5m - 3.5m
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE 0.3m - 0.5m
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC 0 m GROUND WATER ELEVATION _____
 LOGGED BY P Stapleton

COMMENTS PID reading erratically - PID measurements estimates only.

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
12			GB23_0.6	*	0.50		FILL. Black, medium to coarse grained sand.	0.50	
			GB23_1.5	*	1.50		FILL. Mixed orange clay.		
40			GB23_1.9 QC04_07/01/04 QC04T_07/01/04	** ** **	1.90		FILL. Silty clay with degraded wood matter, plastic and foam inclusions, soft, moist, slight anaerobic odour.	1.90	
				*	3.00		FILL. Black, silty, soft, moist to wet.	3.00	
				*	3.80		Total Depth: 3.80 m	3.80	

BORING / WELL CONSTRUCTION LOG JANDAROC.GPJ HLA_SYD.GDT 02-03-04



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 46 Clarendon St
 South Melbourne VIC 3205
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BORING / WELL CONSTRUCTION LOG GB24

PROJECT NUMBER M4008202 DATE 07-01-2004
 PROJECT NAME Jandaro Pty Ltd BLANK 0.0m - 1.0m
 LOCATION Talbot Avenue, Oakleigh SCREEN 1.0m - 4.0m
 DRILLING METHOD Solid Auger GRAVEL PACK 0.5m - 4.0m
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE 0.3m - 0.5m
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC 0 m GROUND WATER ELEVATION _____
 LOGGED BY P Stapleton
 COMMENTS No PID measurements taken due to moisture affected instrument readings.

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB24_1.0	*	1		FILL. Brown black, sand, well graded, loose,.	1.00	<p>Cement seal Bentonite seal 50 mm uPVC Blank Casing 0.8mm graded sand 50 mm uPVC Slotted Screen Sand at bottom Cave in</p>
					2		FILL. Black, medium grained sand, loose, with fragments of plastic, no odour. (Foundary sands?)		
					3		With coarse grained sandstone gravels, hard drilling.	3.00	
			GB24_4.0	*	4		With slag ash gravel.		
					5		Hard drilling and becoming moist at 4.8m		
					5.50		Cuttings bringing up pastic and steel, wel. Refusal on waste at 5.5m. Total Depth: 5.50 m	5.50	

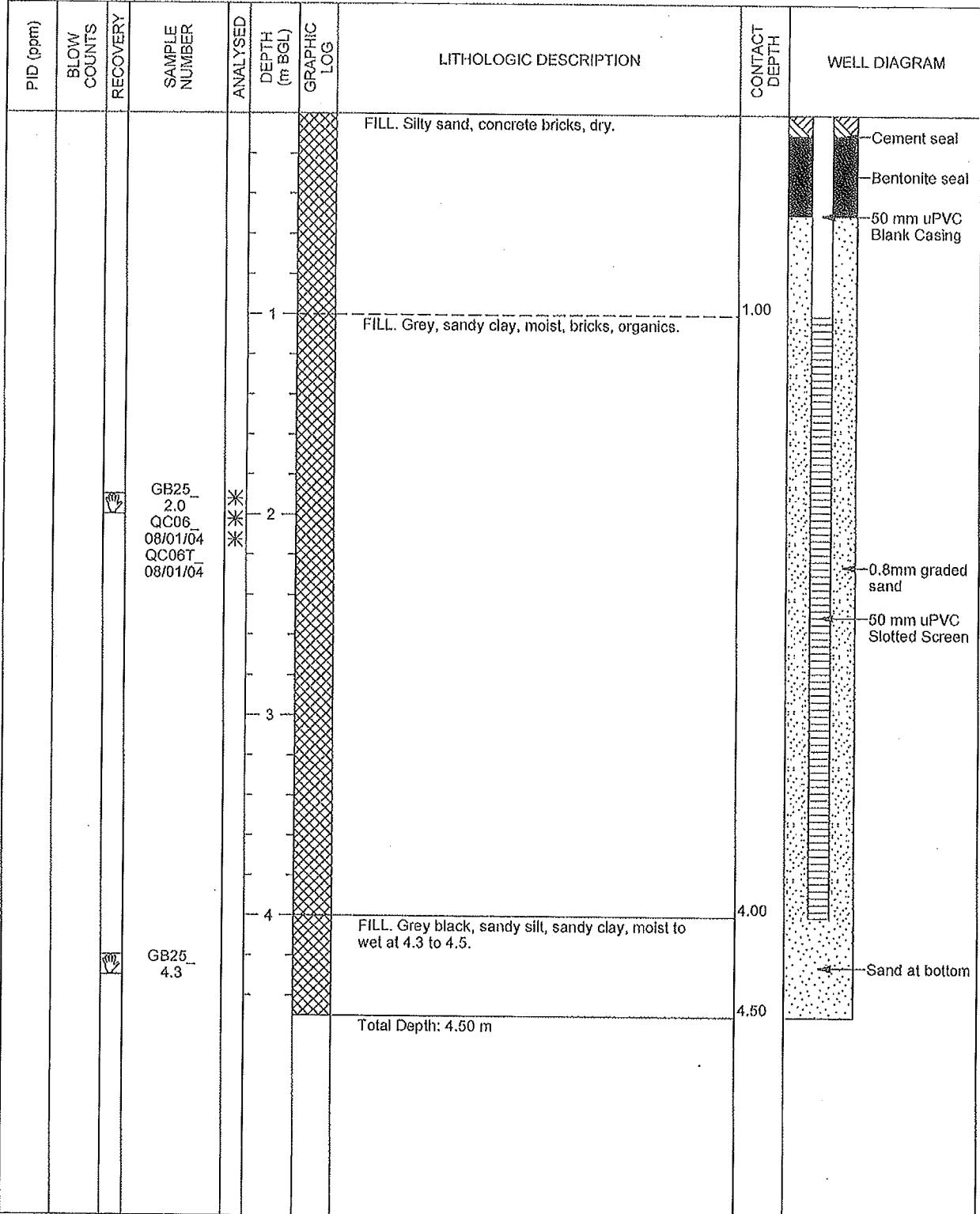
BORING / WELL CONSTRUCTION LOG JANDAROC.GPJ HLA_SYD.GDT 02-03-04



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 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB25

PROJECT NUMBER <u>M4009202</u>	DATE <u>08-01-2004</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 4.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 4.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS <u>Refusal at 1m on first attempt</u>	



BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG GB26

PROJECT NUMBER <u>M4008202</u>	DATE <u>08-01-2004</u>
PROJECT NAME <u>Jandaro Ply Ltd</u>	BLANK <u>0.0m - 1.0m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>1.0m - 2.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.5m - 2.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.3m - 0.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS <u>Refusal at 1.5m on first attempt</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB26 1.2	*	1		FILL. Dark grey silty sand, bricks, concrete, fabric, slag ash, metal, gravels.		
					2		FILL. Silty sand, black, loose.	2.00	
					3		FILL Slimes. Light brown / grey, fine grained silty sands, becoming finer grained towards 4m, grey, wet.	3.00	
					4		Total Depth: 4.00 m	4.00	

BORING / WELL CONSTRUCTION LOG JANDARCO.GPJ HLA_SYD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG GB27

PROJECT NUMBER <u>M4008202</u>	DATE <u>08-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 0.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0.5m - 2.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 2.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.15m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB27_0.5		0.50		FILL. Sand, gravel, concrete, brick, loose, dry.		
							FILL. Grey brown sand, soft, slightly moist.		
					1				
					2		Rounded gravels and wood fragments,		
			GB27_2.5	*					
					3		Becoming moist at 3m.		
			GB27_3.3	*	3.30		FILL Siltes. Light brown, fine grained silty sands, wet.		
					4				
					4.00		Total Depth: 4.00 m		

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-09-04



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BORING / WELL CONSTRUCTION LOG GB28

PROJECT NUMBER M4008202

DATE 08-01-2004

PROJECT NAME Jandaroo Pty Ltd

BLANK 0.0m - 0.5m

LOCATION Talbot Avenue, Oakleigh

SCREEN 0.5m - 3.0m

DRILLING METHOD Solid Auger

GRAVEL PACK 0.4m - 2.5m

SAMPLING METHOD Grab

SANITARY SEAL/BENTONITE 0.2m - 0.4m

SURFACE ELEVATION _____

STABILISED WATER LEVEL _____

WELL HEAD/TOC 0 m

GROUND WATER ELEVATION _____

LOGGED BY P Stapleton

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			GB28 1.0	*	1		FILL. Sand, clay, bricks, concrete, light grey silty gravels, dry.	0.50	
					2		FILL. Silty clay with gravels,		
					3		Hard drilling through gravels to 3.2m.		
					3.20		FILL. Slimes, fine grained silty sand, wet.	3.20	
					3.30		Total Depth: 3.30 m	3.30	

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT. 02-03-04



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BORING / WELL CONSTRUCTION LOG GB29

PROJECT NUMBER M4008202 DATE 08-01-2004
 PROJECT NAME Jandaro Pty Ltd BLANK 0.0m - 0.5m
 LOCATION Talbot Avenue, Oakleigh SCREEN 0.5m - 3.0m
 DRILLING METHOD Solid Auger GRAVEL PACK 0.4m - 2.5m
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE 0.2m - 0.4m
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC 0m GROUND WATER ELEVATION _____
 LOGGED BY P Stapleton
 COMMENTS No soil samples collected. Refusal at 0.7m on first attempt.

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					1		FILL. Concrete, bricks, sand, topsoil, fragments of hardened resin, glass, dry. Steel pins and wood from 1m.		
					2		Silty CLAY. With gravels.	1.00	
					3		FILL Slimes. Grey, fine sandy silt, very soft, very moist / wet saturated material.	3.00	
							Total Depth: 3.50 m	3.50	

BORING / WELL CONSTRUCTION LOG - JANDAROO.GPJ HLA_SYD.GDT 02-08-04



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BORING / WELL CONSTRUCTION LOG GB30

PROJECT NUMBER <u>M4008202</u>	DATE <u>08-01-2004</u>
PROJECT NAME <u>Jandaro Pty Ltd</u>	BLANK <u>0.0m - 0.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0.5m - 2.0m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.4m - 2.0m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.2m - 0.4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					1		FILL. Black foundary sands, loose with steel fragments.		
			GB30 2.0 QC07 08/01/04 QC07T 08/01/04	** ** **	2		FILL. Slimes. Grey, brown, smooth clay, wet.	2.20	
					3		Total Depth: 3.00 m	3.00	

BORING / WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-02-04



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Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG GB31

PROJECT NUMBER	M4008202	DATE	04-02-2004
PROJECT NAME	Jandaro Ply Ltd	BLANK	0.0m - 1.0m
LOCATION	Talbot Avenue, Oakleigh	SCREEN	3.0m - 4.0m
DRILLING METHOD	Soild Auger	GRAVEL PACK	2.9m - 4.0m
SAMPLING METHOD	Grab	SANITARY SEAL/BENTONITE	2.7m - 2.9m
SURFACE ELEVATION		STABILISED WATER LEVEL	
WELL HEAD/TOC	0 m	GROUND WATER ELEVATION	
LOGGED BY	L. Townsend		

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0.50	[Cross-hatched pattern]	CLAY. Brown/yellow. Dry - slightly moist, mod plasticity.		<p>50 mm uPVC Blank Casing</p> <p>Cement seal</p> <p>Bentonite seal</p> <p>0.8mm graded sand 50 mm uPVC Slotted Screen</p>
					1.00	[Cross-hatched pattern]	Sandy CLAY. Dark grey /brown, wet , medium coarse sand, mod plasticity clay.		
					3.00	[Cross-hatched pattern]	SAND. Green / grey, moist to wet, medium grained sand.		
					4.00		Leachate odour with metal and fill material. Almost auger refusal @ 4m.		

BORING /WELL CONSTRUCTION LOG JANDAROO.GPJ HLA_SYD.GDT 02-03-04

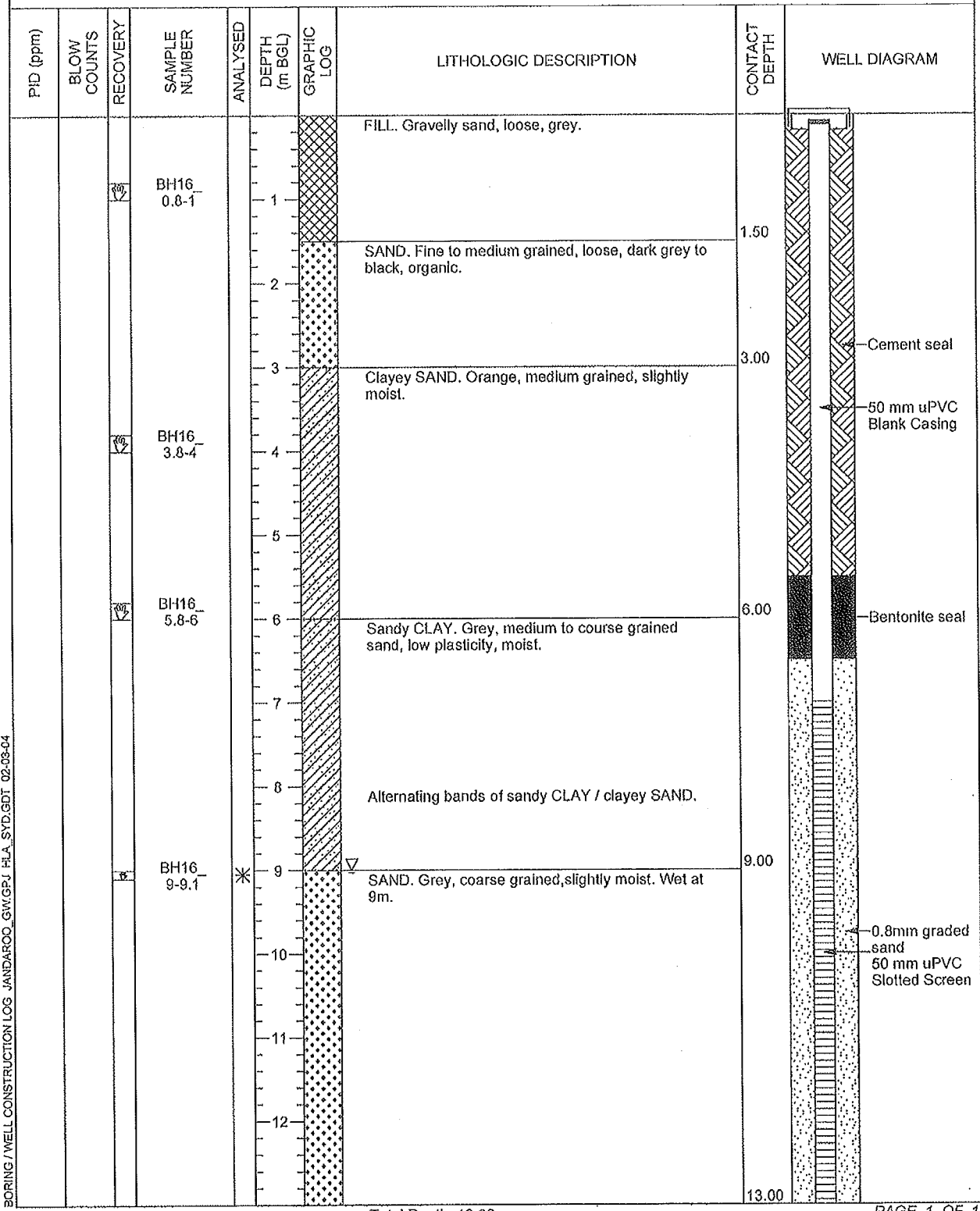
Total Depth: 4.00 m



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Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH16

PROJECT NUMBER <u>M4005202</u>	DATE <u>27-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 7m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>7m - 13m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>6.5m - 13m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>5.5m - 6.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>E Holgate</u>	
COMMENTS _____	



BORING / WELL CONSTRUCTION LOG - JANDAROC_GW.GPJ HLA_SYD.GDI 02-03-04

Total Depth: 13.00 m

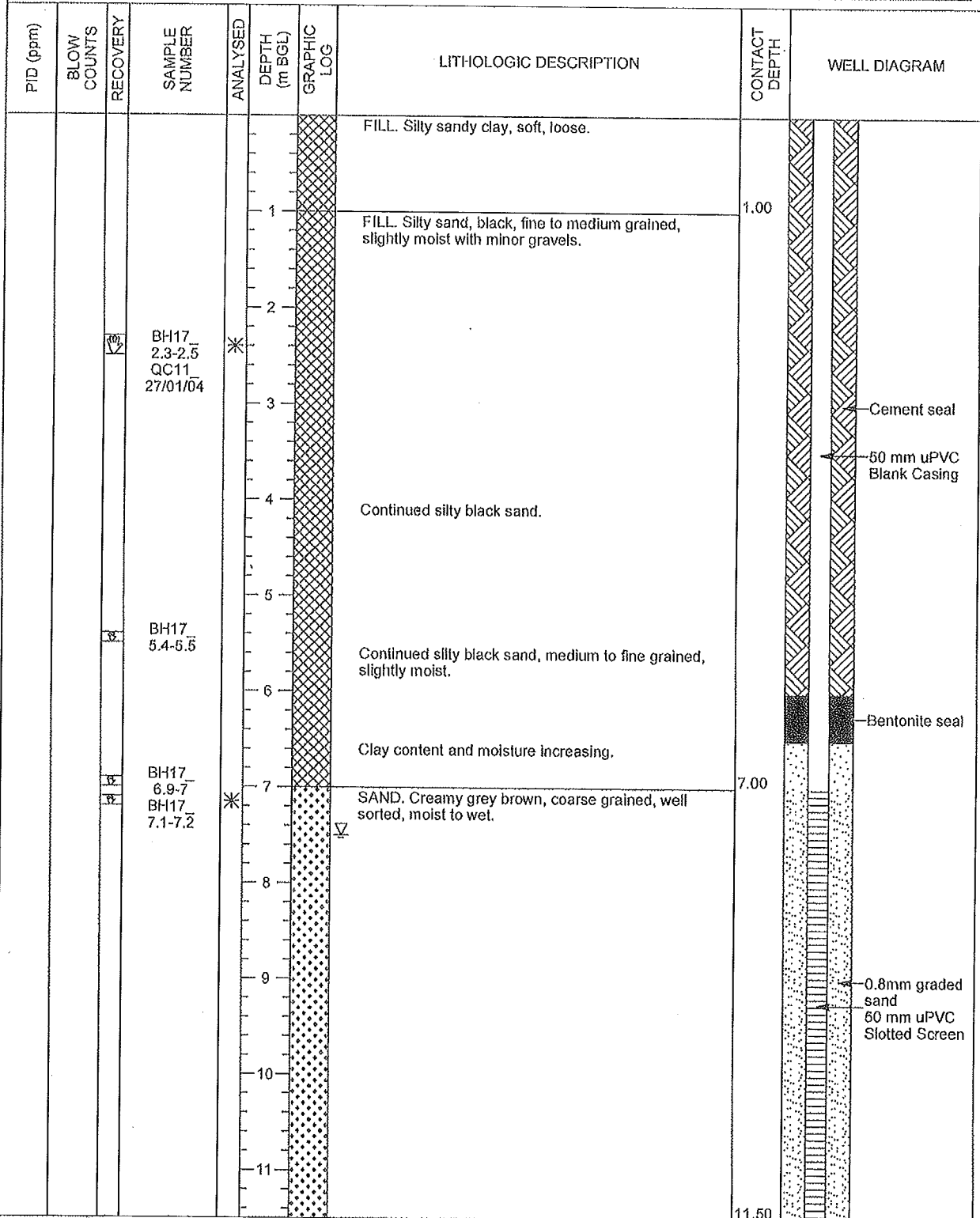


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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH17

PROJECT NUMBER <u>M4005202</u>	DATE <u>27-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 7m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>7m - 11.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>6.5m - 11.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>6m - 6.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>E Holgate</u>	

COMMENTS _____



BORING / WELL CONSTRUCTION LOG JANDAROO_QW.GPJ HLA_SYD.GDT 02-03-04

Total Depth: 11.50 m

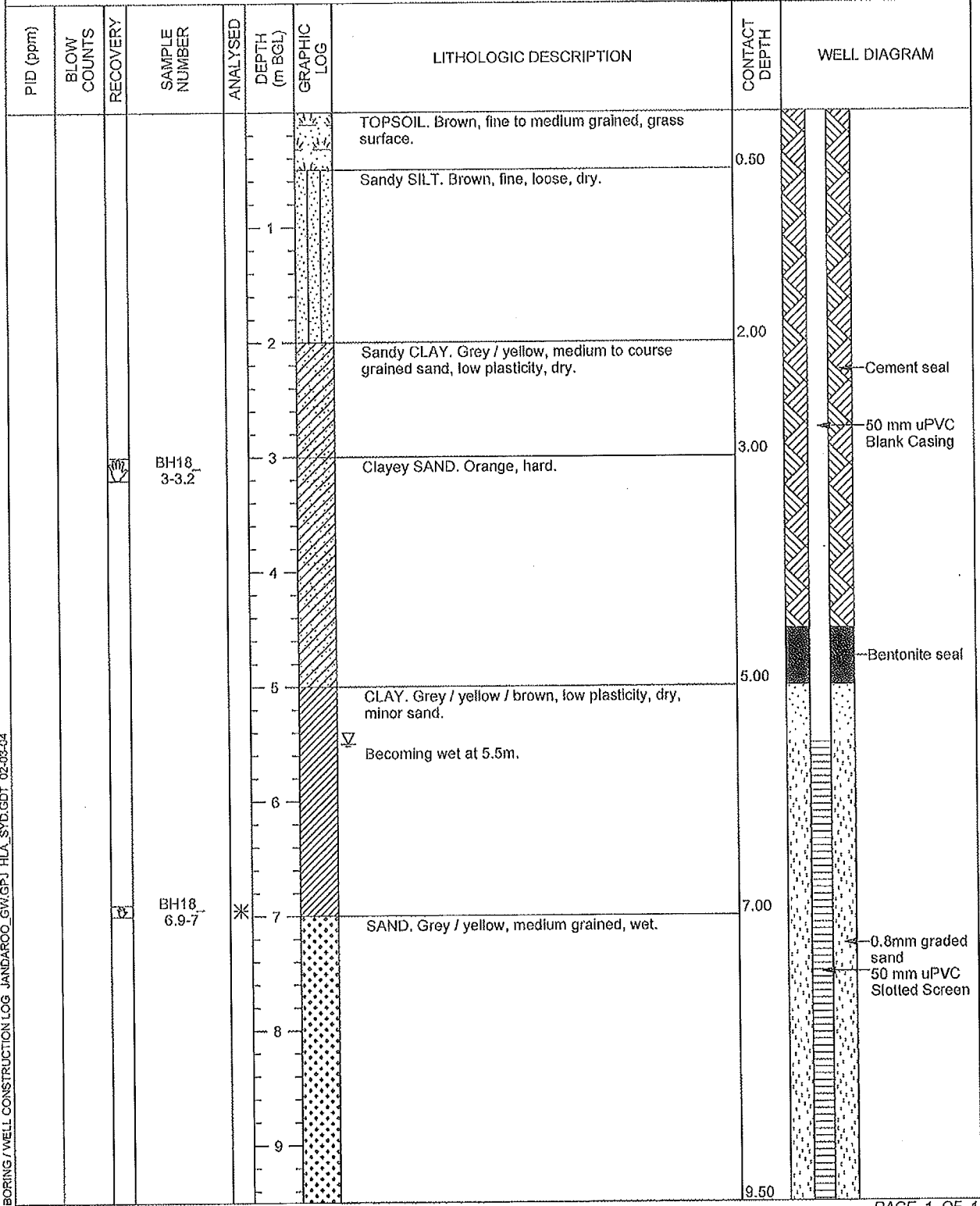


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BORING / WELL CONSTRUCTION LOG BH18

PROJECT NUMBER <u>M4005202</u>	DATE <u>27-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 5.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>5.5m - 9.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>5m - 9.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>4.5m - 5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>E Holgate</u>	

COMMENTS _____



BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04

Total Depth: 9.50 m



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 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH18A

PROJECT NUMBER M4005202 DATE 27-01-2004
 PROJECT NAME Jandaro BLANK
 LOCATION Talbot Avenue, Oakleigh SCREEN
 DRILLING METHOD Solid Auger GRAVEL PACK
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE
 SURFACE ELEVATION _____ STABILISED WATER LEVEL
 WELL HEAD/TOC _____ GROUND WATER ELEVATION
 LOGGED BY P Stapleton

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0		FILL. Brown topsoil, fine loose dry, grassy surface.	
					1			
					2		Minor gravel and brick.	
			BH18A 2-2.2 QC08 27/01/04 QC08T 27/01/04		2		FILL. silty clay. Brown / grey, low plasticity with fragments of brick, dry.	2.00
					3		Becoming moist at 2.5m.	
					4			
					5		FILL. Silty SAND. Black, moist, minor fragments wood	5.00
			BH18A 5.2-5.3	*	5			
					6			
					7			
					7.5		Slimes hit at 7.5m. Bore location abandoned.	
					8.00			8.00

BORING /WELL CONSTRUCTION LOG JANIDAROC_GW/GPJ_HLA_SYD.GDT 02-03-04

Total Depth: 8.00 m



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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH19

PROJECT NUMBER <u>M4005202</u>	DATE <u>27-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 4.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>4.5m - 7.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>4m - 7.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>3.5m - 4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					1		FILL. Silt, minor gravel with orange to brown grading.	1.00	
			BH19_1.2-1.4 QC09_27/01/04 QC09T_27/01/04	*	2		FILL. Silty sand, gravel, brick fragments, minor clay, slight aromatic odour (similar to gasworks naphthalene odour)	2.00	
			BH19_2.2-2.3	*	3		FILL. Hard clay with sand, red / brown, odour continues. Grading to soft clay. Hard drilling.		Cement seal 50 mm uPVC Blank Casing
					4		Drilling remained hard up to 4m.		Bentonite seal
					5		FILL. Grey black, fine to medium grained silty sand, wet.	4.50	
					6		Drilling becoming harder from 6m to 7m. Fill / natural boundary depth hard to tell due to sloppy conditions on auger.		0.8mm graded sand 50 mm uPVC Slotted Screen
					7		SAND. Grey, coarse grained, wet.	7.00	
			BH19_7.8-8	*	8.00				Cave in

BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04

Total Depth: 8.00 m



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BORING / WELL CONSTRUCTION LOG BH20

PROJECT NUMBER M4005202

DATE 27-01-2004

PROJECT NAME Jandaro

BLANK 0.0m - 6m

LOCATION Talbot Avenue, Oakleigh

SCREEN 6m - 11m

DRILLING METHOD Solid Auger

GRAVEL PACK 5.5m - 11m

SAMPLING METHOD Grab

SANITARY SEAL/BENTONITE 4m - 5.5m

SURFACE ELEVATION

STABILISED WATER LEVEL

WELL HEAD/TOC 0 m

GROUND WATER ELEVATION

LOGGED BY P Stapleton

COMMENTS

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			BH20-2-2.1		1		SAND. Brown, fine, loose, dry.	1.00	<p>Cement seal</p> <p>50 mm uPVC Blank Casing</p> <p>Bentonite seal</p> <p>0.8mm graded sand 50 mm uPVC Slotted Screen</p>
					2		SAND. Yellow / brown, medium to fine grained sand, dry.		
					3				
					4		Sand becoming finer.		
					5				
			BH20-5.8-6	*	6		Sandy CLAY. Brown, dry. Alternating bands of sandy CLAY and clayey SAND.	5.00	
					7		Becoming moist at 7m.		
					8		Becoming wet at 7.5m.		
			BH20-7.8-8		8		SAND. Orange / yellow, medium to coarse grained sand, wet.	8.00	
					9				
					10				
					11.00				

BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ_HLA_SYD.GDT 02-03-04

Total Depth: 11.00 m

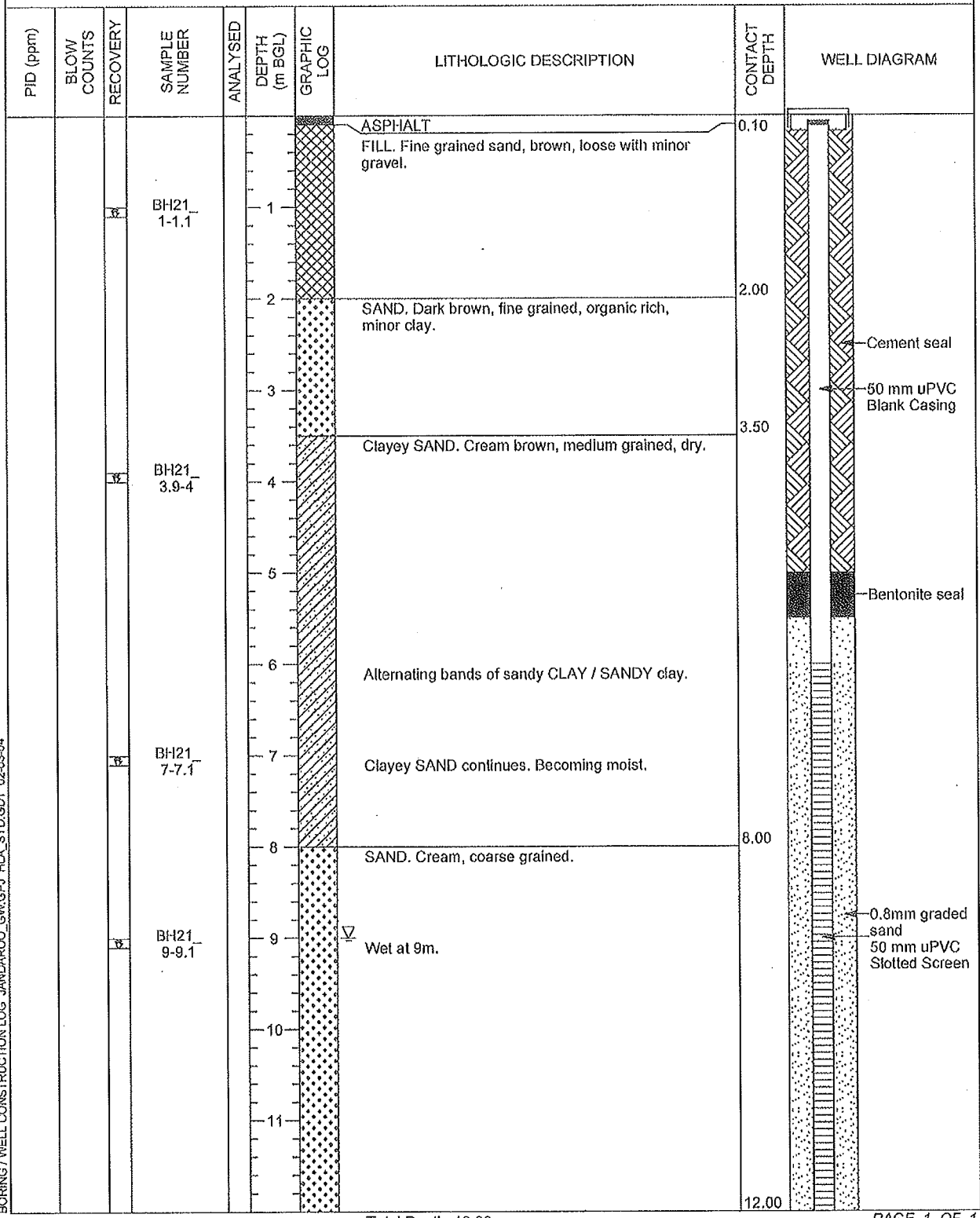


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 Telephone: (03) 8699 2199
 Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH21

PROJECT NUMBER <u>M4005202</u>	DATE <u>28-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 6m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>6m - 12m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>5.5m - 12m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>5m - 5.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>0m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

BORING / WELL CONSTRUCTION LOG - JANDAROO - GW/CPJ - HLA - SYD.GDT - 02-03-04



Total Depth: 12.00 m

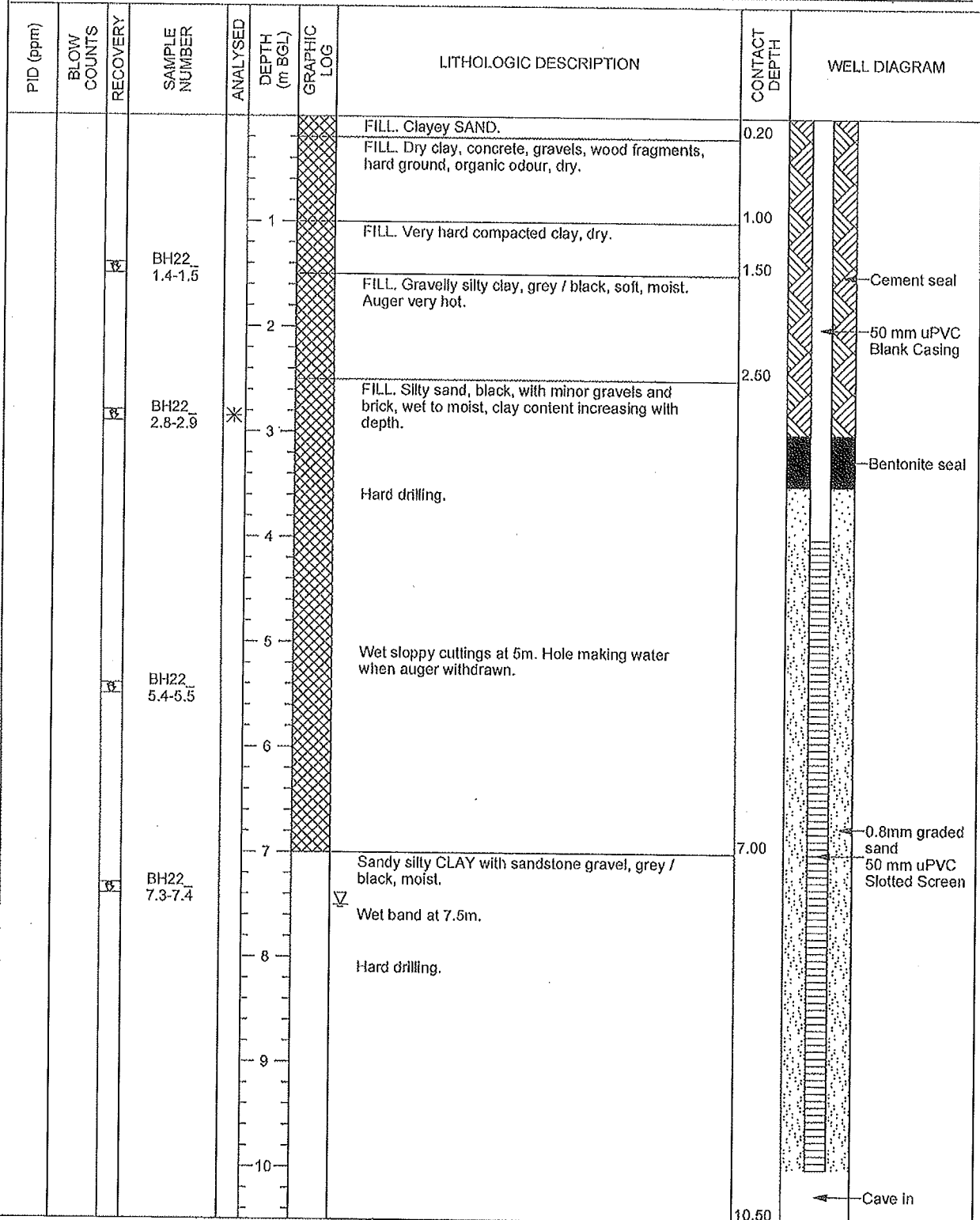


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BORING / WELL CONSTRUCTION LOG BH22

PROJECT NUMBER <u>M4005202</u>	DATE <u>28-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0m - 4m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>6m - 12m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>5.5m - 12m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>1m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	

COMMENTS _____



BORING / WELL CONSTRUCTION LOG JANDAROC_GW.GPJ_HLA_SYD.GDT 02-03-04

Total Depth: 10.50 m



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BORING / WELL CONSTRUCTION LOG BH23

PROJECT NUMBER <u>M4005202</u>	DATE <u>28-01-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK _____
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN _____
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK _____
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE _____
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC _____	GROUND WATER ELEVATION _____
LOGGED BY <u>P Stapleton</u>	
COMMENTS _____	

BORING / WELL CONSTRUCTION LOG - JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0.50		FILL. Gravel, sands, bricks.	0.50
			BH23 1.3-1.4		1.00		Clayey SAND. Orange / brown, minor gravel.	1.00
					1.50		Sandy CLAY. Low plasticity, soft.	1.50
					2.00		Clayey SAND. Brown, loose, wet and sloppy (perched water pond 40m to the south).	2.00
			BH23 2.8-3		3.00			
					4.00			
					5.00			
			BH23 6-6.2		6.00		Sandy SILT. Soft, wet, fine grained.	6.00
			QC10 28/01/04		6.50			
			QC10T 28/01/04		7.00			
					7.50		Grading into fine to medium grained silty SAND.	
					8.00			
			BH23 9-9.1		9.00		Silty SAND. Wet with minor bands of homogeneous clay. Alternating wet / moist zones.	9.00
					9.50			
					10.00			10.00

Total Depth: 10.00 m



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South Melbourne VIC 3205
Telephone: (03) 8699 2199
Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH24

PROJECT NUMBER <u>M4005202</u>	DATE <u>03-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 12m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>3m - 3.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.0001m - 3m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0m - 4m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>3m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L.Townsend</u>	

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			BH-24 2.5-2.7		1		FILL. Sandy clay, bricks, black, moderate plasticity, moist, no odour.		
					2		Top of sand SAND. Light brown, moist, no odour.	1.50	
					3		CLAY. Grey, high plasticity, soft to firm, moist, no odour.	2.50	
					4		Sandy CLAY. Light grey with white orange smearing, firm to hard, high plasticity, moist, no odour.	4.00	
					5		Clayey SAND. Red / brown, medium plasticity, sticky, moist to wet, medium to coarse grained sand, no odour.	5.00	
					6		Clayey SAND. Light orange / brown, medium plasticity, sticky, moist to wet, medium to coarse grained sand, no odour.	6.00	
					7		Clayey SAND. Light orange / brown, medium plasticity, sticky, moist to wet, coarse to very coarse quartz grained sand, slight odour.	7.00	
					8		Clayey SAND. Light brown / yellow, medium plasticity, sticky, moist to wet, coarse to very coarse quartz grained sand, slight odour. Less clayey with depth.	8.00	
					9		Clayey SAND. Light grey / grey, medium plasticity, sticky, very wet, coarse to very coarse quartz grained sand, slight odour. Less clayey with depth. Drill on 2m and install.	9.00	
					10		Clayey SAND. Light grey / grey, medium plasticity, sticky, very wet, coarse to very coarse quartz grained sand, slight odour. Less clayey with depth. Drill on 2m and install.	10.00	
					11.00				

BORING / WELL CONSTRUCTION LOG - JANDAROO - GW.GPJ HLA_SYD.GDT 02-03-04

Total Depth: 11.00 m



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Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH25

PROJECT NUMBER <u>M4005202</u>	DATE <u>03-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 3.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>3.5m - 10m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>3m - 3.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0.0001m - 3m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>4 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L Townsend</u>	
COMMENTS _____	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					0		FILL. Black, ssandy silt, some bricks, very light, dry, no plasticity, no odour, possibly fly ash.		
					1				
					2				
					3		SAND. Light brown / yellow, moist to slightly wet, medium to coarse grained.	3.00	
					3.5		SAND. Brown, moist to slightly wet, medium grained.	3.50	0.8mm graded sand
					4		FILL. Black slimes hit at 4.5m. Hard drilling hitting some fill material, wet	4.00	50 mm uPVC Slotted Screen
					5				
					5.50		Total Depth: 5.50 m		

BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04




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BORING / WELL CONSTRUCTION LOG BH25A

PROJECT NUMBER M4005202 DATE 03-02-2004
 PROJECT NAME Jandaro BLANK _____
 LOCATION Talbot Avenue, Oakleigh SCREEN _____
 DRILLING METHOD Solid Auger GRAVEL PACK _____
 SAMPLING METHOD Grab SANITARY SEAL/BENTONITE _____
 SURFACE ELEVATION _____ STABILISED WATER LEVEL _____
 WELL HEAD/TOC _____ GROUND WATER ELEVATION _____
 LOGGED BY L. Townsend

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
			BH25A 1-1.2		1		FILL. Black, sandy silt, some bricks, very light, dry, no plasticity, no odour, possible fly ash.	
					2			
					3		FILL. More clayey with depth, some light brown clay in black fine fine grained sandy clay material, slight organic odour, slightly moist.	2.50
					4		FILL. Sandy clay, fine to medium grained sand, black, moist, no odour, moderate plasticity, slight sheen.	4.00
							Refusal on fill material with large brick size pieces of steel. Total Depth: 4.50 m	4.50

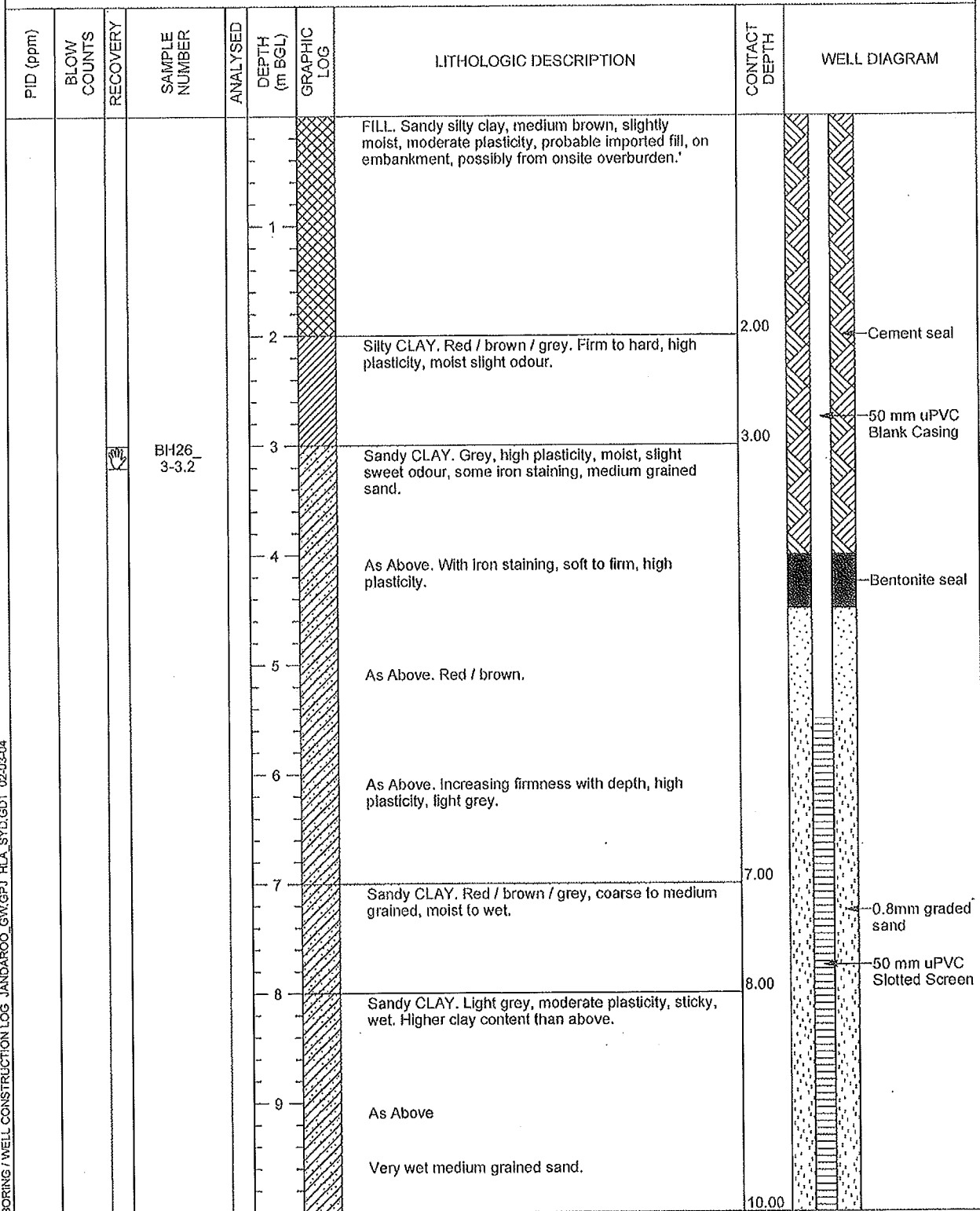
BORING / WELL CONSTRUCTION LOG - JANDAROO_GW.GPJ HLA_SYD.GDT 02.03.04



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BORING / WELL CONSTRUCTION LOG BH26

PROJECT NUMBER <u>M4005202</u>	DATE <u>03-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 5.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>5.5m - 10m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>4.5m - 10m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>4.0m - 4.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>6 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L Townsend</u>	
COMMENTS _____	



BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04

Total Depth: 10.00 m



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BORING / WELL CONSTRUCTION LOG BH27

PROJECT NUMBER <u>M4005202</u>	DATE <u>04-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 3.5m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>0m - 6.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>10m - 10.5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>4m - 10m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>7m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L. Townsend</u>	

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			BH27 3-3.2		0		FILL. Silty sand, black, fine, dry to slightly moist, low plasticity, slight odour.		
					1		Some fill material (e.g. brick etc)		
					2		As above with large pieces of metal.		
					3		As above with occasional 2cm fragments of sandstone. Black staining. Some plastic and slag.		
					4		As above. Moist to wet. Slight sheen.		
					5		As above. Wet with slight odour.		
					6		As above. Wet with slight odour.		
					6.50		Refusal on metal / wire. Total Depth: 6.50 m	6.50	

BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SYD.GDT 02-03-04



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Fax: (03) 8699 2122

BORING / WELL CONSTRUCTION LOG BH28

PROJECT NUMBER <u>M4005202</u>	DATE <u>04-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 6m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>6m - 12m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>5m - 12m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>4.5m - 5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>8 m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L Townsend</u>	

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
			BH28 2.5-2.7	0.60		Sandy CLAY. Orange / brown, low to medium plasticity, moist to wet, fine grained sand, well sorted, foundary sands.	0.60	<p>Cement seal</p> <p>50 mm uPVC Blank Casing</p> <p>Bentonite seal</p> <p>0.8mm graded sand</p> <p>50 mm uPVC Slotted Screen</p>
				1		Sandy CLAY. Black, wet, no odour, moderate plasticity, fine grained sand, well sorted same as in BH28A, foundary sands.		
				2		FILL. Dark grey / black slimes, smooth, very moist to wet, no odour, soft to firm.	2.00	
				3		As above. Light grey, sloppy, almost flowing, very soft with no odour.		
				4				
				5		As above. Increasing water content with depth.		
				6				
				7		As above. Very fluid.		
				8				
			BH28 10-10.2	10				
				11				
						Still in slimes. Total Depth: 11.50 m	11.50	

BORING / WELL CONSTRUCTION LOG JANDAROO_GW.GPJ HLA_SVD.GDT 02-03-04



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BORING / WELL CONSTRUCTION LOG BH29

PROJECT NUMBER <u>M4005202</u>	DATE <u>04-02-2004</u>
PROJECT NAME <u>Jandaro</u>	BLANK <u>0.0m - 10m</u>
LOCATION <u>Talbot Avenue, Oakleigh</u>	SCREEN <u>5m - 5.5m</u>
DRILLING METHOD <u>Solid Auger</u>	GRAVEL PACK <u>0.0001m - 5m</u>
SAMPLING METHOD <u>Grab</u>	SANITARY SEAL/BENTONITE <u>0m - 6.5m</u>
SURFACE ELEVATION _____	STABILISED WATER LEVEL _____
WELL HEAD/TOC <u>9m</u>	GROUND WATER ELEVATION _____
LOGGED BY <u>L. Townsend</u>	

COMMENTS _____

PID (ppm)	BLOW COUNTS	RECOVERY	SAMPLE NUMBER	ANALYSED	DEPTH (m BGL)	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					1		FILL. Silty sandy clay, dark brown / grey, some gravels, moist.		
					2		Large amount of fill material. Close to auger refusal.		
					2.50		FILL. Slimes. Silty sandy clay, dark brown / grey, moist.		
					3				
					4		FILL. Slimes. Sandy silty clay, in gravels. Brown / grey, wet, moderate to high plasticity.		
					4.00				
					5		FILL. Slimes. Less gravels with depth, very wet, not a smooth or fluid as BH28		
					5.00				
					6		Total Depth: 6.00 m		
					6.00				

BORING / WELL CONSTRUCTION LOG - JANDAROO - GW.GPJ - HLA - STD.GDT - 02-03-04

Drilling Log

Monitoring Well **BH04D**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.5 m. North 5801161.84 m East 333412.83 m.
 Top of Casing 63.951 m. Water Level Initial NA Static ▼ 3.4 m. Diameter 225 mm.
 Screen: Dia 50 mm. Length 5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 2.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube, hollow stem flight auger
 Driller J. Thomas Log By D. White Date 15/8/16 Permit # 0826
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil; clayey sand, fine grained, orange.
1						SC	Fill: Clayey SAND; black, slightly moist.
2						SW	Fill: SAND; well graded, grey, loose.
3						SW	Fill: Silty SAND; fine grained, black, foundry waste, with scrap metal, increasing moisture with depth, loose.
4							
5							Fill: SLIMES; saturated, dark grey, very soft.
6							
7							
8							End of investigation at 7.5mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH24A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 12.0 m. North 5801085.00 m East 333332.39 m.
 Top of Casing 64.686 m. Water Level Initial NA Static 10.5 m. Diameter 225 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 6.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Hollow stem flight auger
 Driller J. Thomas Log By D. White Date 17/8/16 Permit # 0826
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Sandy CLAY ; low plasticity, dark brown, with rubble, moist.
0.5			BH24A-1.0			CL	
2			BH24A-2.0				very moist.
0.3			BH24A-2.0				
0.5			BH24A-3.0			CH	Fill: CLAY ; medium plasticity, grey, moist.
4			BH24A-4.0			SW	Fill: Silty SAND ; fine to medium grained, grey/brown, moist.
1.1			BH24A-4.0				
1.0			BH24A-5.0				
6			BH24A-6.0			CH	SANDY CLAY ; low plasticity, dark brown, fine grained sand, very sandy, firm.
1.1			BH24A-6.0				
0.9			BH24A-7.0			CH	
8			BH24A-8.0			SW	becomes CLAYEY SAND ; fine to medium grained, light brown, moist.
0.2			BH24A-8.0				
0.3			BH24A-9.0			SW	coarse grained sands, with white rounded gravel, very moist.
10			BH24A-10.0			SW	very coarse grained sand, very gravelly.
0.4			BH24A-10.0				
						SW	SILTY SAND ; fine to medium grained, light brown, wet.
12							End of investigation at 12.0 mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH28A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.5 m. North 5801145.97 m East 333466.98 m.
 Top of Casing 62.842 m. Water Level Initial NA Static NA Diameter 225 mm.
 Screen: Dia 50 mm. Length 5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 2.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Hollow stem flight auger
 Driller J. Thomas Log By D. White Date 18/8/16 Permit # 0826
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil ; clayey sand, fine to medium grained, light brown, moist, soft.
0.6			BH28A-0.5				
1			BH28A-1.0				
1.2			BH28A-1.5				Fill: Silty SAND ; fine grained sand, black, foundry waste, with scrap metal, plastics, fbarics, loose.
2			BH28A-2.0				
3			BH28A-3.0			SM	moist.
4			BH28A-4.0				saturated.
5							SLIMES ; black, very soft, wet.
6							
7							
8							End of investigation at 7.5 mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH33**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.5 m. North 5801051.13 m East 333402.57 m.
 Top of Casing 65.523 m. Water Level Initial NA Static NA Diameter 225 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 5.7 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube, Hollow stem flight auger
 Driller J. Thomas Log By D. White Date 15/8/16 Permit # 0826
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil; gravelly sandy clay, dark brown, moist soft.
2						MLG	Fill: GRAVELLY SILT; dry friable, light brown.
3.5						SW	Fill: Silty SAND; fine to medium grained, dark brown, loose.
4						SW	Fill: Silty SAND; fine grained, grey, loose.
4.5							Fill: SLIMES
5							Fill: Silty SAND; fine grained, grey, loose.
6						SW	wet, very soft.
8						SW	Fill: Sandy SILT (SLIMES); fine grained sand, saturated, very soft.
10.5							End of investigation at 10.5 mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH34**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 13.0 m. North 5801027.38 m East 333317.49 m.
 Top of Casing 61.948 m. Water Level Initial NA Static NA Diameter 200 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 8.2 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic Drilling
 Driller S. Anderson Log By D. White Date 20/6/16 Permit # NA
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		3.9	BH34_0.5				Fill: Silty SAND ; with some brick pieces, loose, dark brown.
		2.8	BH34_1.0			SM	
2		3.1	BH34_2.0				Sandy CLAY ; low plasticity, very sandy, coarse grained, brighton group.
		0.3	BH34_3.0			CLS	
4		0.4	BH34_4.0				becomes hard at 4.0mbgs.
6		0.6	BH34_5.0				SAND ; coarse, loose, grey. colour change to white at 5.5mbgs. colour change to orange at 6.0mbgs. colour change to grey at 7.0mbgs. becoming wet at 8.0mbgs.
		0.8	BH34_6.0				
		1.3	BH34_7.0				
		1.0	BH34_8.0				
10		0.9	BH34_9.0				SW
		0.5	BH34_10.0				
		0.5	BH34_11.0				
12		0.3	BH34_12.0				End of investigation at 13.0mbgs.
		0.3	BH34_13.0				
14							

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH35**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 6.0 m. North 5800867.67 m East 333401.66 m.
 Top of Casing 61.901 m. Water Level Initial ▽ 3.3 m. Static ▽ 3.1 m. Diameter 200 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 1.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic Drilling
 Driller S. Anderson Log By R. White Date 22/6/16 Permit # NA
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Sandy CLAY; low plasticity, light brown, uniform grading, medium grained sand, moist.
0.3			BH35_0.5				
1			BH35_1.0				
2			BH35_2.0				Fill: Sandy CLAY; brown/grey, high plasticity, moist.
3							
4							
5							Fill: Brick/Gravel/Basalt some bark noted.
							Fill: Gravelly SAND; coarse grained, wet, loose. Organic layer, bark/roots.
6							Fill: Clay Slimes; high plasticity, brown, wet.
6							End of investigation at 6.0mbs.
7							

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Monitoring Well **BH36**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.0 m. North 5801286.21 m East 333334.47 m.
 Top of Casing 62.257 m. Water Level Initial ▽ 6.9 m. Static ▽ 6.2 m. Diameter 200 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 5.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic Drilling
 Driller S. Anderson Log By R. White Date 22/6/16 Permit # NA
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: TOPSOIL; sand, trace of silt, brown, uniform grading, fine grained, moist, loose.
0.5						SM	Silty SAND; light brown, low plasticity, fine grained, uniform grading, moist, loose.
1.0						CLS	Sandy CLAY; grey/brown, low plasticity, uniform grading, fine grained, moist, medium dense.
1.5						SM	Silty SAND; uniform grading, fine grained, moist, medium dense.
2.0						SM	becoming grey. becoming orange.
2.5						SM	Silty SAND; uniform grading, fine grained, low plasticity, orange/grey mottling.
3.0						SM	Silty SAND; grey, low plasticity, uniform grading, fine grained, dry, very dense.
4.0						CLS	Sandy CLAY; brown, medium plasticity, fine grained sand, moist.
4.5						SM	Silty SAND; brown, uniform, fine grained sand, moist.
5.0						CLS	Sandy CLAY; brown, medium plasticity, fine grained sand, moist.
5.5							Fill: SAND; some gravel, brown, fine to coarse grained, gap graded, moist, loose.
6.0							Fill: SAND; brown, fine grained, uniform grading, wet, medium dense.
6.5							
7.0							
8.0						SWG	SAND; grey, fine to medium grained, well graded, wet, medium dense.
10.0							End of investigation at 10.0mbgs.

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Drilling Log

Monitoring Well **BH37**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.5 m. North 5800926.90 m East 333081.43 m.
 Top of Casing 61.389 m. Water Level Initial NA Static 8.0 m. Diameter 100 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 6 m. Type Class 18 UPVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Hand auger, push tube, solid stem flight auger.
 Driller J. Thomas Log By R. White Date 21/6/16 Permit # 0826
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						SM	Fill: Topsoil; Silty sand, brown, fine grained sand, low plasticity, silt, moist, loose, organic material. Silty SAND; light brown, fine grained, moist, loose.
2						MLS	Sandy SILT; some clay, light brown/grey, low plasticity, fine grained, firm clay clumps, dry, loose.
2						CLS	Sandy CLAY; mottled orange/brown, low plasticity, fine grained, moist.
4						SC	Clayey SAND; grey, low plasticity, fine to medium grained, moist. as above, becoming orange.
4						SM	Silty SAND; orange, fine to coarse grained sand, well graded, round/sub angular, moist.
6						SW	SAND; orange, fine grained, some coarse grains, uniform grading, rounded, moist, loose.
8						SW	SAND; pale orange/brown, medium grained sand, some coarser grains, uniform grading, rounded, moist, loose.
8						SW	SAND; grey, medium to coarse grained, round, gap graded, trace of clay, wet.
10							End of investigation at 10.5mbgs.

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Drilling Log

Monitoring Well **BH38**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 8.0 m. North 5800597.04 m East 333172.17 m.
 Top of Casing 55.895 m. Water Level Initial NA Static 4.1 m. Diameter 200 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 3.5 m. Type Class 18 UPVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic Drilling
 Driller S. Anderson Log By R. White Date 20/6/16 Permit # NA
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						SM	TOP SOIL - Silty SAND; moist, loose. Silty SAND; grey, moist, loose. Sandy CLAY; low plasticity, brown/grey mottled, moist.
1						CLS	
2		1.0	BH38_2.0				
3		0.9	BH38_3.0				Silty SAND; grey, medium to coarse grained, low plasticity silt, moist.
4		0.5	BH38_3.5			SM	
5							Silty SAND; grey, fine to coarse grained, wet, medium dense.
6						SM	coarser material at 6.0mbgs
7							finer grains at 7.0mbgs
8		0.6	BH38_8.0				End of investigation at 8.0mbgs.
9							

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Drilling Log

Monitoring Well **BH39**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 11.0 m. North 5800594.69 m East 333295.01 m.
 Top of Casing 58.903 m. Water Level Initial ▽ 8.0 m. Static ▽ 8.0 m. Diameter 200 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size Class 18 UPVC
 Casing: Dia 50 mm. Length 6.2 m. Type Class 18 UPVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic
 Driller S. Anderson Log By R. White Date 20/6/16 Permit # NA
 Checked By _____ License No. WLE066366

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Top Soil; silty sand, moist, loose, organical material.
0.3						SM	Silty Sand; grey, medium grained, uniform grading, moist, loose.
0.4						SM	
						SM	Silty SAND; brown/grey, medium grained, uniform grading, dry, loose.
2						SM	Silty SAND; brown, uniform grading, medium grained.
0.7						SM	SAND; light brown, uniform grading, fine grained, dry, loose.
						CL	Silty SAND; grey, uniform grading, fine grained, low plasticity, moist.
0.3						CL	Sandy CLAY; light brown, grey mottling, low plasticity, fine grained sand, moist.
4						CL	Silty CLAY; red/brown, low plasticity, moist.
0.8						CL	Clayey SAND; red/grey mottling, uniform grading, low plasticity, moist.
						CL	Clayey SAND; red/grey mottling, uniform grading, low plasticity, moist.
1.3						CL	as above, with yellow mottling.
6						SW	SAND; fine to coarse grained, grey, moist, dense.
5.2						SW	
2.4						SW	SAND; grey, fine to coarse grained, wet.
8						SW	
1.6						SW	
0.2						SW	
10						SW	
0.7						SW	
0.5							End of investigation at 11.0mbsg.
12							

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Drilling Log

Gas Bore **GB18A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 6.0 m. North 5801106.30 m East 333194.29 m.
 Top of Casing 61.166 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 5.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Soild stem flight
 Driller J. Thomas Log By D. White Date 17/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Silty SAND ; fine grained, black, moist, loose.
1		0.3	GB18A-1.0			SW	
2		0.3	GB18A-2.0				Fill: Sandy CLAY ; low plasticity, grey, fine grained sand, firm.
3		0.8	GB18A-3.0				
4		0.6	GB18A-4.0			CL	
5		0.7	GB18A-5.0				
6						SW	becomes Clayey SAND ; fine to medium grained, light brown, moist.
7							End of investigation at 6.0 mbgs.

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Drilling Log

Gas Bore **GB21A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 6.0 m. North 5801034.45 m East 333214.92 m.
 Top of Casing 61.300 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 4 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Solid stem flight
 Driller J. Thomas Log By D. White Date 16/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						CLG	Fill: Gravelly CLAY ; firm.
1		0.2	GB21A-1.0			SW	Fill: Silty SAND ; fine grained sand, light brown, moist, loose.
2		0.6	GB21A-2.0				Fill: Silty SAND ; fine grained sand, black, some foundry waste, with sand castings, loose.
3		0.7	GB21A-3.0				
4		1.0	GB21A-4.0			SW	
5		0.5	GB21A-5.0				
6							End of investigation at 6.0 mbgs.
7							

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Drilling Log

Gas Bore **GB25A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.0 m. North 5801004.50 m East 333404.04 m.
 Top of Casing 66.299 m. Water Level Initial NA Static NA Diameter 200 mm.
 Screen: Dia 50 mm. Length 4 m. Type/Size PVC
 Casing: Dia 50 mm. Length 6 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Sonic
 Drill Co. Sonic Drilling Method Sonic
 Driller S. Anderson Log By D. White Date 21/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Soil Mound; gravelly sandy clay, firm, medium plasticity, light brown, some angular cobbles up to 10cm.
2		1	GB25A_2.0			CLS	Fill: Gravelly Sandy CLAY; firm, medium plasticity, dark grey.
		1.2	GB25A_3.0			SM	Fill: Silty SAND; loose, black, fine to medium grained.
4		1	GB25A_4.0				Fill: CLAY; with rubble, concrete/brick pieces.
		1.1	GB25A_5.0				Fill; crushed rock road base with concrete. Fill: Sandy CLAY; low plasticity, dark grey, very sandy, with some rubble.
6		1.1	GB25A_6.0			CLS	
		1.4	GB25A_7.0				
8		1.2	GB25A_8.0				
		1	GB25A_9.0				Fill: SAND; very loose, dry, coarse, grey.
							Fill; grout or concrete.
10		0.8	GB25A_10.0				End of investigation at 10.0mbgs.

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Drilling Log

Gas Bore **GB27A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.4 m. North 5800912.35 m East 333404.09 m.
 Top of Casing 62.568 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 3 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem auger
 Driller J. Thomas Log By R. White Date 21/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Sandy CLAY ; gravel, rocks, basalt, low plasticity occasionally, moist.
0.4			GB27A_0.5				
1			GB27A_1.0				Gravel: BASALT ; coarse grained. Fill: Sandy SILT ; low plasticity, light brown, some clay, moist.
2			GB27A_2.0				Fill: Brick/Gravel, some metal scraps, sandy clay infill.
3							
4							Fill: Slime like material, low plasticity, clay, wet, some sand/gravel.
5							End of investigation at 4.4mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

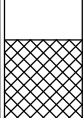
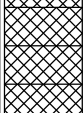
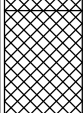
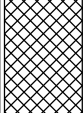
Drilling Log

Gas Bore **GB29A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 2.2 m. North 5800840.83 m East 333444.41 m.
 Top of Casing 60.611 m. Water Level Initial NA Static NA Diameter 110 mm.
 Screen: Dia 50 mm. Length 2.2 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By R. White Date 21/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							
0.4			GB29A_0.5			CLS	Fill: Sandy CLAY; low plasticity, light brown, uniform grading, moist.
1.0			GB29A_1.0				Fill: Silty SAND; light brown, low plasticity, uniform grading, moist, dense. Fill: Gravelly SAND; fine to coarse grain, angular, dense. Fill: Silty SAND; brown, organic, fine grained.
1.2							Fill: Sandy GRAVEL; medium to coarse grained, angular, dry, loose. with organic bark
2.0			GB29A_2.0			GWS	as above, becoming wet.
2.2							End of investigation at 2.2mbsg.
3							

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Drilling Log

Gas Bore **GB33A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.0 m. North 5801232.96 m East 333305.88 m.
 Top of Casing 62.662 m. Water Level Initial NA Static NA Diameter 110 mm.
 Screen: Dia 50 mm. Length 2 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By D. White Date 17/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							SILTY SAND ; fine to medium grained sand, black, loose.
0.3			GB33A-0.5				becomes grey, moist.
1			GB33A-1.0			SW	becomes white.
2			GB33A-2.0				distinct colour change to dark brown, vey moist.
3			GB33A-3.0			SW	coarsed sand, wet. CLAYEY SAND ; fine to medium grained, dark brown/grey, moist.
4			GB33A-4.0			CH	becomes SANDY CLAY ; medium plasticity, grey, fine grained sand, stiff.
4.1							End of investigation at 4.10 mbgs.
5							

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Drilling Log

Gas Bore **GB36A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.0 m. North 5801162.22 m East 333386.35 m.
 Top of Casing 64.984 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 1.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 2.5 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem auger
 Driller J. Thomas Log By D. White Date 16/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Soil Mound; gravelly clay, dark brown, stiff.
1		0.1	GB36A-1.0				
		0.3	GB36A-1.5			SW	Fill: Silty SAND; fine to medium grained, dark brown, loose.
2							
		0.6	GB36A-2.5			SW	Fill: SAND; fine grained sand, black, loose.
3						SW	Fill: SAND; fine grained sand, white, loose.
		1.7	GB36A-3.5			SW	Fill: SAND; fine grained sand, black, foundry waste.
4							End of investigation at 4.0mbs.
5							

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Drilling Log

Gas Bore **GB46A**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.0 m. North 5801068.80 m East 333176.72 m.
 Top of Casing 60.584 m. Water Level Initial NA Static NA Diameter 200 mm.
 Screen: Dia 50 mm. Length 5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Push tube
 Driller S. Anderson Log By D. White Date 21/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		0.7	GB46A_0.2				Fill: Gravelly Sandy CLAY; low plasticity, firm, compacted, light brown.
		0.9	GB46A_0.5				
1		1.7	GB46A_1.0				Fill: Foundry Waste; silty sand, with sandstone castings, black, medium dense, fine to medium grained.
2		1.2	GB46A_2.0				
3		1.2	GB46A_3.0				
4		1.6	GB46A_4.0				LANDFILL; municipal rubbish, with sandy clay and gravel.
5		1.7	GB46A_5.0				Fill: Sandy CLAY; low plasticity, very sandy, medium grained, dark brown, very moist.
6		1.0	GB46A_6.0				
7		1.2	GB46A_7.0				End of investigation at 7.0mbgs.
8							

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB60**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.5 m. North 5801175.95 m East 333246.70 m.
 Top of Casing 63.058 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 4 m. Type/Size PVC
 Casing: Dia 50 mm. Length 2.5 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem auger
 Driller J. Thomas Log By D. White Date 22/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Soil Mound Fill; sandy clay, low plasticity, firm, very sandy, fine grained, light brown.
1							Fill: Silty SAND; loose, dry, fine to medium grained, grey/black.
2		0.1	GB60_2.0				
3		0.3	GB60_3.0				Fill: Foundry Waste; silty sand with castings and cemented sand gravels, black, dry, loose.
4		0	GB60_4.0				
5		0	GB60_5.0				
6		1.0	GB60_6.0				
7		2.8	GB60_7.0				becoming wet, slight sheen, slight hydrocarbon odour.
8							End of investigation at 7.5mbs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB61**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.7 m. North 5801179.46 m East 333313.32 m.
 Top of Casing 61.980 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By R. White Date 23/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						SC	Fill: Clayey SAND; brown with red streaks, low plasticity, fine grained sand, uniform grading, moist, medium dense.
0.4			GB61_0.5			SM	Fill: Silty SAND; black, fine to medium grained, uniform grading, dry, loose.
1			GB61_1.0			SW	Fill: SAND; yellow, uniform grading, fine grained, dry, loose.
						SM	Fill: Silty SAND; black/grey, low plasticity, uniform grading, fine to medium grained, dry, medium density.
						SW	Fill: SAND; gap graded, fine to coarse grained, some gravels, grey, moist, loose.
2			GB61_2.0			SC	Fill: Clayey SAND; brown, low plasticity, uniform grading, fine grained, moist.
3			GB61_3.0			CLS	Fill: Sandy CLAY; brown, low plasticity, coarse grained, moist.
4			GB61_4.0			CLS	Fill: Sandy CLAY; brown, high plasticity, fine grained, moist.
						CLS	Fill: Sandy CLAY; black, high plasticity, fine to medium grained, wet.
5							End of investigation at 4.7mbs.
6							

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB62**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 3.0 m. North 5801144.12 m East 333255.44 m.
 Top of Casing 61.783 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 4 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By D. White Date 22/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Sandy Gravelly CLAY ; low plasticity, firm, light brown.
0.5		0.5	GB62_0.5			SM	Fill: Silty SAND ; coarse grained, loose, dry.
1		0.4	GB62_1.0				Fill: Silty SAND ; foundry waste, fine to medium grained, black, dry, loose with castings and cemented sand gravels.
2		0.6	GB62_2.0				
3		0.5	GB62_3.0			SM	
4		1.1	GB62_4.0				
5		0.7	GB62_5.0				End of investigation at 5.0mbgs.
6							

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB63**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 6.5 m. North 5801106.35 m East 333230.29 m.
 Top of Casing 63.290 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 3 m. Type/Size PVC
 Casing: Dia 50 mm. Length 3.4 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By D. White Date 22/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Soil Mound Fill; Gravelly Sandy Clay, low plasticity, black/brown/grey with basalt boulders.
1							
2		0	GB63_2.0				Push tube refusal on rock or metal at 2.5mbgs.
3		0.3	GB63_3.0				Fill: Foundry Waste; silty sand, dry, loose, black with castings, fine to medium grained.
4		0.2	GB63_4.0				
5		0.2	GB63_5.0				
6							
7							End of investigation at 6.5mbgs.

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB64**

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.0 m. North 5801087.84 m East 333298.94 m.
 Top of Casing 65.173 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 5.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 4.0 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By R. White Date 23/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						CLS	Fill: Sandy CLAY ; brown, medium plasticity, fine grained sand, wet. as above, becoming moist.
2						SM	Fill: Silty SAND ; low plasticity, fine grained, brown, dry, loose.
						CL ML	Fill: Silty CLAY ; with some sand, high plasticity, brown, fine grained sand, moist.
			0.7 GB64_3.5			SWG SM	Fill: Gravelly SAND ; grey, sub-angular, fine to coarse grained, dry, medium dense.
4			0.0 GB64_4.0			CLS	Fill: Silty SAND ; low plasticity, fine grained, brown, dry, loose.
						SWG	Fill: Sandy CLAY ; brown/orange, low plasticity, fine to coarse grained sand, dry.
			0.1 GB64_5.0			SWG	Fill: Gravelly SAND ; light brown, medium grained sand, coarse grained gravel, dry, loose.
						SWG	Fill: Gravelly SAND ; brown, uniform grading, medium grained, moist, medium dense.
6			0.4 GB64_6.0			SWG	Fill: Gravelly SAND ; grey, coarse grained, moist, loose.
						SWG	Fill: Gravelly SAND ; black/grey, fine to coarse grained, moist, medium dense.
			0.3 GB64_7.0			SWG	Fill: Clayey SAND ; black, fine grained, high plasticity, clay, moist, medium dense.
8						SC	
10							End of investigation at 10.0mbgs.

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Drilling Log

Gas Bore **GB65**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 8.5 m. North 5801061.94 m East 333139.34 m.
 Top of Casing 62.291 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 4.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By R. White Date 23/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						SM GWS	Fill: Silty SAND; brown/black, fine grained, uniform grading, low plasticity, silt, moist, loose.
1						SC	Fill: GRAVEL; with some sand, grey/orange mottling, fine grained, uniform grading, low plasticity, clay, moist, medium dense. Fill: Clayey SAND; grey/orange mottling, fine grained, uniform grading, low plasticity clay, moist, medium dense.
2						SWG	SAND; very coarse, brown, fine grained, uniform grading, dry, very loose.
3						SWG SWG SWG	SAND; very coarse, brown, uniform grading, fine grained, dry, very loose.
4		0.2	GB65_3.5			SM	SAND; very coarse, brown, uniform grading, fine grained, dry, very loose. SAND; with some silt, very coarse, brown, uniform grading, fine grained, dry, medium dense.
5		0.0	GB65_4.0			SM	Silty SAND; grey/orange mottled, medium grained sand, low plasticity, silt, dry.
6		0.0	GB65_5.0			SC	Clayey SAND; orange, fine grained, uniform grading, high plasticity, stiff clay, dry, medium dense.
7		0.1	GB65_6.0			SM	Silty SAND; orange with some gravel, medium to coarse grain, well graded, moist, loose.
8		0.1	GB65_7.0			SM	SAND; trace of silt, orange, uniform grading, coarse grained, sub angular, moist, loose.
9						SM	SAND; trace of silt, orange, medium to coarse grained, sub angular, moist, loose. End of investigation at 8.5mbs.

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Drilling Log

Gas Bore **GB66**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.0 m. North 5801065.99 m East 333222.16 m.
 Top of Casing 61.251 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 6 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Sonic Drilling Method Sonic
 Driller S. Anderson Log By D. White Date 21/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		1.0	GB66_0.2				Fill: Gravelly Sandy CLAY; low plasticity, firm, compacted, light brown.
		2.6	GB66_0.5				
1		6.0	GB66_1.0				Fill: Foundry Waste; silty sand with some scrap metal and plastic, black, medium dense, fine to medium grained.
2		3.0	GB66_2.0				
3		4.6	GB66_3.0				
4		3.6	GB66_4.0				
5		4.0	GB66_5.0				
6		3.2	GB66_6.0				
7						SC	Fill: Clayey SAND; medium to coarse grained, wet, medium dense, grey.
							End of investigation at 7.0mbgs.
8							

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Drilling Log

Gas Bore **GB67**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.5 m. North 5801206.77 m East 333367.20 m.
 Top of Casing 63.761 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 6.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By R. White Date 23/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						CL ML SM	Fill: Silty CLAY ; with some sand, brown, high plasticity, fine grained sand, moist.
0.1			GB67_0.5			SM	Silty SAND ; light brown, fine grained, uniform grading, moist, loose.
1			GB67_1.0			CL ML	Silty SAND ; light brown, fine grained, uniform grading, moist, loose.
						SWG	Silty CLAY ; orange, low plasticity, dry.
2			GB67_2.0			SWG	SAND ; light brown, fine grained, uniform grading, dry, loose. as above, becoming grey. as above, becoming dark brown. as above, becoming light brown/grey.
3			GB67_3.0			SWG	SAND ; trace of clay, red, fine grained, uniform grading, medium plasticity clay, dry, medium dense.
4			GB67_4.0			CLS	Sandy CLAY ; grey/orange mottling, medium plasticity, fine grained sand, dry.
						SM SC	Silty SAND ; trace of clay, red, fine grained, uniform grading, dry, medium dense.
5			GB67_5.0			SM	Clayey SAND ; grey, medium plasticity, fine to medium grained, well graded sand, dry.
						SC	Silty SAND ; red, fine grained, uniform grading, low plasticity, dry.
						SC	Clayey SAND ; grey, coarse grained, dry, medium dense.
6			GB67_6.0			CLS	SAND ; with some clay, coarse grained, grey/orange, moist, medium dense.
7			GB67_7.0			SWG	Gravelly SAND ; grey, coarse grained, some cobbles, well graded, wet, medium dense.
8							End of investigation at 7.5mbs.

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Drilling Log

Gas Bore **GB68**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 3.5 m. North 5801119.11 m East 333350.55 m.
 Top of Casing 64.047 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 1.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.5 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By D. White Date 16/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil ; gravelly clay, dark brown, soft.
1		5.6	GB68-1.0			SW	Fill: Clayey SAND ; fine grained sand, with gravel. concrete road base.
2		1.2	GB68-1.5			SW	Fill: Silty SAND ; fine grained sand, varying lenses of black, grey, and brown, loose.
3		1.5	GB68-2.0			SW	SAND ; fine to medium grained, grey, loose.
		1.0	GB68-3.0			SW	wet.
		0.5	GB68-3.5				End of investigation at 3.5 mbgs.
4							

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Drilling Log

Gas Bore **GB69**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.0 m. North 5801085.39 m East 333345.96 m.
 Top of Casing 62.725 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 1.0 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By D. White Date 16/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil; sandy gravelly clay.
						SW	Fill: Gravelly SAND; fine to medium grained, black/brown/grey.
1		0.4	GB69-1.0			SW	Fill: Silty SAND; fine grained sand, grey, loose. colour change to brown.
2		1.6	GB69-2.0			SW	grey and wet.
						SC	Fill: Clayey SAND; grey, medium density.
3		0.8	GB69-3.0			CH	Fill: CLAY; medium plasticity, grey, very moist, firm.
							End of investigation at 3.5 mbgs.
4							

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Drilling Log

Gas Bore **GB70**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.0 m. North 5801049.17 m East 333340.30 m.
 Top of Casing 62.201 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 1.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Grout, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By D. White Date 16/8/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Imported Soil; clayey sand. concrete.
1		1.2	GB70-1.0			SW	Fill: Silty SAND; fine grained sand, black/brown, loose.
2		0.6	GB70-2.0			SW	Fill: Clayey Gravelly SAND; well grained sand, very moist, dense. wet.
3		0.4	GB70-3.0			CH	Fill: CLAY; medium plasticity, grey, firm.
		0.5	GB70-3.5			CH	Fill: Clayey Gravelly CLAY; well graded, grey, dense.
4							End of investigation at 3.5 mbgs.

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Drilling Log

Gas Bore **GB71**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 10.0 m. North 5800998.06 m East 333370.36 m.
 Top of Casing 64.702 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 5.0 m. Type/Size PVC
 Casing: Dia 50 mm. Length 4.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic
 Driller S. Anderson Log By D. White Date 22/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Soil Mound; gravelly sandy clay, low plasticity, firm, dark brown with some rubble throughout.
1.1			GB71_1.0				
1.6			GB71_2.0				
1.4			GB71_3.0			SC	Fill: Clayey SAND; coarse grained, medium dense, grey.
2.4			GB71_4.0			SM	Fill: Silty SAND; loose, grey, fine to medium grained.
1.6			GB71_5.0				Fill: Sandy CLAY; firm, low plasticity, fine to medium sands, black with occasional angular gravels and cobbles.
2.5			GB71_6.0				
3.0			GB71_7.0			CLS	
2.1			GB71_8.0				
2.5			GB71_9.0				
2.6			GB71_10.0			SM	Fill: Silty SAND; loose, moist, fine to medium grained, black.
10							End of investigation at 10.0mbgs.

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Drilling Log

Gas Bore **GB72**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 7.2 m. North 5800984.70 m East 333446.48 m.
 Top of Casing 63.666 m. Water Level Initial ▽ 6.5 m. Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 4.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 2.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By R. White Date 21/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						MLS	Fill: Sandy SILT ; medium plasticity, light brown, moist.
0.3			GB72_0.5			SW	Fill: SAND ; fine grained, brown, uniform grading, dry, loose.
0.4			GB72_1.0			SWG	Fill: SAND ; trace of gravel, brown, uniform fine to coarse grained, moist, medium density.
1						SM	Fill: Gravelly SAND ; red, medium to coarse grained, moist, loose.
2						GWS	Fill: Silty SAND ; brown, low plasticity, fine grained, moist, loose, with some organic material.
2			GB72_2.0				Fill: Sandy GRAVEL ; pale red, fine to coarse grained, angular, dry, loose.
3						SWG	Fill: Sandy GRAVEL ; grey, angular, fine to coarse grained, dry, loose.
4							as above with brick/gravel/metal scraps.
5							Fill ; as above with some brick/gravel rocks and rubber, moist, loose.
6							as above, becoming wetter and medium density.
7							End of investigation at 7.2mbgs.
8							

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Drilling Log

Gas Bore **GB73**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 6.0 m. North 5800956.83 m East 333473.68 m.
 Top of Casing 62.331 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 2.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller S. Anderson Log By D. White Date 21/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description
							(Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0		0.1	GB73_0.2			MLG	Fill: Gravelly Silty CLAY; dry/hard.
		0.1	GB73_0.5				
1		0.6	GB73_1.0			CLG	Fill: Basalt Boulder
						CLG	Fill: Gravelly Sandy CLAY; firm, low plasticity, some rubble.
2		0.5	GB73_2.0			CLS	Fill: Sandy CLAY; low plasticity, very sandy, dark grey.
							Fill: Bricks, Concrete, Rubble.
3		0.2	GB73_3.0			CLG	Fill: Gravelly Sandy CLAY; low plasticity, dark brown.
4			GB73_4.0				Fill: Sandy Gravelly CLAY; low plasticity, black, wet, very sandy, sandstone castings.
5			GB73_5.0			CLG	
6			GB73_6.0				End of investigation at 6.0mbsg.
7							

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Drilling Log

Gas Bore **GB74**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 3.0 m. North 5800934.28 m East 333437.78 m.
 Top of Casing 61.938 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 1.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic
 Driller S. Anderson Log By D. White Date 21/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0							Fill: Gravelly Sandy CLAY; low plasticity, brown.
0.9			GB74_0.5			CLG	
1			GB74_1.0				colour changing to black.
2			GB74_2.0				Fill: Basalt Boulder
3							Fill: Gravelly Sandy CLAY; medium plasticity, grey, slightly moist.
3							End of investigation at 3.0mbs.
4							

Drilling Log

Gas Bore **GB75**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.0 m. North 5800878.29 m East 333359.27 m.
 Top of Casing 62.055 m. Water Level Initial ▽ 3.4 m. Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 2.3 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Sonic
 Drill Co. Star Drilling Method Sonic
 Driller S. Anderson Log By R. White Date 22/6/16 Permit # NA
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							
0.2			GB75_0.5			CLS	Fill: Sandy CLAY; low plasticity, light brown, uniform grading, medium grained, moist.
1			GB75_1.0			GWS CL ML	Fill: Sandy GRAVEL; medium to coarse grained, angular, dry, loose. Fill: Silty CLAY; brown/orange, low plasticity, dry.
2			GB75_2.0			SM	Fill: Silty SAND; black, fine grained sand, uniform grading, low plasticity, dry, loose.
3						CL ML	Fill: Silty CLAY; orange, medium plasticity, moist.
4						SM	Fill: Silty SAND; brown, fine grained, uniform grading, low plasticity, moist, loose.
4							End of investigation at 4.0mbgs.
5							

COFFEY ENVIRONMENTS Rev. 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

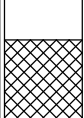
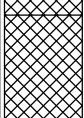
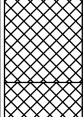
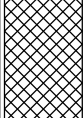
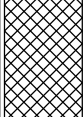
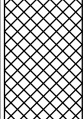
Drilling Log

Gas Bore **GB76**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.2 m. North 5800823.58 m East 333382.33 m.
 Top of Casing 61.326 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 2.0 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe 7720DT
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By D. White Date 20/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		6.4	GB76_0.2			CLG	Fill: Sandy Gravelly CLAY; very sandy and gravelly, low plasticity, stiff, moist, red/brown.
		1.1	GB76_0.5			CL ML	Fill: Gravelly Clayey SILT; dry, friable.
1		0	GB76_1.0				Fill: Sandy Gravelly CLAY; coarse sand, low plasticity, brown/grey with tree roots.
2		0	GB76_2.0			CLG	
3		6.5	GB76_3.0				Slimes; clay, high plasticity, soft, moist.
4		1.4	GB76_4.0				End of investigation at 4.2mbgs.
5							

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

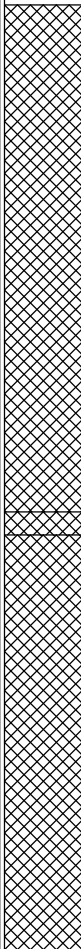
Drilling Log

Gas Bore **GB77**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 4.1 m. North 5800809.30 m East 333350.56 m.
 Top of Casing 60.655 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 2.0 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe 7720DT
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By D. White Date 20/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		0	GB77_0.2				Fill: Gravelly Sandy CLAY ; low plasticity, firm, moist with pieces of rubble and sheet metal, coarse sands, some very sandy friable sections, red/black/brown.
		0	GB77_0.5				
1		0	GB77_1.0				
2		0	GB77_2.0				
3		1.5	GB77_3.0			CH	Fill: GRAVEL ; angular, red/orange cobbles, wet. Fill: CLAY, SLIMES ; high plasticity, moist, soft, grey.
4							End of investigation at 4.1mbgs.
5							

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Gas Bore **GB78**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 3.2 m. North 5800801.56 m East 333408.74 m.
 Top of Casing 60.951 m. Water Level Initial NA Static NA Diameter 150 mm.
 Screen: Dia 50 mm. Length 1.0 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe 7720DT
 Drill Co. Star Drilling Method Push tube / Solid stem flight auger
 Driller J. Thomas Log By D. White Date 20/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		0	GB78_0.2				Fill: Sandy Gravelly Clay; low plasticity, moist, coarse sand, light brown.
		0	GB78_0.5				Fill: Clayey Gravel and Silt; dry, dark brown with rubble and scrap metal.
1		0	GB78_1.0				
2		0	GB78_2.0				Fill: GRAVEL; red/orange, angular cobbles, wet. Fill: Slimes; Clay, high plasticity, wet, light brown.
3							
4							End of investigation at 3.2mbgs.

Drilling Log

Gas Bore **GB79**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. NA Total Hole Depth 3.2 m. North 5800791.14 m East 333465.69 m.
 Top of Casing 60.675 m. Water Level Initial NA Static NA Diameter 125 mm.
 Screen: Dia 50 mm. Length 1.5 m. Type/Size PVC
 Casing: Dia 50 mm. Length 1.0 m. Type PVC
 Fill Material Bentonite, Sand Rig/Core Geoprobe 7720DT
 Drill Co. Star Drilling Method Push tube
 Driller J. Thomas Log By R. White Date 21/6/16 Permit # 0826
 Checked By _____ License No. NA

COMMENTS

Depth (m.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0							Fill: Sandy CLAY; low plasticity, uniform grading, fine grained sand, light brown, moist.
0.2			GB79_0.5			CLS	Fill: Silty SAND; light brown, low plasticity, uniform grading, moist, loose.
1			GB79_1.0			SM	Fill: SAND; brown, fine grained, uniform grading, dry, dense.
						SW	with organic tree roots. Fill: GRAVEL; angular, dry, loose.
							Fill: Slime - Clay; high plasticity, brown, moist.
2			GB79_2.0				Fill: Slime; clay, brown, high plasticity, wet.
3			GB79_3.0				End of investigation at 3.2mbgs.
4							

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

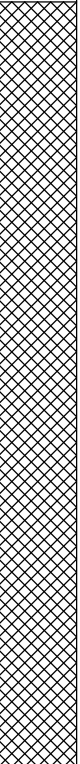
Drilling Log

Soil Mound **SM1**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.7 m. Total Hole Depth 2.0 m. North 5801061.65 m East 333142.61 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.2	SM1_0.2				Fill: Silty SAND; black, loose, fine to medium grained.
1	0.1	SM1_1.0				Fill: Sandy CLAY; very hard, with some bricks and rubble.
2	0.2	SM1_2.0				End of investigation at 2.0mbgs.
3						


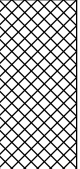
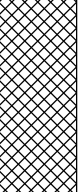

Drilling Log

Soil Mound **SM10**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.1 m. Total Hole Depth 2.5 m. North 5801209.03 m East 333292.44 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	2.2	SM10-0.2			SW	Fill: Silty SAND; fine to medium grained sand, black/grey, with some organic roots, dry, loose.
	2.0	SM10-0.5			CH	Fill: Sandy CLAY; high plasticity, orange mottled brown/grey, fine to coarse grained sand, moist, stiff.
1						
	1.8	SM10-1.5			SW	Fill: Clayey SAND; low plasticity to medium plasticity clay, fine to coarse grained sand, orange mottled brown/grey, moist, stiff.
2						
	0.9	SM10-2.5			SW	Fill: Clayey SAND; low plasticity to medium plasticity clay, fine to coarse grained sand, orange mottled brown/grey, moist, stiff.
						Terminated at 2.5 mbgs.
3						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

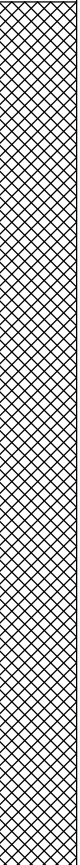
Drilling Log

Soil Mound **SM11**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 66.6 m. Total Hole Depth 3.0 m. North 5801168.12 m East 333281.62 m.
 Top of Casing NA Water Level Initial ▽ 2.0 m. Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Fill: Sandy Gravelly CLAY; low plasticity, dry, stiff, dark brown, with some green waste throughout.
1	0.2	SM11_1.0				
2	0.4	SM11_2.0				
3	0.4	SM11_3.0				End of investigation at 3.0mbgs.
4						








Drilling Log

Soil Mound **SM12**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.4 m. Total Hole Depth 2.5 m. North 5801193.68 m East 333336.66 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.7	SM12-0.2			SW	Fill: Silty SAND; fine to medium grained sand, black, with some organic roots, moist, loose.
					CH	Fill: Sandy CLAY; high plasticity, brown mottled orange/grey, fine to medium grained sand, moist, firm.
					CH	Fill: Sandy CLAY; high plasticity, brown mottled orange/grey, fine to medium grained sand, moist, firm, some odour.
1	1.2	SM12-1.0			CH	
					CH	Fill: Sandy CLAY; high plasticity, brown mottled orange/grey, fine to medium grained sand, moist, firm.
2					CH	
	1.9	SM12-2.5				Terminated at 2.5 mbgs.
3						

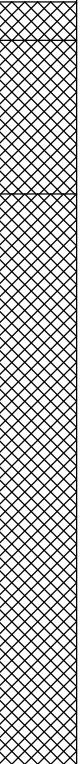
Drilling Log

Soil Mound **SM13**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.0 m. Total Hole Depth 2.0 m. North 5801169.61 m East 333311.83 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	1.7	SM13-0.1			SW	Fill: Silty SAND; low to medium plasticity, fine to coarse grained, dark brown, with some organic matter, moist, stiff.
	0.7	SM13-0.2			SC	Fill: Clayey SAND; fine to coarse grained, brown/grey, high plasticity clay, orange/dark brown, moist, dense.
	0.9	SM13-0.5				Fill: Gravelly Clayey SAND; fine to coarse grained sand, brown/grey, high plasticity clay, orange/brown/dark brown/grey, fine to coarse grained gravel (basalt), with some asphalt gravel (black), brick, concrete, timber and tile metal fragments.
1					SWG	
	1.1	SM13-1.5				
2						Terminated at 2.0 mbgs.
3						


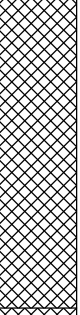
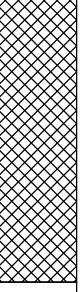
Drilling Log

Soil Mound **SM14**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.1 m. Total Hole Depth 1.5 m. North 5801149.28 m East 333336.78 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Gravelly SAND; fine to coarse grained sand, dark brown, coarse grained gravels, metal fragments, trace of and low plasticity clay, moist, loose.
1.1		SM14-0.5			SW	
1						Fill: Clayey SAND; fine to coarse grained sand, brown/black/grey, low plasticity, trace of asphalt gravel, metal fragments, dry, loose.
0.8		SM14-1.5				End of investigation at 1.5 mbgs.
2						

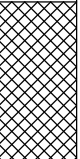
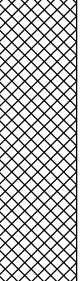
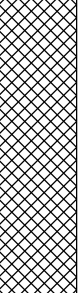
Drilling Log

Soil Mound **SM15**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.7 m. Total Hole Depth 2.0 m. North 5801167.32 m East 333386.39 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 3/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Clayey SAND; fine to coarse grained sand, dark brown, medium to high plasticity clay, brown, with some coarse grained gravels, moist, loose.
0.7		SM15-0.5			SW	
1					SW	Fill: SAND; fine to medium grained sand, black/grey, with some sandstone case, concrete and brick fragments.
2		SM15-2.0				Terminated at 2.0 mbgs.
3						


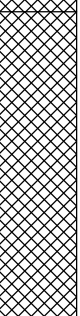
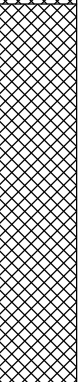
Drilling Log

Soil Mound **SM16**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.0 m. Total Hole Depth 2.0 m. North 5801200.11 m East 333429.27 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.9	SM16-0.2			SW	Fill: SAND; fine to medium grained sand, black/grey, with some sandstone case, brown, dry, loose.
					SW	Fill: SAND; fine to medium grained sand, black/grey, trace of rubber, metal, timber, concrete fragements, tin, plastic and cloth, dry, loose.
1	1.0	SM16-1.0			SW	Fill: SAND; fine to medium grained sand, brown, trace of rubber, metal, timber, concrete fragements, tin, plastic and cloth, dry, loose.
2		SM16-2.0				Terminated at 2.0 mbgs.
3						

Drilling Log

Soil Mound **SM17**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.3 m. Total Hole Depth 2.0 m. North 5801192.85 m East 333493.22 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0				[Cross-hatched pattern]		Fill: SAND; fine to coarse grained sand, black, trace of sandstone, brown, organic roots, plastic, glasses, wire, dry, loose.
1	0.3	SM17_1.0		[Cross-hatched pattern]	SWG	
2	0.6	SM17_2.0		[Cross-hatched pattern]		End of investigation at 2.0mbgs.
3						


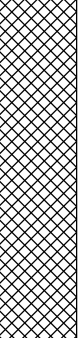
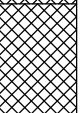
Drilling Log

Soil Mound **SM18**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.1 m. Total Hole Depth 2.0 m. North 5801132.53 m East 333534.61 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: SAND; fine to coarse grained sand, dark brown, trace of rubber, sandstone cast, brown, timber, plastics, asphalt gravels (black), cloth, dry, loose, no odour.
1	1.0	SM18_1.0			SW	
2	1.2	SM18_2.0			CH	Fill: Sandy CLAY; high plasticity clay, dark brown/brown/orange, fine to coarse grained sand, black, trace of sandstone case, brown, asphalt, gravels (black), moist, no odour.
3						End of investigation at 2.0mbgs.

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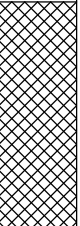
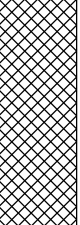
Drilling Log

Soil Mound **SM19**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.4 m. Total Hole Depth 2.0 m. North 5801065.88 m East 333516.40 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: SAND; fine to coarse grained sand, brown, with some low plasticity clay, trace of metal fragments and brick fragments, dry, loose, no odour.
1	0.3	SM19_1.0			SW	Fill: SAND; fine to medium grained sand, black, dry, loose, no odour.
2	0.6	SM19_2.0				End of investigation at 2.0mbs.
3						

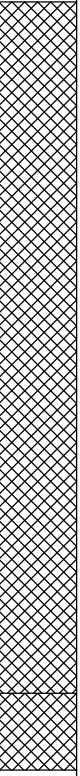
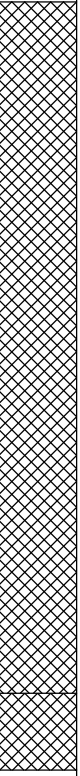
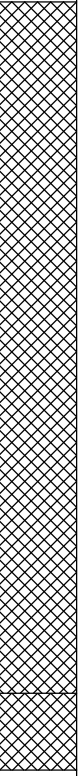
Drilling Log

Soil Mound **SM2**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.2 m. Total Hole Depth 2.0 m. North 5801099.19 m East 333164.73 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.1	SM2_0.2				Fill: Silty SAND; fine to medium grained, loose, black.
1	4.0	SM2_1.0				
2	2.3	SM2_2.0				Fill: Sandy CLAY; low plasticity, firm, grey, very sandy, fine to coarse sands.
3						End of investigation at 2.0 mbgs.


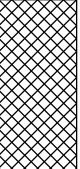
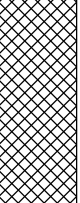
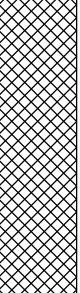
Drilling Log

Soil Mound **SM20**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.5 m. Total Hole Depth 2.0 m. North 5800986.90 m East 333508.16 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Silty SAND; fine to coarse grained, low plasticity, dark brown, moist, loose.
1.1		SM20-0.5			SWG	Fill: Gravelly SAND; fine to medium grained sand, black, fine to coarse grained gravel, with some concrete and metal fragments, trace of cloth, plastic, and asphalt gravel, sandstone case (brown, purple), moist, loose.
1					SW	Fill: SAND; fine to medium grained, grey, trace of concrete cobble and brick fragments, dry, loose.
2	0.6	SM20-2.0				Terminated at 2.0 mbgs.
3						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17


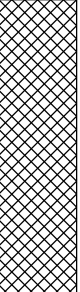
Drilling Log

Soil Mound **SM21**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.2 m. Total Hole Depth 2.0 m. North 5800991.13 m East 333458.21 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Silty SAND; fine to medium grained, dark brown, low plasticity, moist, loose.
1	2.2	SM21-1.0			SWG	Fill: Gravelly Clayey SAND; fine to coarse grained sand, brown/dark brown, low to medium plasticity clay, fine to coarse grained gravel, dry, dense.
2	3.3	SM21-2.0				Terminated at 2.0 mbgs.
3						


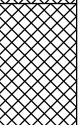
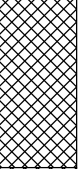
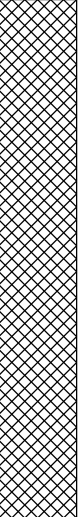
Drilling Log

Soil Mound **SM22**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.4 m. Total Hole Depth 3.0 m. North 5800969.47 m East 333385.11 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Silty SAND; fine to medium grained, dark brown, low plasticity, trace of brick fragments (red) and asphalt fragments (black), moist, loose.
					SC	Fill: Gravelly Clayey SAND; fine to medium grained sand, dark brown, high plasticity clay, dark brown, fine to coarse grained gravel, trace of pvc, brick, asphalt, grass, metal and concrete fragments.
1	1.6	SM22-1.0				Fill: Gravelly SAND; fine to medium grained sand, black, fine to coarse grained gravel, with some concrete fragments, brick fragments, trace of sandstone case and siltstone gravel (white/pale yellow), moist, dense.
2	2.4	SM22-2.0			SWG	
3	1.0	SM22-3.0				End of investigation at 3.0 mbgs.
4						


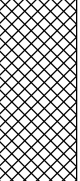
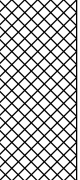
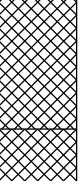
Drilling Log

Soil Mound **SM23**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.1 m. Total Hole Depth 3.5 m. North 5801002.57 m East 333397.32 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.6	SM23-0.2			SC	Fill: Gravelly Clayey SAND; fine to coarse grained sand, dark brown, low to medium plasticity clay, dark brown, fine to coarse grained gravel, with some metal, timber and brick fragments, pvc, moist, loose.
1	1.0	SM23-1.0			CH	Fill: Gravelly Sandy CLAY; medium to high plasticity, orange/dark brown, fine to coarse grained sand, fine to coarse grained gravel, with some brick, pvc (white) and asphalt, moist, stiff.
2	1.0	SM23-2.5			CH	Fill: Gravelly Sandy CLAY; medium to high plasticity, orange/dark brown, fine to coarse grained sand, fine to coarse grained gravel, with some brick, pvc (white) and asphalt, moist, stiff.
3	1.4	SM23-3.5			CH	Fill: Gravelly Sandy CLAY; medium to high plasticity, orange/dark brown, fine to coarse grained sand, fine to coarse grained gravel, with some brick, pvc (white) and asphalt, moist, stiff.
4						Terminated at 3.5 mbgs.

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Drilling Log

Soil Mound **SM24**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.0 m. Total Hole Depth 2.0 m. North 5801023.84 m East 333443.98 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: SAND; fine to medium grained sand, brown, with timber (shredded), dry, loose, no odour.
1	0.1	SM24_0.1			SW	as above with brick and asphalt fragments.
2	0.1	SM24_0.2				End of investigation at 2.0mbgs.
3						


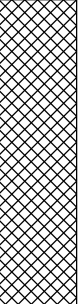
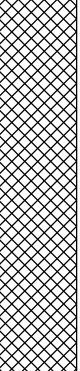
Drilling Log

Soil Mound **SM25**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.3 m. Total Hole Depth 2.0 m. North 5800939.97 m East 333482.01 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					CH	Fill: Sandy CLAY; high plasticity, brown, fine to coarse grained sand, with some concrete, brick and bluestone fragments, moist, firm.
					CH	Fill: Sandy CLAY; high plasticity, brown, fine to coarse grained sand, with some concrete, brick and bluestone fragments, moist, firm.
1		SM25-1.0			CH	Fill: Sandy CLAY; high plasticity, brown, fine to coarse grained sand, with some concrete, brick and bluestone fragments, moist, firm.
2		SM25-2.0				Terminated at 2.0 mbgs.
3						


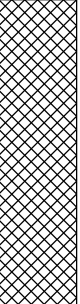
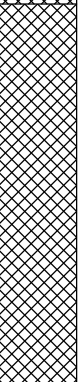

Drilling Log

Soil Mound **SM26**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.8 m. Total Hole Depth 2.0 m. North 5800905.87 m East 333499.08 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Gravelly Silty SAND; fine to medium grained sand, low plasticity, pale brown/red, fine to coarse grained gravel, with some timber, brick and concrete fragments, dry, loose.
0.8		SM26-0.5			SW	Fill: Gravelly Silty SAND; fine to medium grained sand, low plasticity, pale brown/red, fine to coarse grained gravel, with some timber, brick and concrete fragments, dry, loose.
1					SW	Fill: Gravelly Silty SAND; fine to medium grained sand, low plasticity, pale brown/red, fine to coarse grained gravel, with some timber, brick and concrete fragments, dry, loose.
2		SM26-2.0				Terminated at 2.0 mbgs.
3						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Soil Mound **SM27**

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.5 m. Total Hole Depth 2.0 m. North 5800834.51 m East 333491.14 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Silty SAND; fine to medium grained, dark brown, low plasticity, moist, loose.
1	0.1	SM27-1.0			SW	Fill: Silty SAND; fine to medium grained, dark brown, low plasticity, with trace of concrete, brick, timber, organic matter, plastic and metal fragments, dry, loose.
2	0.3	SM27-2.0			SW	Fill: SAND; fine to coarse grained, brown, with some low plasticity clay, brown/orange, concrete boulders, bluestone cobbles, brick and metal fragments, dry, loose.
3						End of investigation at 2.0 mbgs.

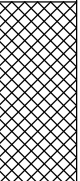
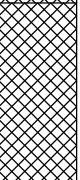
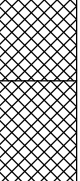
Drilling Log

Soil Mound **SM28**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.3 m. Total Hole Depth 2.0 m. North 5800800.26 m East 333431.28 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					CH	Fill: Sandy CLAY; medium to high plasticity, dark brown, fine to coarse grained sand, trace of concrete, brick fragments, sandstone gravel (brown), moist, stiff.
0.9		SM28-0.5			CH	Fill: Sandy CLAY; medium to high plasticity, brown, fine to coarse grained sand, trace of concrete, brick fragments, sandstone gravel (brown), moist, firm.
1.8		SM28-1.5			SW	Fill: Gravelly Clayey SAND; fine to coarse grained sand, red/brown, low to medium plasticity clay, fine to coarse grained gravel, with some concrete cobble, brick fragments, metal, tile, glass wire fragments, dry, loose.
2						Terminated at 2.0 mbgs.
3						

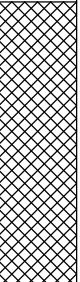
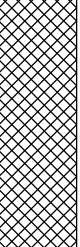
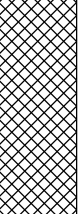
Drilling Log

Soil Mound **SM29**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.1 m. Total Hole Depth 2.0 m. North 5800809.36 m East 333363.54 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Gravelly Clayey SAND; fine to coarse grained sand, brown, red, white, low to medium plasticity clay, orange/brown, fine to coarse grained gravel, some trace of brick and sandstone case (brown) fragments, moist, loose.
1	2.4	SM29-1.0			CL	
2	3.6	SM29-2.0				Fill: Building Waste; low plasticity clay, dark brown/black, fine to coarse grained sand, traces of timber, metals, concrete, brick, plastic, tiles, galsses, bluestone cobbles with some clayey sand, moist, loose.
3						Terminated at 2.0 mbgs.

Drilling Log

Soil Mound **SM3**

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.5 m. Total Hole Depth 2.0 m. North 5801163.16 m East 333199.34 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Silty SAND; loose, grey, moist, fine to medium grained.
	0.4	SM3_0.25				
1						Fill: Clayey Silty SAND; fine to medium grained, moist, medium dense, brown.
	1.3	SM3_1.0				
2						End of investigation at 2.0 mbgs.
	1.1	SM3_2.0				
3						

Drilling Log

Soil Mound **SM4**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.5 m. Total Hole Depth 3.0 m. North 5801230.15 m East 333221.87 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Gravelly Silty SAND; loose, dry, fine, grey/brown.
1	0.4	SM4_1.0				
2	0.1	SM4_2.0				Fill: Sandy CLAY; low plasticity, very hard coarse sand, grey/light brown.
3	0.4	SM4_3.0				End of investigation at 3.0mbgs.
4						

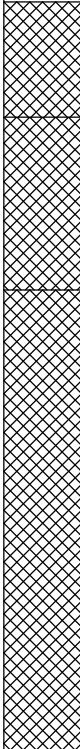
Drilling Log

Soil Mound **SM5**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.4 m. Total Hole Depth 1.3 m. North 5801235.98 m East 333252.46 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: SAND; fine to medium grained sand, dark brown/brown, trace of organic roots, dry, loose.
		SM5-0.5			SW	Fill: SAND; fine to medium grained sand, dark brown/brown, trace of organic roots, dry, loose.
					SW	Fill: SAND; fine to medium grained sand, brown, trace of organic roots, dry, loose.
1		SM5-1.0				
2						Terminated at 1.3 mbgs.

Drilling Log

Soil Mound **SM6**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.7 m. Total Hole Depth 1.0 m. North 5801223.11 m East 333294.29 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

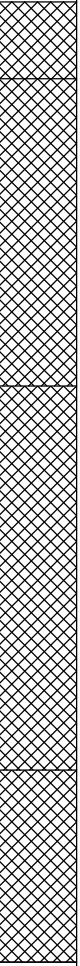
Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: Silty SAND; fine to medium grained sand, black/dark brown/grey, with some organic roots, tract of coarse grained gravels, dry, loose.
0.6		SM6-0.5			SW	
1						Terminated at 1.0 mbgs.
2						

Drilling Log

Soil Mound **SM7**

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.7 m. Total Hole Depth 2.5 m. North 5801212.84 m East 333252.23 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.3	SM7-0.2			SW	Fill: Silty SAND; low plasticity, fine to medium grained sand, black/grey, trace of coarse grained gravels and organic roots, moist, loose.
	1.0	SM7-0.5			CLS	Fill: Sandy CLAY; high plasticity, orange mottled grey, moist, firm.
1					CLS	Fill: Sandy CLAY; high plasticity, orange mottled grey, moist, stiff.
2	1.1	SM7-2.0			CLS	Fill: Sandy CLAY; high plasticity, orange mottled grey, moist, stiff.
	1.4	SM7-2.5				Terminated at 2.5 mbgs.
3						

Drilling Log

Soil Mound **SM8**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.4 m. Total Hole Depth 3.2 m. North 5801150.00 m East 333218.55 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Fill: Sandy CLAY ; compacted hard, low plasticity, very sandy, orange and grey with red mottling.
1	0.4	SM8_1.0				
2	0.5	SM8_2.0				
3	0.2	SM8_3.0				Fill: Silty SAND ; black, loose, fine to medium grained. End of investigation at 3.2mbgs.
4						

Drilling Log

Soil Mound **SM9**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.6 m. Total Hole Depth 3.0 m. North 5801191.41 m East 333243.83 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Fill: Sandy CLAY; very sandy, low plasticity, medium grained sand, grey and light brown.
1	0.4	SM9_1.0				
2	0.4	SM9_2.0				
3	0.2	SM9_3.0				End of investigation at 3.0mbgs.
4						

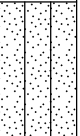
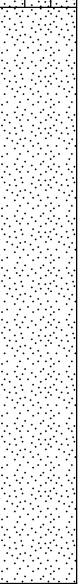
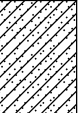
Drilling Log

Test Pit **TP25**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.8 m. Total Hole Depth 4.0 m. North 5801233.76 m East 333210.80 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
1.1		TP25_0.2			SM	Silty SAND ; fine grained, dry, grey/brown, loose.
1.2		TP25_0.5				
1		TP25_1.0			SP	SAND ; dry, very loose, fine, brown. becoming white/grey.
2		TP25_2.0				
3		TP25_3.0				
4		TP25_4.0			SC	Clayey SAND ; very hard, medium to coarse grained, grey/orange.
4						End of investigation at 4.0mbgs.
5						



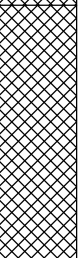
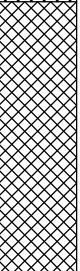
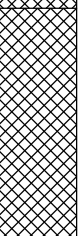
Drilling Log

Test Pit **TP26**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.6 m. Total Hole Depth 4.0 m. North 5801223.63 m East 333265.58 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS
Slight odour at 3.5 mbgs.

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure)
Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.						
0	0.9	TP26-0.2			CH	Fill: Sandy CLAY; high plasticity, brown, mottled orange/grey, fine to coarse grained sand, moist, firm.
	4.6	TP26-0.5			SW	Fill: SAND; fine to medium grained sand, black, with some organic matter, moist, loose.
1	4.3	TP26-1.0			SW	Fill: SAND; fine to medium grained, black/dark brown/grey, trace of coarse grained gravel, some wire and metal fragments, moist, loose.
2	2.6	TP26-2.0			SW	Fill: SAND; fine to medium grained sand, black, trace of cloths, metal sheets, timber and sandstone case (brown), moist, loose.
3	1.7	TP26-3.0			SW	Fill: SAND; fine to medium grained sand, black, trace of cloths, metal sheets, timber and sandstone case (brown), moist, loose.
4	2.2	TP26-4.0				Terminated at 4.0 mbgs.
5						

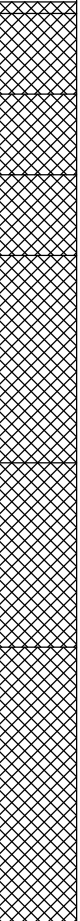
Drilling Log

Test Pit **TP27**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.4 m. Total Hole Depth 4.0 m. North 5801215.85 m East 333304.89 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	1.7	TP27-0.2			SW	Fill: Silty SAND; fine to medium grained sand, black/grey, with some organic matter, moist, loose.
					CH	Fill: Sandy CLAY; high plasticity, orange mottled brown/grey, fine to coarse grained sand, moist, firm.
	0.6	TP27-0.5			SW	Fill: SAND; fine to medium grained sand, black, trace of high plasticity clay, dark brown, moist, loose.
1	1.3	TP27-1.0			SW	Fill: SAND; fine to medium grained sand, black, trace of high plasticity clay, brown/white, dry, loose.
					SW	Fill: SAND; fine to medium grained sand, black, with some sandstone case, brown, dry, loose.
2	1.6	TP27-2.0			SW	Fill: SAND; fine to medium grained sand, black, with some sandstone case, brown, moist, loose.
3	2.4	TP27-3.0		CH	Fill: Sandy CLAY; high plasticity, grey mottled brown, fine to medium grained sand, white/grey/brown, trace of car tyre, concrete, plastic (blue/white), steel, brick and sandstone case.	
4	2.1	TP27-4.0				Terminated at 4.0 mbgs.
5						









Drilling Log

Test Pit **TP28**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.6 m. Total Hole Depth 4.0 m. North 5801215.24 m East 333349.44 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	6.5	TP28-0.2			SW	Fill: Silty SAND; fine to medium grained sand, brown/dark brown, with some coarse grained gravel, low plasticity brick and timber fragments, some metal pipe, moist, loose.
	3.3	TP28-0.5			SW	Fill: SAND fine to medium grained sand, grey, dry, loose.
1	1.7	TP28-1.0			SW	Fill: SAND; fine to medium grained sand, brown.
					SW	SANDSTONE; low plasticity, residual soil, fine to coarse grained sand, sub-rounded, brown mottled orange, dry.
2	1.8	TP28-2.0			SW	SANDSTONE; low plasticity, residual soil, fine to coarse grained sand, sub-rounded, brown mottled orange, dry.
					SW	SANDSTONE; low plasticity, residual soil, fine to coarse grained sand, sub-rounded, brown mottled orange, dry.
3	1.6	TP28-3.0			SW	SANDSTONE; low plasticity, residual soil, fine to coarse grained sand, sub-rounded, brown mottled orange, dry.
					SW	SANDSTONE; low plasticity, residual soil, fine to coarse grained sand, sub-rounded, brown mottled orange, dry.
4	2.4	TP28-4.0				Terminated at 4.0 mbgs.
5						

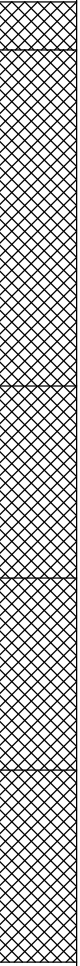
Drilling Log

Test Pit **TP29**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.3 m. Total Hole Depth 5.0 m. North 5801183.67 m East 333209.40 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	1.4	TP29_0.2			SM	Fill: Silty SAND; black, loose, moist, soft, fine to medium grained.
	1.1	TP29_0.2				Fill: Silty SAND; very loose, dry, dark brown with rubble fabrics and slabs of concrete.
1	0.6	TP29_1.0			SM	
2	0.2	TP29_2.0			SW	Fill: SAND; very loose, fine to medium grained, grey/black, with scrap metal, plastic and rubble
3	0.4	TP29_3.0			SC	Fill: CLAYEY SAND; dark brown, medium dense with rubbish.
4	3.2	TP29_4.0			Landfill; plastic, rubble, fabrics, steel, ASBESTOS PIECE collected in sample of surrounding sand.	
5						End of investigation at 5.0mbgs.
6						

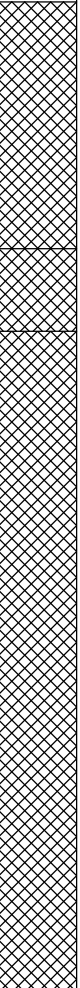
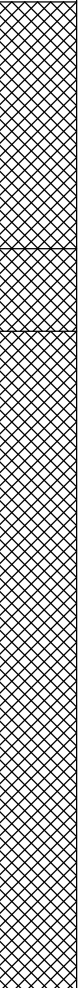
Drilling Log

Test Pit **TP30**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.9 m. Total Hole Depth 6.0 m. North 5801175.12 m East 333252.21 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.3	TP30_0.2			SM	Fill: Silty SAND; fine to medium grained, moist, dark brown/grey.
	0.2	TP30_0.5				
1	0.2	TP30_1.0			CLS	Fill: Sandy CLAY; firm, low plasticity, light brown/grey, coarse sands.
2	0.4	TP30_2.0			CLS	Fill: Clayey SAND; black with cemented yellow sand rubble suspected foundry waste.
3	0.4	TP30_3.0				
4	6.7	TP30_4.0				
5						
6						End of investigation at 6.0mbgs.
7						

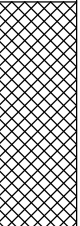
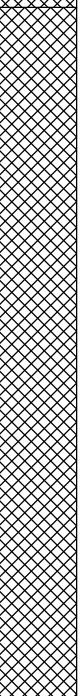
Drilling Log

Test Pit **TP31**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.8 m. Total Hole Depth 4.0 m. North 5801180.02 m East 333298.68 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.3	TP31_0.2			SM	Fill: Silty SAND.
	1.0	TP31_0.5				
1	0.7	TP31_1.0				Fill: Silty SAND; black with cemented yellow sand pieces, suspected foundry waste, fine to coarse grained sands, moist.
2	2.0	TP31_2.0				
3	1.0	TP31_1.0				
4	0.9	TP31_4.0				End of investigation at 4.0mbgs.
5						



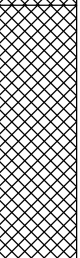
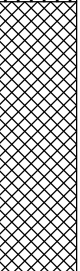
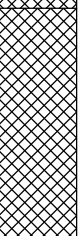
Drilling Log

Test Pit **TP32**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.9 m. Total Hole Depth 4.0 m. North 5801172.87 m East 333340.78 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.8	TP32-0.2			SW	Fill: SAND; fine to medium grained sand, black, with brick, metal, concrete, and plastic fragementes, moist, loose.
	1.2	TP32-0.5			SW	Fill: SAND; fine to medium grained sand, grey, dry, loose.
1	1.3	TP32-1.0			SW	Fill: SAND; fine to medium grained sand, black/brown, dry, loose.
2	0.3	TP32-2.0			SW	Fill: Clayey SAND; fine to medium grained sand, low plasticity clay, brown mottled grey, moist, loose.
3	0.6	TP32-3.0			SW	Fill: Clayey SAND; fine to medium grained sand, low plasticity clay, brown mottled grey, moist, loose.
4	1.1	TP32-4.0				Terminated at 4.0 mbgs.
5						

Drilling Log

Test Pit **TP33**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.2 m. Total Hole Depth 5.0 m. North 5801146.93 m East 333201.94 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.2	TP33_0.2				Fill: Silty SAND; soil mound material, loose, black/brown, fine to medium grained.
	0.3	TP33_0.3			SM	
1	0.4	TP33_1.0				Fill: Silty SAND; dry, loose, brown, fine to medium grained.
					SM	
2	1.4	TP33_2.0				Sandy CLAY; medium to high plasticity (fill), dark grey with some scrap metal.
					CLS	
3	1.4	TP33_3.0				Silty SAND; loose, (fill), grey, fine to medium grained.
					SM	
4	0.8	TP33_4.0				Sandy CLAY; brighton group, medium plasticity, very sandy, grey with light brown, medium to coarse grained sands.
					CLS	
5	0.9	TP33_5.0				End of investigation at 5.0mbgs.
6						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

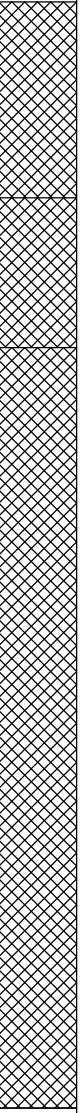
Drilling Log

Test Pit **TP34**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.3 m. Total Hole Depth 4.8 m. North 5801152.36 m East 333241.28 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	1.3	TP34_0.2				Fill: Silty SAND; fine to coarse grained, dark brown, moist, loose, no odour.
	1.3	TP34_0.5			SM	
1	0.8	TP34_1.0			SP	Fill: SAND; fine to medium grained sand, brown/white, trace of silty clay, medium to high plasticity, moist, loose.
2	2.0	TP34_2.0				Fill: SAND; fine to coarse grained sand, black, trace of timber and brick fragments, dry, loose.
						as above, trace of metal fragments, pleastic cups (white), moist, loose.
3	1.2	TP34_3.0			SP	as above, trace of rubber, foam, metals, moist, loose.
4	1.0	TP34_4.0				
5						End of investigation at 4.8mbgs

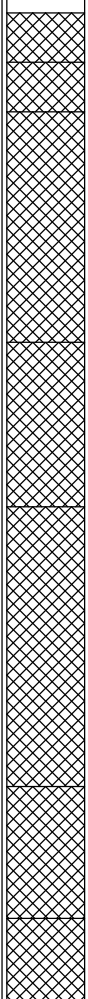
Drilling Log

Test Pit **TP35**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.1 m. Total Hole Depth 6.0 m. North 5801123.37 m East 333278.56 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 3/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS
 Existing soil mount on top -4 mbgs to 0.0 mbgs - Sandy CLAY; with brick, sand, metal, plastic and timber fragments. Slight odour at 5.5 mbgs.

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	2.3	TP35-0.2			SW	Fill: SAND; fine to medium grained sand, black, with some coarse grained gravel, fragments of brick, sandstone case, and asphalt gravel (black), metal bar, trace of plastic, ACM FRAGMENTS , moist, loose.
	1.8	TP35-0.5			SW	Fill: SAND; fine to medium grained sand, grey/brown, trace of coarse grained asphalt gravel.
1	2.6	TP35-1.0			SW	Fill: SAND; fine to medium grained sand, black, with some sandstone case (brown).
2	3.7	TP35-2.0			SW	Fill: SAND; fine to medium grained sand, black, with some sandstone case (brown).
3	3.4	TP35-3.0			SW	Fill: SAND; fine to medium grained sand, black, with some sandstone case (brown), moist, loose.
4	0.9	TP35-4.0			SW	trace of metal and plastic fragments.
5	3.3	TP35-5.0			SW	Fill: Clayey SAND; fine to coarse grained sand, grey/brown/black, low plasticity clay, with some metals (spring, sheet, wire), plastics, timber and concrete, moist, loose.
6	2.6	TP35-6.0			Fill: WASTE; timber, metals, plastics (commercial packages), brick, concrete, trace of tyre, tiles, with some fine to coarse grained sand, black, moist, loose. Terminated at 6.0 mbgs.	
7						

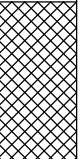

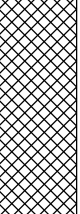
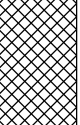
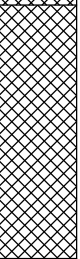
Drilling Log

Test Pit **TP36**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.4 m. Total Hole Depth 4.0 m. North 5801121.98 m East 333339.20 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	2.8	TP36-0.2			CL	Fill: Sandy CLAY ; low to medium plasticity, dark brown, fine to coarse grained sand, brown, trace of organic matter, brick and asphalt gravel, moist, soft.
	3.5	TP36-0.5				
					SW	Fill: brick, concrete, timber, sandstone case, coarse grained bluestone, sub-angular, with some fine to coarse grained sand, brown, concrete boulders, dry, loose.
1	2.6	TP36-1.0				Fill: SAND ; fine to medium grained sand, grey, trace of coarse grained bluestone gravel, low plasticity clay, brown, trace of metal pipe and pvc pipe fragments, dry, loose.
					SW	
2	2.3	TP36-2.0				
						Fill: SAND ; fine to medium grained sand, black/brown, dry, loose.
3	1.4	TP36-3.0			SW	
						Fill: Gravelly SAND ; fine to medium grained sand, brown/yellow, fine to coarse grained gravel, sub-angular gravel, with some bluestone cobbles, most, loose.
4	1.0	TP36-4.0			SW	
						Terminated at 4.0 mbgs.
5						

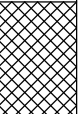
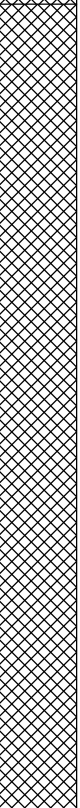
Drilling Log

Test Pit **TP37**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.1 m. Total Hole Depth 4.0 m. North 5801090.64 m East 333199.18 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.4	TP37_0.4			CLG	Fill: Gravelly Sandy CLAY; low plasticity, firm, light brown with crushed rock.
	0.7	TP37_0.5				Fill: Silty SAND; black, loose, slightly moist, fine to medium grained with rubble, bricks, metal concrete blocks.
1	0.1	TP37_1.0			SM	
2	0.2	TP37_2.0				
3	0.4	TP37_3.0				
4	0.6	TP37_4.0				End of investigation at 4.0mbgs.
5						







Drilling Log

Test Pit **TP38**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.6 m. Total Hole Depth 4.0 m. North 5801089.70 m East 333243.73 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 27/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
0.1		TP38_0.2			SM	Fill: Silty SAND; loose, moist, fine, grey.
0.1		TP38_0.5				Fill: Silty SAND; medium dense, black, fine-medium grained with some cemented yellow sand pieces suspected to be foundry waste.
1		TP38_0.2				
2		TP38_2.0			SM	
3		TP38_3.0				with some scrap steel, fabrics and plastic.
4		TP38_4.0				End of investigation at 4.0mbgs.
5						

Drilling Log

Test Pit **TP39**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 64.0 m. Total Hole Depth 7.0 m. North 5801082.18 m East 333289.66 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Geoprobe
 Drill Co. Star Drilling Method Push Tube
 Driller _____ Log By R. White Date 23/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					CL ML	Fill: Silty CLAY; with sand, brown, high plasticity, fine grained sand, moist.
1					SWG	Fill: Gravelly SAND; some clay, coarse grained, angular, brown, dry, loose.
2					SM	Fill: Silty SAND; brown, fine grained, dry, medium dense.
3					MLS	Fill: Sandy SILT; light brown, low plasticity, fine grained sand, dry.
4	0.0	TP39_3.5			CL ML	Fill: Clayey SILT; some sand, brown/red, low plasticity, fine grained sand, dry. as above, coarser sand, becoming more grey.
5	0.2	TP39_4.0			SW	SAND; brown/grey, fine to coarse grained, gap graded, moist, loose.
6	0.4	TP39_5.0			SW	becoming fine grained sand, black/brown, moist, loose. SAND; grey, fine grained, uniform grading, moist, loose.
7	1.0	TP39_6.0			SW	SAND; black, fine grained, uniform grading, moist, loose.
8	0.1	TP39_7.0			CH	Sandy CLAY; black, high plasticity, fine grained, moist.
						End of investigation at 7.0mbgs.

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

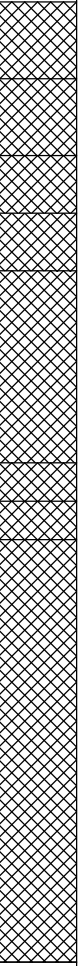
Drilling Log

Test Pit **TP40**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.0 m. Total Hole Depth 5.0 m. North 5801073.89 m East 333332.95 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 2/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		TP40-0.2			CH	Fill: Sandy CLAY ; high plasticity, brown, fine to coarse grained sand, with some organic matter, burnt timber (black), coarse grained asphalt gravel, moist, firm.
		TP40-0.5			SW	Fill: Clayey SAND ; fine to coarse grained sand, brown, high plasticity clay, dark brown, with brick, concrete, steel, and pale yellow sandstone case, moist, loose.
1		TP40-1.0			SW	Fill: red brick, grey concrete, sandstone case, yellow/pale purple, dry, dense.
					SW	Fill: SAND ; fine to medium grained sand, black, moist, loose.
					SW	Fill: SAND ; fine to medium grained sand, grey, moist, loose.
2		TP40-2.0			SW	Fill: SAND ; fine to medium grained sand, brown, moist, loose.
					SW	Fill: SAND ; fine to medium grained sand, black, moist, loose.
					SW	Fill: SAND ; fine to medium grained sand, black, moist, loose.
3		TP40-3.0			SW	Fill: Clayey SAND ; fine to coarse grained sand, brown mottled grey, high plasticity clay, moist, loose.
4		TP40-4.0			SW	
5		TP40-5.0				Terminated at 5.0 mbgs.
6						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

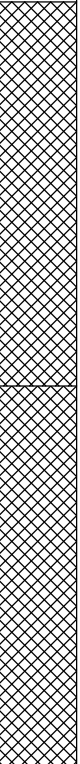
Drilling Log

Test Pit **TP41**

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Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 59.5 m. Total Hole Depth 5.0 m. North 5801072.91 m East 333155.51 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.5	TP41_0.2				Fill: SILTY SAND ; black, loose, fine to medium grained, suspected foundry slag.
	0.1	TP41_0.5				
1	0.1	TP41_1.0			SM	
2	0.2	TP41_2.0				Fill: Sandy CLAY ; low plasticity, very sandy, grey mottled light brown with rubble, concrete, pides.
3	0.2	TP41_3.0			CLS	becoming gravelly with cobbles.
4	2.3	TP41_4.0				Landfill ; plastic, fabrics, rubbish.
5						End of investigation at 5.0mbgs.
6						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17







Drilling Log

Test Pit **TP42**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.0 m. Total Hole Depth 4.0 m. North 5801051.89 m East 333192.15 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.4	TP42_0.2			CLG	Fill: Gravelly CLAY; compacted with crushed rock, low plasticity, light brown.
	0.2	TP42_0.5				Fill: Silty SAND; with some rubble suspected to be foundry waste, medium dense, fine to medium grained.
1	0.4	TP42_1.0				
2	0.4	TP42_2.0			SM	
3	1.0	TP42_3.0				
4	1.1	TP42_4.0				End of investigation at 4.0mbgs.
5						

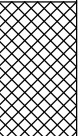
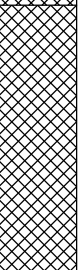
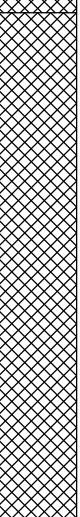
Drilling Log

Test Pit **TP43**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.7 m. Total Hole Depth 4.0 m. North 5801041.42 m East 333237.32 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.2	TP43_0.2			CLG	Fill: Gravelly CLAY; compacted, grey, low plasticity.
	0.6	TP43_0.5				
1	0.4	TP43_1.0			CLS	Fill: Sandy CLAY; low plasticity, light brown/grey, medium grained sand.
2	0.7	TP43_2.0				
3	0.4	TP43_3.0			SM	Fill: Silty SAND; evidence of foundry waste, black, some cemented sand cobbles. Becoming clayey sand.
4	0.8	TP43_4.0				
5						End of investigation at 4.0mbgs.







Drilling Log

Test Pit **TP44**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.8 m. Total Hole Depth 5.0 m. North 5801034.75 m East 333283.94 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.2	TP44_0.2			CLG	Fill: Gravelly CLAY; low plasticity, stiff, light brown.
	0.5	TP44_0.5				Fill: Gravelly SAND; loose, black with some rubble, suspected foundry waste.
1	0.7	TP44_1.0				
2	0.6	TP44_2.0			SWG	with some green waste. Hard compacted layer.
3	1.9	TP44_3.0				
4	1.7	TP44_4.0				End of investigation at 4.0 mbgs.
5						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17



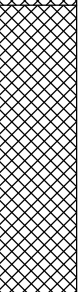
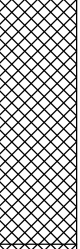
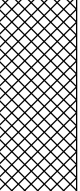

Drilling Log

Test Pit **TP45**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.3 m. Total Hole Depth 4.0 m. North 5801030.79 m East 333320.89 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By D. White Date 26/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
1.2	TP45_0.2					Fill: Crushed Rock; compacted hard, brown/grey.
6.1	TP45_0.5				SC	Fill: Gravelly Clayey SAND; with bricks/rubble, loose, grey.
2.6	TP45_1.0				SM	Fill: Silty SAND; grey, very loose, fine to medium grained. colour change to black.
1.2	TP45_2.0					
0.5	TP45_3.0				SM	Fill: Silty SAND; loose, fine grained, white/light brown.
0.7	TP45_4.0				CL	Sandy CLAY; brighton group, low plasticity, firm, very sandy, medium to coarse sands.
						End of investigation at 4.0mbgs.
5						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17



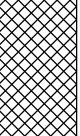
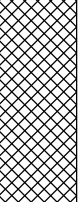

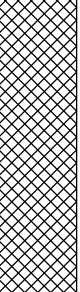

Drilling Log

Test Pit **TP46**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.0 m. Total Hole Depth 3.0 m. North 5801189.85 m East 333386.59 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 3/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.9	TP46-0.2			SW	Fill: Gravelly SAND; fine to coarse grained sand, black, fine to coarse grained sub-angular gravel (bluestone), with some timber, metal, plastic, brick fragments, moist, dry.
	1.9	TP46-0.5			CH	Fill: Sandy CLAY; high plasticity, brown, fine to coarse grained sand, moist, firm.
						Fill: SAND; fine to coarse grained sand, black, with some sandstone case, brown, moist, loose.
1	2.6	TP46-1.0				trace of cloth (fabric), plastics, moist, loose.
					SW	
2	2.1	TP46-2.0				trace of cloth (fabric), plastics, brick fragments, moist, loose.
3	2.2	TP46-3.0				Terminated at 3.0 mbgs.
4						

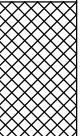
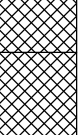
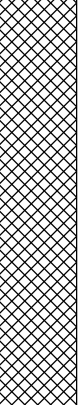
Drilling Log

Test Pit **TP47**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.5 m. Total Hole Depth 2.0 m. North 5801183.92 m East 333433.51 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 3/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.6	TP46-0.2			CH	Fill: Silty CLAY ; medium to high plasticity, black, with some organic matter, moist, firm.
	1.9	TP46-0.5				Fill: Silty CLAY ; high plasticity, brown mottled grey, trace of organic matter, moist, stiff.
1	3.4	TP47-1.0			CH	
2	3.0	TP47-2.0				End of investigation at 2.0 mbgs.
3						

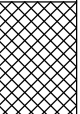

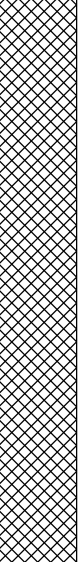
Drilling Log

Test Pit **TP48**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.9 m. Total Hole Depth 2.0 m. North 5801175.65 m East 333480.16 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		TP48_0.2			SW	Fill: Silty SAND; fine to medium grained sand, grey/black, low plasticity, trace of organic roots, moist, loose, no odour.
		TP48_0.5			CL	Fill: CLAY; low to medium plasticity, dark brown/black, trace of fine to coarse grained sand, dry, stiff, no odour.
1		TP48_1.0			CH	Fill: CLAY; high plasticity, grey/brown/inter-bedded orange, dry, stiff.
2						as above, becoming grey, moist, stiff. End of investigation at 2.0mbgs.
3						

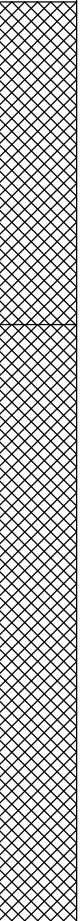
Drilling Log

Test Pit **TP49**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.7 m. Total Hole Depth 4.0 m. North 5801178.39 m East 333528.57 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0		TP49_0.2			CH	Fill: CLAY ; high plasticity, dark brown/brown, with some fine to coarse grained sand, dark brown, trace of organic roots, moist, firm, no odour.
		TP49_0.5				becoming brown/orange at 1mbgs.
1		TP49_1.0			CL ML	Fill: Silty CLAY ; high plasticity, interbedded layers of high plasticity clay, orange/brown/grey, moist, stiff.
2		TP49_2.0		becoming grey/dark brown at 3.0mbgs.		
3						End of investigation at 4.0mbgs.
4						
5						







Drilling Log

Test Pit **TP50**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.3 m. Total Hole Depth 4.0 m. North 5801143.63 m East 333373.34 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	4.0	TP50_0.2			SM	Fill: Silty SAND; fine to coarse grained sand, dark brown, with some low to medium plasticity clay, red/mottled brown, trace of steel, asphalt (black), timber, concrete, wire and plastic, moist, loose, no odour.
1	1.7	TP50_0.5			SW	Fill: SAND; fine to coarse grained sand, white/yellow/black, trace of coarse grained asphalt, black, moist, loose, no odour.
2	0.8	TP50_1.0			SW	Fill: SAND; fine to coarse grained sand, black, trace of metal, plastic and shaped gaswork.
3	0.9	TP50_2.0			SW	Fill: SAND; fine to coarse grained sand, black, trace of metal, plastic and shaped gaswork.
4	1.3	TP50_3.0			SW	Fill: SAND; fine to coarse grained sand, black, trace of metal, plastic and shaped gaswork.
4	1.0	TP50_4.0			SW	Fill: SAND; fine to coarse grained sand, black, trace of metal, plastic and shaped gaswork.
5						End of investigation at 4.0mbgs.

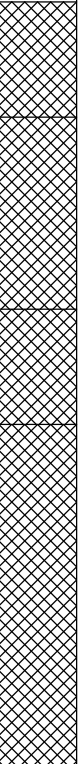
Drilling Log

Test Pit **TP51**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.9 m. Total Hole Depth 2.0 m. North 5801137.91 m East 333424.67 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	1.1	TP51_0.2			SW	Fill: SAND; fine to coarse grained sand, black, trace of metal and timber fragments, moist, loose, no odour.
	0.8	TP51_0.5			SW	Fill: Gravelly SAND; fine to coarse grained sand, black, fine to coarse grained, sub-rounded gravels, trace of plastic and metal, moist, loose, no odour.
1	1.2	TP51_1.0			SW	Fill: Gravelly SAND; fine to coarse grained sand, black, fine to coarse grained gravels with brick and sandstone, moist, loose, no odour.
					SW	Fill: SAND; fine to coarse grained sands, white, gray, yellow, trace of low plasticity clay, 1 tin (coke soft drink), plastic, metal pipe and rubber, moist, loose, no odour.
2	0.7	TP51_2.0				End of investigation at 2.0mbgs.
3						

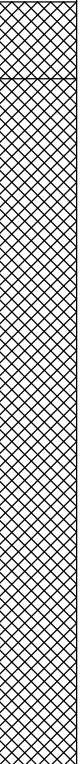
Drilling Log

Test Pit **TP52**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.7 m. Total Hole Depth 2.0 m. North 5801131.33 m East 333469.36 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 31/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	1.3	TP52_0.2			SP	Fill: SAND; fine to coarse grained sand, black, trace of plastic, cloth, coarse grained, asphalt, medium, loose, no odour.
	1.0	TP52_0.5				Fill: SAND; as above, black/brown, trace of metal, rubber and sandstone, gravels coarse grained, moist, loose, no odour.
1	1.4	TP52_1.0			SP	
2	1.7	TP52_2.0				End of investigation at 2.0mbgs.
3						

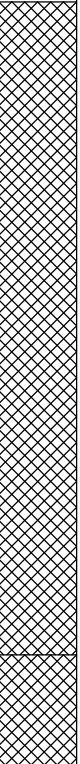
Drilling Log

Test Pit **TP53**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.0 m. Total Hole Depth 2.0 m. North 5801122.89 m East 333522.14 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: SAND; fine to coarse grained sand, black, trace of metal fragments, plastic cups (white), brick, concrete and steel, brown coarse sand, asphalt gravels, moist, loose.
	0.4	TP53_0.2				
	1.1	TP53_0.5			SW	as above, trace of glass fragments, plastics and metal pipes, moist, loose, no odour.
1	0.3	TP53_1			CH	Fill: CLAY; high plasticity clay, dark brown/orange, with fine to coarse grained sand, white/yellow, moist, firm, no odour.
2	1.1	TP53_2				End of investigation at 2.0mbgs.
3						

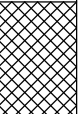
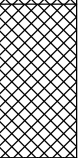
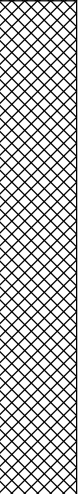
Drilling Log

Test Pit **TP54**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.2 m. Total Hole Depth 2.0 m. North 5801094.53 m East 333368.05 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	8.3	TP54_0.2			SW	Fill: SAND; fine to coarse grained sand, dark brown, with some coarse grained sand, sub-rounded trace of organic roots and dry clay, high plasticity, moist, loose, no odour.
	2.4	TP54_0.5			SW	Fill: SAND; fine to coarse grained sand, brown, moist, loose, no odour.
1	0.7	TP54_1.0			CL ML	Fill: Silty Sandy CLAY; high plasticity clay, brown, light grey, interbedded with fine grained sand, white with some coarse grained sandstone gravels, moist, loose, no odour.
2	1.0	TP54_2.0				End of investigation at 2.0mbgs,
3						

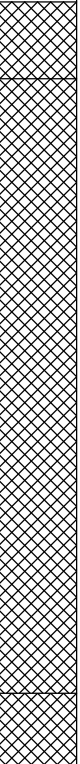
Drilling Log

Test Pit **TP55**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.0 m. Total Hole Depth 2.0 m. North 5801082.59 m East 333412.11 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: SAND; fine to coarse grained sand, black, trace of organic rocks and coarse grained gravel, low plasticity clay, moist, loose, no odour.
0.6	TP55_0.2					Fill: Clayey SAND; fine to coarse grained sand, brown, low to medium plasticity clay, fragments of concrete, brick, plastics and metal, dry, loose, no odour.
1					SC	
1	0.7	TP55_1.0				
2						Fill: Building Rubble; brick, concrete, metal, plastic glasses with black sands, trace of ACM, moist, loose, no odour.
2	2.9	TP55_2.0				End of investigation at 2.0mbgs.
3						

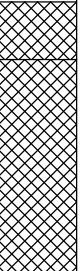
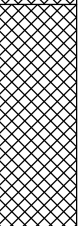
Drilling Log

Test Pit **TP56**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.9 m. Total Hole Depth 3.3 m. North 5801078.22 m East 333458.38 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.4	TP56_0.2			SW	Fill: SAND; fine to coarse grained sand, dark brown, trace of coarse grained gravels, moist, loose, no odour.
	0.6	TP56_0.5				Fill: SAND; fine to coarse grained sand, grey/light brown, trace of coarse grained gravel, dry, loose, no odour.
1	0.5	TP56_1.0			SW	as above, trace of glass fragments and plastics (black).
2	0.3	TP56_2.0				Fill: Building Rubbles; brick, concrete, metals with gravelly SAND - fine to coarse grained, brown/dark brown, fine to coarse grained gravels, dry, loose, no odour.
3	0.5	TP56_3.0				Fill: Sandy CLAY/SAND; fine grained sand, grey/brown/white mixed with sandy clay, brown interbedded with white/yellow, low to medium plasticity clay, fine to medium grained sand, trace of brick fragments, moist, loose.
4						End of investigation at 3.3mbgs.

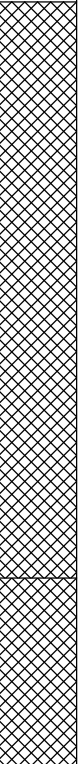
Drilling Log

Test Pit **TP57**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.0 m. Total Hole Depth 2.0 m. North 5801075.88 m East 333505.01 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						Fill: SAND; fine to coarse grained sand, trace of coarse grained gravels, dry, loose, no odour.
	2.7	TP57_0.2				
	1.1	TP57_0.5			SW	
1	1.8	TP57_1.0				fragments of timber and brick, dry, loose, no odour.
					SW	Fill: Clayey SAND; fine to coarse grained sand, brown, medium to high plasticity clay, dry to moist, loose.
2	0.4	TP57_2.0				End of investigation at 2.0mbgs.
3						

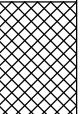
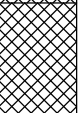
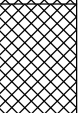

Drilling Log

Test Pit **TP58**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.4 m. Total Hole Depth 2.2 m. North 5801044.04 m East 333358.00 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					CLS	Fill: Sandy CLAY ; dark brown, low plasticity, dry, no odour.
					CLS	Fill: Sandy CLAY ; dark brown with fine to coarse grained gravels, low plasticity, dry.
1					SC	Fill: Clayey SAND ; orange interbedded yellow, fine to coarse grained, sub-rounded gravels, low to medium plasticity.
2					CL ML	Fill: Silty CLAY ; high plasticity, soft, grey/light brown.
3						End of investigation at 2.2 mbgs.

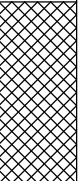
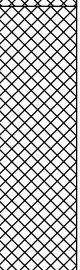
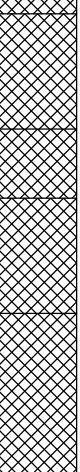
Drilling Log

Test Pit **TP59**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.8 m. Total Hole Depth 4.0 m. North 5801034.04 m East 333411.47 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.3	TP59_0.2			CH	Fill: CLAY; high plasticity, dark brown with a fine to coarse grained sand and gravels (building rubbles, brick and terracotta tile, asphalt), dry, no odour.
	0.2	TP59_0.5			CH	as above, no building rubble.
1	0.4	TP59_1.0			SC	Fill: Clayey SAND; fine to coarse grained sand, dark brown with low plasticity clay, trace of brick gravels, asphalt, and glass fragments, dry, no odour.
2	0.6	TP59_2.0			SW	Fill: SAND; fine to coarse grained sand, dark brown/light green with asphalt gravels, brick, slight sewer odour.
						Fill: Gravels; bluestone cobbles, angular, blue/dark brown, moist.
3	1.1	TP59_3.0			CH	Fill: CLAY; high plasticity, dark brown, trace of brick, asphalt, glasses fragments.
					SW	Fill: SAND; fine grained sand, white, moist, loose, no odour.
4	0.4	TP59_4.0				End of investigation at 4.0mbgs.
5						

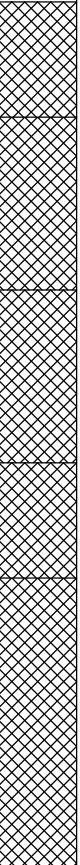
Drilling Log

Test Pit **TP60**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.4 m. Total Hole Depth 3.0 m. North 5801019.42 m East 333470.08 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	3.3	TP60_0.2			CLS	Fill: Sandy CLAY ; medium plasticity, dark brown, fine to coarse grained sand, trace of timber fragments.
	3.7	TP60_0.5			SWG	Fill: Gravelly SAND ; fine to coarse grained sand, dark brown/white, fine to coarse grained, sub-angular gravels with brick and timber fragments, dry, loose.
1	2.4	TP60_1.0			SW	Fill: SAND ; fine grained, light brown, dry, loose.
					SW	Fill: SAND ; coarse grained, sub-rounded sand, white/brown/black, with some concrete and steel fragments, dry, loose, no odour.
2	1.7	TP60_2.0			CH	Fill: CLAY ; high plasticity, dark brown with fine to coarse grained sand, white, wet, no odour.
3	1.3	TP60_3.0				End of investigation at 3.0mbgs.
4						









Drilling Log

Test Pit **TP61**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.1 m. Total Hole Depth 2.0 m. North 5801026.60 m East 333509.92 m.
 Top of Casing NA Water Level Initial ▽ 1.0 m. Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 30/5/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	2.4	TP61_0.2			SWG	Fill: Gravelly SAND; fine to coarse grained sand, dark brown, fine to coarse grained, sub-angular gravels. (Bluestone), dry.
	3.1	TP61_0.5				Fill: Building Rubbles; fragments of brick, concrete, steel, metal, trace of plastics and fine to coarse grained sand, dark brown.
					SW	Fill: SAND; fine to coarse grained sand, pale brown/grey, trace of coarse grained gravels (bluestone), dry, loose, no odour.
						Fill: Building Rubbles; same as above, wet, dense, no odour.
1	▽ 2.6	TP61_1.0				
						Fill: CLAY; high plasticity, dark brown, trace of brick, concrete fragments, wet, no odour.
					CH	
2	1.0	TP61_2.0				End of investigation at 2.0mbgs.
3						

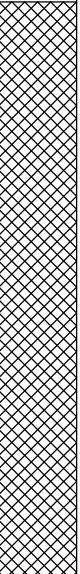
Drilling Log

Test Pit **TP62**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.5 m. Total Hole Depth 2.5 m. North 5800988.49 m East 333353.59 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.3	TP62-0.2				Fill: Sandy CLAY ; high plasticity, dark brown, fine to coarse grained sand, trace of plastic, timber, brick, metal and asphalt fragments, moist, stiff.
	1.4	TP62-0.5			CH	trace of pvc tube, plastic tub (black), moist, firm.
1	3.6	TP62-1.0				
						Fill: Sandy CLAY ; high plasticity, brown mottled orange, fine to coarse grained sand, with some fine to coarse grained gravel, sub-angular, metal, pipe, moist, firm.
2	5.1	TP62-2.0			CH	
					GP	Fill: GRAVEL ; coarse grained, sub-angular gravel.
3						Refusal at 2.5 mbgs.

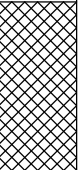
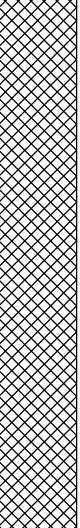
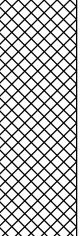
Drilling Log

Test Pit **TP63**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 65.1 m. Total Hole Depth 5.0 m. North 5800982.81 m East 333400.43 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS
 ACM-3 concrete sheet sample
 TP63-5.0 soil sample for
 Asbestos

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.5	TP63-0.2			CH	Fill: Sandy CLAY ; high plasticity, brown/dark brown, fine to coarse grained sand, with some organic matter, trace of asphalt and brick fragments, moist, stiff.
	1.5	TP63-0.5				fragments of rubber and plastic, dry, firm.
1	3.0	TP63-1.0			SW	Fill: Gravelly Clayey SAND ; fine to coarse grained sand, brown, medium to high plasticity clay, dark brown/black, fine to coarse grained gravel, with some organic matter, asphalt gravel, and brick fragments, moist, stiff.
2	1.0	TP63-2.0				
3	2.3	TP63-3.0				
4	1.7	TP63-4.0			SW	Fill: Clayey SAND ; fine to coarse grained sand, dark brown, medium plasticity clay, with some metal pipe, brick fragments, sandstone case (brown, pale), trace of acm concrete sheet .
5		TP63-5.0				Terminated at 5.0 mbgs.
6						

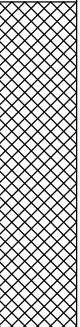
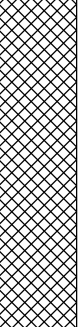
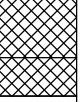
Drilling Log

Test Pit **TP64**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.9 m. Total Hole Depth 2.0 m. North 5800974.54 m East 333455.31 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.3	TP64-0.2			SW	Fill: Gravelly Clayey SAND; fine to coarse grained sand, dark brown, low plasticity clay, fine to coarse grained gravel, with some concrete, brick, tile, timber, glass fragments, trace of organic matter, moist, loose.
	1.6	TP64-0.5				
1	2.4	TP64-1.0			CH	Fill: Gravelly Sandy CLAY; medium to high plasticity, orange/brown/grey, fine to coarse grained sand, fine to coarse grained gravel, trace of brick fragments, trace of organic matter, moist, firm.
2	0.6	TP64-2.0				
						Fill: Building Waste; medium to high plasticity, dark brown/black, fine to coarse grained sand, burnt timber, concrete cobbles, brick and tile fragments, plastic, and some sandy clay. Terminated at 2.0 mbgs.
3						

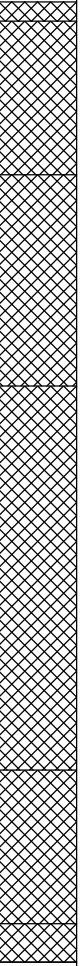
Drilling Log

Test Pit **TP65**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.3 m. Total Hole Depth 5.0 m. North 5800963.81 m East 333507.35 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0	0.3	TP65-0.2			SW	Fill: Silty SAND; fine to coarse grained sand, dark brown, low plasticity, moist, loose.
	0.6	TP65-0.5			SW	Fill: Clayey SAND; fine to coarse grained sand, brown/orange, medium plasticity clay, orange/brown, trace of brick, tile, timber fragments and some organic matter, moist, dry.
1	0.4	TP65-1.0				Fill: Building Waste; timber, concrete, brick, synthetic fibrous materials, wire, plastic, metal, with some clayey sand, fine to coarse grained, grey/brown, medium to high plasticity, dry, loose.
2	0.4	TP65-2.0				Fill: Building Waste; timber, concrete, brick, synthetic fibrous materials, wire, plastic, metal, with some clayey sand, fine to coarse grained, grey/brown, medium to high plasticity, dry, loose.
3	0.1	TP65-3.0				
4	0.3	TP65-4.0				Fill: Building Waste; timber, concrete, brick, synthetic fibrous materials, wire, plastic, metal, with some clayey sand, fine to coarse grained, grey/brown, medium to high plasticity, dry, loose.
5	0.1	TP65-5.0			SW	Fill: SAND; fine to medium grained sand, black/grey, trace of clay, high plasticity, brown sandstone case, dry, loose. Terminated at 5.0 mbgs.
6						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

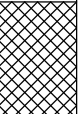
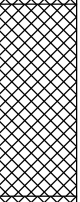
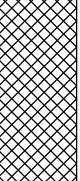
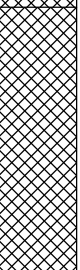
Drilling Log

Test Pit **TP66**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.5 m. Total Hole Depth 2.0 m. North 5800942.37 m East 333343.57 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	1.1	TP66-0.2			CH	Fill: Sandy CLAY ; medium to high plasticity, dark brown/brown, fine to coarse grained sand, trace of siltstone gravel, brick and asphalt fragments, moist, stiff.
	0.8	TP66-0.5			CH	Fill: Gravelly Sandy CLAY ; high plasticity, dark brown clay, fine to coarse grained sand, fine to coarse grained gravel, with some bluestone cobbles, trace of timber, brick, and asphalt fragments, moist, firm.
1	0.4	TP66-1.0			SW	Fill: Gravelly SAND ; fine to medium grained sand, grey/blue, fine to coarse grained gravel, trace of metal, concrete, and brick fragments, moist, loose.
					SW	Fill: SAND ; fine to medium grained, black, with some concrete, brick, metal, rags, and plastic fragments, moist, loose.
2	0.6	TP66-2.0				Terminated at 2.0 mbgs.
3						

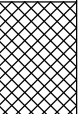
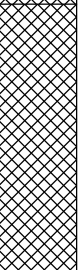
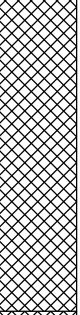

Drilling Log

Test Pit **TP67**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 62.0 m. Total Hole Depth 2.0 m. North 5800928.98 m East 333397.99 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.3	TP67-0.2			CH	Fill: CLAY ; high plasticity, pale brown/yellow, with some coarse grained siltstone gravel (extremely weathered), brown/yellow, trace of brick, and timber fragments, moist, stiff.
	1.2	TP67-0.5				Fill: Gravelly Clayey SAND ; fine to coarse grained sand, dark brown, low to medium plasticity, fine to coarse grained gravel, with some bluestone cobbles, trace of brick, and concrete fragments, moist, loose.
1	2.8	TP67-1.0			SW	
2	1.9	TP67-2.0			SW	Fill: Gravelly SAND ; fine to medium grained sand, black, fine to coarse grained gravel, with some timber (burnt), concrete, brick, metal pipes, bluestone cobbles, and rags, moist, loose. Terminated at 2.0 mbgs.
3						

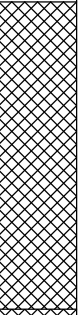
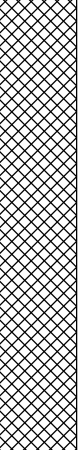
Drilling Log

Test Pit **TP68**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.8 m. Total Hole Depth 2.0 m. North 5800916.64 m East 333448.43 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	2.1	TP68-0.2			CH	Fill: Sandy CLAY; high plasticity, dark brown, fine to coarse grained sand, trace of siltstone gravel (brown/yellow), metal, timber, concrete, and brick fragments, moist, firm.
	1.6	TP68-0.5				
1	3.3	TP68-1.0			SW	Fill: SAND; fine to coarse grained sand, brown/red, with some high plasticity clay, dark brown, brick, timber, metal, and concrete fragments, dry, loose.
2	3.0	TP68-2.0				Terminated at 2.0 mbgs.
3						

Drilling Log

Test Pit **TP69**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 63.7 m. Total Hole Depth 3.0 m. North 5800926.27 m East 333499.43 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 6/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.3	TP69-0.2			SW	Fill: SAND; fine to medium grained sand, brown/grey, trace of fine grained gravel, some organic matter, trace of clay, low plasticity, dry to moist, loose.
	0.8	TP69-0.5				Fill: Silty SAND; fine to medium grained sand, grey, with some plastic tubes (black), metal, wire, concrete, and brick fragments, dry, loose.
1	1.7	TP69-1.0			SW	
						Fill: Clayey SAND; fine to coarse grained sand, brown/yellow, medium plasticity clay, orange/brown, with some timber, metal, brick, concrete, tiles, plastic, and paper fragments, moist, loose.
2	1.4	TP69-2.0			SW	
3	2.1	TP69-3.0			SW	Fill: Clayey SAND; fine to coarse grained sand, black, medium plasticity clay, orange/brown, with some timber, metal, brick, concrete, tiles, plastic, and paper fragments, moist, loose. Terminated at 3.0 mbgs.
4						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

Drilling Log

Test Pit **TP70**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.1 m. Total Hole Depth 2.0 m. North 5800886.70 m East 333339.64 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0					SW	Fill: Silty SAND; fine to coarse grained sand, black, low plasticity, moist, loose.
	3.3	TP70-0.2			CH	Fill: Sandy CLAY; high plasticity, dark brown, fine to coarse grained sand, trace of coarse grained gravel, siltstone gravel (brown), brick, and concrete fragments, moist, firm.
	0.9	TP70-0.5			CH	Fill: Sandy CLAY; high plasticity, orange/brown, fine to coarse grained sand, trace of brick, and concrete fragments, bluestone cobbles, moist, stiff.
1	5.2	TP70-1.0				Fill: Building Waste; some high plasticity clay, orange/brown, fine to coarse grained sand, timber, concrete cobbles, reo, metal pipes, bricks, red/brown, dry, loose.
2	3.1	TP70-2.0			CH	Fill: Sandy CLAY; high plasticity, dark brown/grey, fine to coarse grained gravel sand, trace of brick, timber, and concrete fragments, moist, firm.
						Terminated at 2.0 mbgs.
3						

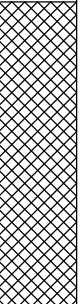
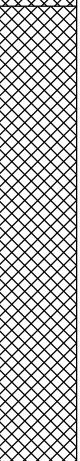
Drilling Log

Test Pit **TP71**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 61.3 m. Total Hole Depth 2.0 m. North 5800884.78 m East 333388.78 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	0.9	TP71-0.2			CH	Fill: Gravelly Sandy CLAY ; medium to high plasticity clay, brown, fine to coarse grained sand, fine to coarse grained gravel, trace of brick, concrete, timber, and metal fragments, moist, firm.
	0.7	TP71-0.8				
1	0.8	TP71-1.0			SW	Fill: SAND ; fine to medium grained sand, red/brown, with some concrete cobbles, timber, brick, metal, pvc pipes and rubber fragments, dry, loose.
2	0.3	TP71-2.0				Terminated at 2.0 mbgs.
3						

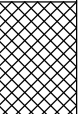
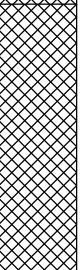
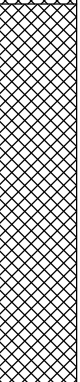

Drilling Log

Test Pit **TP72**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.0 m. Total Hole Depth 2.2 m. North 5800876.42 m East 333439.66 m.
 Top of Casing NA Water Level Initial ∇ 2.2 m. Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	2.0	TP72-0.2			CH	Fill: Sandy CLAY; high plasticity, dark brown, fine to coarse grained sand, trace of concrete cobbles, brick fragments, and sandstone gravel (brown), moist, stiff.
	0.9	TP72-0.5				Fill: Building Waste; fine to coarse grained sand, red/brown, coarse grained gravel, timber, plastic, metal, concrete, brick, and rags, gravelly sand.
1	2.2	TP72-1.0				Fill: Building Waste; fine to coarse grained sand, red/brown, coarse grained gravel, metal pipes, glasses, rubber, gravelly sand.
2	3.6	TP72-2.0			CH	Fill: Sandy CLAY; high plasticity, dark brown/grey, fine to coarse grained sand, moist to wet, firm.
	∇					Terminated at 2.2 mbgs.
3						

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

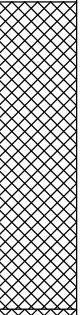
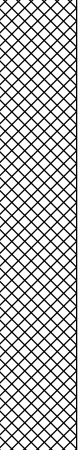
Drilling Log

Test Pit **TP73**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.4 m. Total Hole Depth 2.0 m. North 5800873.77 m East 333479.78 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	1.3	TP73-0.2			CH	Fill: Sandy CLAY ; high plasticity, brown, fine to coarse grained sand, trace of coarse grained gravel, brick, and concrete fragments, bluestone cobbles, metal pipe, moist, stiff.
	1.6	TP73-0.5				
1	3.0	TP73-1.0			SW	Fill: Gravelly Clayey SAND ; fine to coarse grained sand, dark brown, medium to high plasticity clay, fine to coarse grained gravel, trace of concrete, reo, metal, bluestone boulders, and timber (burnt), moist, loose.
2	2.4	TP73-2.0				Terminated at 2.0 mbgs.
3						

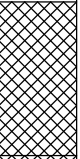
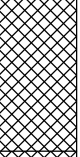
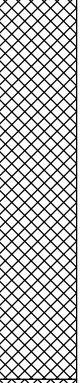

Drilling Log

Test Pit **TP74**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.5 m. Total Hole Depth 2.0 m. North 5800835.38 m East 333353.34 m.
 Top of Casing NA Water Level Initial NA Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	3.0	TP74-0.2			CH	Fill: Sandy CLAY; medium to high plasticity, dark brown, fine to coarse grained sand, trace of coarse grained gravel, some grass, organic matter, trace of brick, timber, and plastic fragments, moist, firm.
	2.2	TP74-0.5			CH	Fill: Sandy CLAY; high plasticity, brown/yellow, fine to coarse grained sand, trace of siltstone gravel (brown), moist, stiff.
1	2.0	TP74-1.0			CH	Fill: Sandy CLAY; high plasticity, dark brown, fine to coarse grained sand, trace of concrete, brick, timber, and plastic fragments, moist, firm.
2	2.8	TP74-2.0			CH	Fill: CLAY; high plasticity, black, with some fine to coarse grained sand, medium plasticity, trace of brick, concrete, tile fragments, moist, soft.
						Terminated at 2.0 mbgs.
3						








Drilling Log

Test Pit **TP75**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.6 m. Total Hole Depth 4.3 m. North 5800831.46 m East 333403.60 m.
 Top of Casing NA Water Level Initial ▽ 3.3 m. Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
0.9		TP75-0.2			SW	Fill: Gravelly Clayey SAND; fine to coarse grained sand, dark brown, medium plasticity clay, fine to coarse grained gravel, trace of timber, grass, compressed vegetation, brick, concrete, and metal fragments, moist, loose.
1.7		TP75-0.5			CH	Fill: Sandy CLAY; high plasticity, brown/yellow, fine to coarse grained sand, trace of brick, concrete, metal, timber, and tile fragments, moist, firm.
1		TP75-1.0				Fill: Clayey SAND; fine to coarse grained sand, brown, high plasticity clay, brown/yellow, trace of fine to coarse grained gravel, sandstone case (brown), timber, brick, and tile fragments, moist, loose.
2		TP75-2.0			SW	
3		TP75-3.0			CH	Fill: CLAY; high plasticity, black, with some fine to coarse grained sand, organic matter, glass, timber, plastic, and brick fragments, moist, soft.
						Fill: Building Waste; brick, concrete, boulders, reo, timber, metals, glass, rags.
4		TP75-4.0			CH	Fill: CLAY; high plasticity, brown, moist, stiff.
5						Terminated at 4.3 mbgs.

COFFEY ENVIRONMENTS Rev: 28/1/16 ENAUABTF00751AB.GPJ IT_CORP.GDT 12/4/17

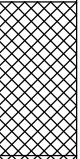
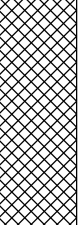

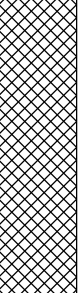
Drilling Log

Test Pit **TP76**

Page: 1 of 1

Project Huntingdale Development Owner Talbot Road Finance Pty Ltd
 Location 1221-1249 Centre Road, and 22 Talbot Avenue, Oakleigh South Proj. No. ENAUABTF00751AB
 Surface Elev. 60.1 m. Total Hole Depth 2.0 m. North 5800825.61 m East 333459.15 m.
 Top of Casing NA Water Level Initial ∇ 2.0 m. Static NA Diameter _____
 Screen: Dia NA Length NA Type/Size NA
 Casing: Dia NA Length NA Type NA
 Fill Material Backfill Rig/Core Excavator/Excavator
 Drill Co. _____ Method _____
 Driller _____ Log By J. Bei Date 7/6/16 Permit # NA
 Checked By _____ License No. _____

COMMENTS

Depth (m.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) <small>Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.</small>
0						
	1.3	TP76-0.2			CH	Fill: Sandy CLAY ; high plasticity, brown/orange, fine to coarse grained sand, with some organic matter, moist, soft.
	2.0	TP76-0.5			SW	Fill: SAND ; fine to coarse grained sand, grey, with some low plasticity clay, trace of concrete cobbles, timber, brick, and metal fragments, dry, loose. becoming red/brown, dry, loose.
1	1.6	TP76-1.0			SW	Fill: SAND ; fine to coarse grained sand, grey, with some low plasticity clay, trace of concrete cobbles, timber, brick, and metal fragments, dry, loose.
						Fill: Building Waste ; timber, tube, metal, concrete, brick, rags, plastic.
2	∇					Terminated at 2.0 mbgs.
3						

Appendix D – Letter of Instruction

2 Your engagement

2.1 Our client wishes to engage you to:

- (1) review the background materials in the enclosed brief;
- (2) confer with instructing solicitors and counsel, Joanne Lardner, where necessary;
- (3) prepare an expert report which addresses:
 - (a) site contamination issues, including:
 - (i) a summary of historical use and development of the Land;
 - (ii) a summary of any contamination issues associated with the Land, the environmental assessments undertaken to date and any recommendations made;
 - (iii) your opinion as to whether the Land can be made suitable to accommodate sensitive uses and, if so, what measures are required to be implemented;
 - (iv) your opinion as to whether it is appropriate and reasonable to delay the requirement for a Statement of Audit until after Amendment C129, citing any relevant examples of similar matters you have been involved in;
 - (v) your opinion as to whether it is appropriate or necessary for the SESP and ESA to be approved by Council prior to the lodgement of any planning permit application, citing any relevant similar examples you have been involved in; and
 - (b) your understanding of the conclusions reached by Coffey Geotechnics concerning geotechnical issues on the site;
 - (c) your response to the submissions of agencies and other parties to the Council in respect of the Amendment, as relevant to your area of expertise; and
- (4) appear at the Public Hearing of this matter on 9 August 2017 for the purpose of presenting your expert opinion concerning these matters and attend a site inspection with the Panel on 10 August 2017.

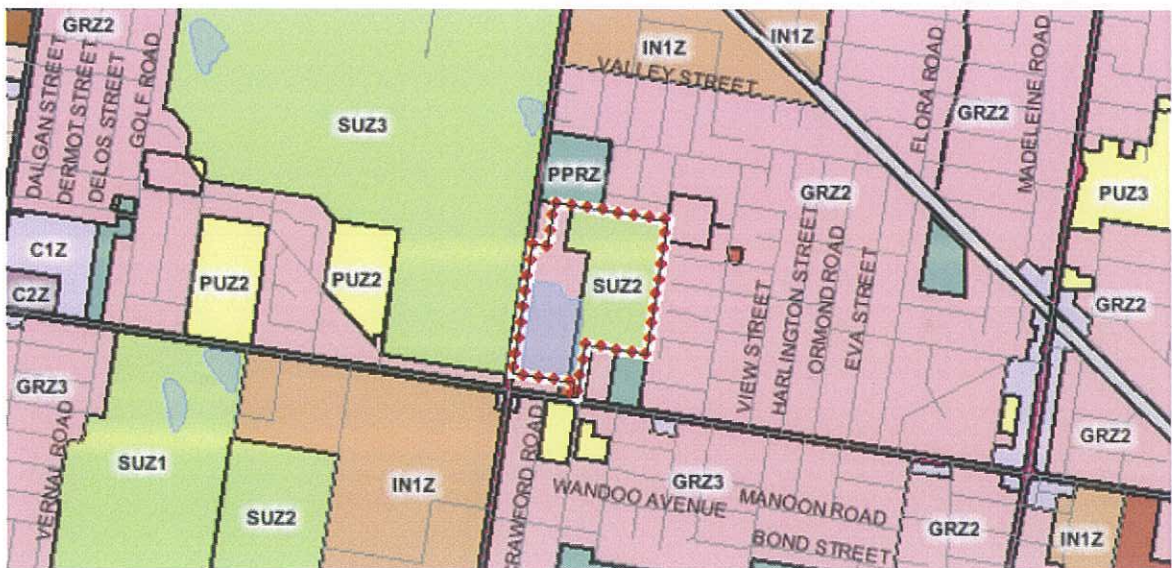
2.2 The Panel has requested the circulation of expert reports relating to environmental matters by 28 July 2017.

3 The Land

3.1 The Land is:

- (1) partly in in the General Residential Zone – Schedule 2 (**GRZ2**) and partly in the Special Use Zone – Schedule 2 (**SUZ2**);
- (2) subject to the Environmental Audit Overlay (**EAO**);
- (3) located on the north-eastern corner of Huntingdale Road and Centre Road, Oakleigh South;
- (4) comprised of an irregularly shaped parcel, approximately 18.79 hectares in area;
- (5) currently accessed from Huntingdale Road and Centre Road, with no connections in place to the surrounding local street network;

- (6) the site of the former Talbot Avenue Quarry. Historically, sand quarrying operations on the land have been accompanied by associated uses, including concrete batching in the 1960s, and landfill operations during the 1970s and 1990s. The Land has been inactive for several decades. The quarry void is located in the southwest portion of the Land;
- (7) subject to a degree of soil, landfill gas, groundwater, quarry surface water and quarry sediment contamination, as set out in the Site Environmental Strategy Plan prepared by Coffey, a copy of which is included in the enclosed brief of documents;
- (8) subject in part to Covenant 1909682 (Lot 1 TP 803687U) requiring that no extractive activities be undertaken within 10 feet of the southern boundary of the lot;
- (9) subject to a number of Section 173 Agreements regarding the cessation of quarrying activities on various parts of the Land;
- (10) located within the Monash National Employment and Innovation Cluster as defined in Plan Melbourne;
- (11) surrounded by the following interfaces:
 - (a) North – the Land is directly abutted by Davies Reserve, including an athletics track and local pavilion. The northern boundary of the Land also abuts the rear boundary of residential allotments fronting Sinclair Street. The residential allotments are within an established GRZ1 residential area;
 - (b) East – the Land abuts an existing residential area characterised by single and double-storey brick dwellings with landscaped local streets. The former Clayton West Primary School, recently zoned for residential purposes, is to the northeast of the land;
 - (c) South – the Land abuts an existing townhouse development which fronts Centre Road. The Land also abuts a site on the corner of Huntingdale Road and Centre Road over which a permit for a five-storey apartment complex has been granted. Clarinda Primary School is also to the south of the site on the opposite side of Centre Road;
 - (d) West – Huntingdale Road lies to the immediate west of the Land. The Huntingdale Golf Club lies opposite the Land on the other side of Huntingdale Road. Further along Centre Road to the west is a Bunnings and which is located alongside a larger employment precinct.



4 Amendment C129

4.1 As per the Explanatory Report, Amendment C129 seeks to make the following changes to the Monash Planning Scheme:

- (1) *'Rezones the land at 1221-1249 Centre Road, Oakleigh South from part Industrial 1 Zone Schedule 2 and General Residential Zone Schedule 2 to the Comprehensive Development Zone Schedule 2.*
- (2) *Introduces Schedule 2 of the Comprehensive Development Zone to the Monash Planning Scheme.*
- (3) *Makes a minor correction to the boundary of the existing Environmental Audit Overlay to incorporate the whole of 1221-1249 Centre Road, Oakleigh South, within the Overlay.*
- (4) *Amends Clause 21.04 and Clause 22.04 within the Local Planning Policy Framework to refer to urban renewal sites, including the subject land.*
- (5) *Amends Schedule 81.01 (Incorporated Document) to include the Comprehensive Development Plan.'*

4.2 The Explanatory Report details the reasons for Amendment C129 as follows:

'The Amendment is required because the use of the land for extractive industry and landfill purposes ceased over 20 years ago. The site has remained dormant since that time, and is in need of rehabilitation to improve the environmental condition of the site and enable a new urban use to be established. The current Special Use Zone – Earth and Energy Resources Industry - is no longer an appropriate zone for the site. Similarly the existing current residential zoning of the western part of the site should be changed to allow the environmental issues and constraints to be planned and managed in an appropriate way across the whole of the site.

However, until a full environmental assessment is undertaken, it cannot be confirmed whether the preferred use of the site – as a residential precinct with some mixed uses, and open space areas – is appropriate.

The rezoning to a Comprehensive Development Zone (CDZ) will allow the site to be considered for residential or other suitable urban uses. The CDZ will provide sufficient confidence to the land owner that the land can be used for some form of urban use. This will enable the completion of the environmental assessments and the undertaking of required levels of environmental works appropriate to the potential future uses. The proponent has prepared a Comprehensive Development Plan that identifies opportunities for an integrated residential development on the site.

The site is within an Environmental Audit Overlay and the requirements of the Overlay will need to be satisfied before any residential use or development on the site can commence. The Comprehensive Development Zone contains provisions to address the work required by the EAO in a staged manner. It is considered that the Amendment can proceed with a Comprehensive Development Plan based on preliminary assessments undertaken by the proponent. The proposal also provides for alternative uses should it not be possible to develop the land for residential purposes or other sensitive uses. The planning application process would require further details to be submitted to Council for consideration and this process would involve public consultation. The Schedule to the CDZ sets out issues that are to be addressed as part of the planning permit stage.'

5 Staged approach to remediation

5.1 A key facet of Amendment C129 is the proposed staged approach to remediation, which delays the completion of the environmental audit until prior to the commencement of redevelopment. This approach has been sought to provide the Applicant with certainty about the rezoning, and to allow planning permits to be issued for a range of uses, and to provide flexibility to progressively remediate the site to standard that suits the proposed uses.

- 5.2 To that end, the exhibited Schedule 2 to the Comprehensive Development Zone provides triggers for the provision of an SESP and ESA for permit applications for a sensitive use or for buildings and works to facilitate a sensitive use:

3.2 Application requirements

Planning applications must include the following steps:

- *A Site Environmental Strategy Plan (SESP): An application must include a Site Environmental Strategy Plan (SESP) for assessment by the responsible authority.*
- *Environmental Site Assessment: An application must include an Environmental Site Assessment (ESA) by a suitably qualified environmental consultant. This must be endorsed by an environmental auditor appointed under the Environmental Protection Act 1970. The endorsement must confirm that the ESA and SESP are consistent and adequately seek to address and manage the residual site contamination issues from the past land uses.*

Planning applications can be staged across the site and must include an SESP for the site and an ESA pertaining to the relevant stage.'

...

3.4 Permit Conditions

A planning permit for a sensitive use (residential use, child care centre, pre-school centre or primary school) must contain the following conditions.

- *Before the use permitted commences, the owner of the land must provide either:*
 - *A certificate of environmental audit must be issued for the land in accordance with Part IXD of the Environment Protection Act 1970, or*
 - *An environmental auditor appointed under the Environment Protection Act 1970 must make a statement in accordance with Part IXD of that Act that the environmental conditions of the land are suitable for the sensitive use.*
- *Before the use permitted commences the owner of the land must enter into and execute a Section 173 Agreement for the ongoing management of the site in accordance with the requirements of the certificate of environmental audit or the statement of audit and any conditions of permit use/operations.*

...

5.4 Permit Conditions

Requirement

A planning permit for development that facilitates a sensitive use (residential use, child care centre, pre-school centre or primary school) must contain the following conditions.

- *Before the construction or carrying out of buildings and works in association with a sensitive use commences, the owner of the land must provide either:*
 - *A certificate of environmental audit must be issued for the land in accordance with Part IXD of the Environment Protection Act 1970, or*

- *An environmental auditor appointed under the Environment Protection Act 1970 must make a statement in accordance with Part IXD of that Act that the environmental conditions of the land are suitable for the sensitive use.*
 - *Before the construction or carrying out of buildings and works in association with a sensitive use commences the owner of the land must enter into and execute a Section 173 Agreement for the ongoing management of the site in accordance with the requirements of the certificate of environmental audit or the statement of audit and any conditions of permit use/operations.'*
- 5.3 Under the exhibited Schedule 2 to the Comprehensive Development Zone, decision guidelines for permit applications for the use of land, subdivision and buildings and works also require consideration to be given to any SESP and ESA.

6 Submissions

6.1 The following submissions were received in response to the public exhibition of Amendment C129 between 2 February 2017 and 3 March 2017:

- (1) Victorian Planning Authority;
- (2) Environmental Protection Authority;
- (3) South East Water;
- (4) City of Kingston;
- (5) Michael Bunter;
- (6) Angelo Valente;
- (7) Colin David Owen; and
- (8) Anthony Phillip Sammut.

6.2 The submissions from the VPA and EPA addressed issues relating to site contamination, environmental assessment and remediation, and are discussed in further detail below.

6.3 We also note that the submission of Angelo Valente raises issues relating to potential disruption to surrounding residents as a result of remediation activities, and risks relating to future development on the Land as a consequence of the use of fill.

7 VPA Submission

7.1 The VPA's submission provides in-principle support for the Proposal, subject to certain recommendations. Among other things, the VPA's submission recommends that the Site Environmental Strategy Plan (**SESP**) and the Environmental Site Assessment (**ESA**) be required to be conducted and approved prior to the lodgement of a planning permit.

7.2 The VPA's submission states the following in relation to contamination, environmental assessment and remediation:

'The VPA supports a staged approach to planning and developing the site to manage the complexities and issues associated with contaminated land. From a process point of view the VPA submits that the following approaches may enhance the function of the draft provisions and achieve a coordinated approach:

- *The Overall Development Plan (ODP) requirement within sub-clause 2.0 of the proposed Schedule 2 to the Comprehensive Development Zone (CDZ) should include the mandatory information under each of the sub-headings listed in Appendix A to this correspondence. This approach would reduce the ambiguity of the requirements and ensure the information necessary to assess the suitability of ODP;*
- *That the ODP should be sequenced to occur prior to the preparation of any planning application. Thus wording to the effect of ‘...the ODP must be approved prior to lodging an application for a planning permit’. This would ensure that an agreed development plan is in place before planning applications are prepared to provide more certainty. The VPA recommends that a time frame for considering the ODP should be included in this provision;*
- *The Site Environmental Strategy Plan (SESP) and the Environmental Site Assessment (ESA) should be conducted prior to the planning permit application stage. All references to ‘applications’ or ‘planning applications’ within sub-clause 3.2 should be amended so that the text refers to ‘the Overall Development Plan’; and*

...’

8 EPA Submission

- 8.1 The EPA submission records that the EPA is generally supportive of Amendment C129, however the EPA raises issues regarding the management of contamination on the land.
- 8.2 The EPA Submission states:

The site at 1221-1249 Centre Road, Oakleigh South was formerly used as a quarry and a landfill and therefore is considerably contaminated.

Council previously commissioned a Review of Environmental Matters at the site prepared by Senversa to provide an assessment of the environmental reports and arrangements to date. This report provides a useful overview to demonstrate the environmental risks of the development. The report highlights a number of environmental risks and longer term logistical risks at the site. These being and not limited to:

- In-ground infrastructure to manage landfill gas and leachate and the responsibility and payment for the ongoing management of these
- Restrictions suggested managing risks to residents vs Housing density plans (i.e. limiting digging past a defined depth).

EPA emphasises to Council that this land rezoning proposal presents the above risks. It is imperative that these risks associated with development of landfill sites are appropriately managed through the rezoning and development approvals to protect future land uses, human health and safety.

EPA understands that the proposed amendment will apply the existing Environmental Audit Overlay to incorporate the whole of the land within the Overlay and includes the land shown in the 'Former Talbot Quarry and Landfill Comprehensive Development Plan 2016' map as exhibited as an Incorporated Document within the Monash Planning Scheme.

The EPA advises Council that it is generally supportive of the proposed Planning Scheme Amendment and application of the Comprehensive Development Zone (CDZ) applied to 1221-1249 Centre Road, Oakleigh South.

EPA supports the staged approach to the environmental audit of the Development Site, allowing the site to be rezoned with the support of an Environmental Site Assessment (ESA) and Site Environmental Strategy Plan (SESP), and requiring a section 53X Audit as a condition of any future planning permit for a sensitive use.

However, EPA wishes to advise Council that this approach may send a false message to Developers/Land Owners that contaminated land sites can eventually be developed for a sensitive use, which may not be the case depending on the findings of the section 53X audit. EPA reinforces this message to Council to ensure that the CDZ does allow for consideration of a range of commercial and other non-sensitive uses, as Council proposes.

- 8.3 With respect to the application of *Ministerial Direction No. 1 – Potentially Contaminated Land*, the EPA states its position as follows:

Application of Ministerial Direction No.1:

It is EPA's view that addressing the requirements of Ministerial Direction No.1 through a staged approach of applying the CDZ through a land rezoning process is appropriate, on the basis that a section 53X audit will be required as part of any future planning permit condition allowing sensitive uses on the Development Site.

As this approach is not strictly in accordance with Ministerial Direction No.1, EPA wishes to emphasise to Council that the General Practice Note requires responsible authorities to be satisfied that the level of contamination will not prevent the use of the site, if they make the decision to not require an environmental audit as early as possible in the planning process.

EPA advises Council that EPA can provide support to Council to make this assessment, when/if reports are available for review. The critical item is that an audit is completed prior to construction that determines that the site is or can be made suitable for the appropriate level of proposed accommodation.

Please contact our Planning Assessment Officer, Andrew Scott on 1300 372 842 if you wish to discuss this matter further.

9 Council's Position

- 9.1 Two Council Officer's Reports were prepared in relation to Amendment C129 and put before the Council on 27 September 2016 and 30 May 2017.

- 9.2 The 27 September 2016 Officer's Report supported Amendment C129, including the proposed staged approach to remediation, and the Council resolved to request approval from the Minister to prepare and exhibit Amendment C129.
- 9.3 Subsequent to the receipt of submissions in response to the exhibition of Amendment C129, a revised Council Officer's Report was prepared and put before the Council at its meeting on 30 May 2017.
- 9.4 In the 30 May 2017 Council Officer's Report, the Council notes the concerns raised around the timing of the SESP and ESA, and the lack of information regarding the status of contamination on the Land. The 30 May 2017 Officer's Report proposes amendments to the exhibited version of Amendment C129, as summarised in the below table.
- 9.5 Key proposed changes are the insertion of a requirement to prepare an Overall Development Plan (ODP) prior to lodgement of a permit application, and the requirement for the SESP and ESA to be lodged with the ODP.

Stage	Exhibited process	Potential Alternative Process
Amendment C129 Rezoning land from SUZ to CDZ	Draft SRS/SESP	Draft SRS/SESP
Overall Development Plan – required in zone	Not included –Basic plan included in CDZ with rezoning	CDZ sets out detail for ODP No permit until ODP approved. Includes requirement for ESA/SESP to be signed off concurrently
SESP/ESA	Lodged with permit	Lodged with ODP prior to any permit application or permit issue
Permit	Requires audit as a permit condition	In accordance with ODP and SRS/SESP Requires audit as a condition
Permit Condition	Works/use not commenced until Audit complete	Works/use not commenced until Audit complete

- 9.6 The Panel has requested the submission of expert reports relating to environmental matters by 28 July 2017.

10 Brief of documents

- 10.1 Enclosed with this letter of instructions is a brief of documents relevant to the Amendment.
- 10.2 We confirm that you have copies of the relevant environmental assessments that have been undertaken for the Land.
- 10.3 Please contact us if you require further information.

11 Client details, further information and site inspection

- 11.1 Please arrange for your fee estimate and accounts to be provided directly to our mutual client at the following address:

Brandon Yeoh
Development Director
Sterling Global
Level 50 Rialto South Tower, 525 Collins St
Melbourne VIC 3000

20 July 2017

NORTON ROSE FULBRIGHT

E-mail: brandon.yeoh@sterlingglobal.com.au

12 Confidentiality

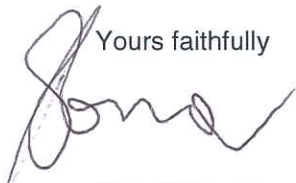
- 12.1 This letter and enclosed documents and all future communications between us and between you are confidential (**Confidential Information**), and are subject to a claim for privilege and must not be disclosed without our consent or the consent of our client.
- 12.2 The duty of confidentiality will continue beyond the conclusion of your instructions.
- 12.3 If you are obliged by law to disclose Confidential Information, it is not a breach of this engagement if you first give written notice to us of that obligation, if you can do so without breach of any law.
- 12.4 You must return all documents and other media, including copies, which contain Confidential Information to us. You must delete all electronically stored material immediately when requested to do so by us.
- 12.5 You must take all steps necessary to maintain Confidential Information and notes in strictest confidence.

13 Change of opinion

- 13.1 If for some reason, you change your opinion after delivering your report, please advise us as soon as possible. If that change is material, a supplementary report will need to be prepared, which explains the reasons for the change in your opinion.

Should you require any further information, please call Tom Ellicott on (03) 8686 6142 or contact Rory O'Connor on (03) 8686 6068.

Yours faithfully



Rory O'Connor
Special Counsel
Norton Rose Fulbright Australia
Partner: Sally Macindoe

Appendix E - Curriculum Vitae of Phil Sinclair

Our people

Phil Sinclair M App Sc, B Sc (Hons), Chartered Chemist

Principal Environmental Scientist
Site Contamination Auditor



I apply my knowledge of soil and groundwater contamination to help my clients complete their land development and infrastructure projects. Bringing my knowledge of a number of disciplines to due diligence and infrastructure projects has benefitted government and private clients.

I've enjoyed assessing challenging environmental problems for more than 40 years in the government sector and consulting practice. My early role combined water, soil, sediment & air sampling across Gippsland, Victoria and testing of water, soil and sediment samples. Then I researched suspended sediment (Monash) and land and water issues in a catchment management context (CSIRO). I joined Coffey from EPA Victoria where I headed the Contaminated Sites Team and learnt a lot from helping develop a number of policies in Victoria, including the contaminated land management policy.

I am an approved Contaminated Sites Auditor in Victoria (more than 100 audits) and Queensland, and have completed 18 audits in South Australia; always bringing an outcome-focused approach to the work, while keeping auditing principles central to it. I was accredited as an auditor in Western Australia from 2010 until 2011 but did not continue in that role for commercial reasons.

I've worked with many unusual soil and groundwater contaminants; such as explosives, phthalates, and photographic chemicals. My background in aquatic chemistry has also helped many of my clients with their projects.

I am active in keeping the Victorian Chapter of the Australian Contaminated Land Consultants Association up to date on regulatory affairs and environmental audit issues.

Qualifications

- Master of Applied Science, Water Studies Centre, Chisholm IT (now Monash University) Victoria, 1986.
- Bachelor of Science (Honours), Monash University, Victoria, 1974.

Professional memberships

- Royal Australian Chemical Institute (RACI) – Chartered Chemist.
- Victorian Planning and Environmental Law Association (VPELA) – member.
- Urban Development Institute of Australia (UDIA) – Victorian Chapter - Coffey representative.

Areas of expertise

- Environmental auditing
- Environmental chemistry
- Contamination assessment.
- Statutory and environmental planning

My expertise in **environmental auditing** is demonstrated by the successful completion of a large number of audits in two states. I was also recognised as a Third Party Reviewer in Queensland until the recent changes in the contaminated land system in that state introduced environmental auditing.

My expertise in **environmental chemistry** is demonstrated by:

- the range of contaminants I have been involved in or have overseen the assessment (including risk assessment) and clean up of as shown in the project descriptions in this resumé;
- the early years in my career involving laboratory analysis of liquid and solid environmental (chemical, physico-chemical and biological) samples and environmental sampling of water, wastewater and air;
- while at EPA, overseeing the conduct of testing of soil, sediment, water and air in the EPA laboratory when Acting Manager Scientific Services;
- designing and reviewing assessment programs for soil, surface water and groundwater for a broad range of clients and project objectives;
- directing, interpreting and applying fate and transport assessments for many site contaminants amenable to degradation, transformation and natural attenuation.

Examples are a chromium VI clean up and assessment completed in Woodville, South Australia which I oversaw in an environmental auditor role, isotopic analysis used to discriminate between nitrogen in groundwater of biogenic and industrial (thermodynamic) origin, landfill gas and hydrocarbon attenuation, phthalate assessment and degradation in soil being remediated, overseeing the development of site-specific criteria for PAHs and assessing and interpreting PCB and dioxin-like PCBs on a former transformer manufacturing site.

- My expertise in **statutory and environmental planning** is demonstrated by being an expert witness at the Victorian Civil and Administrative Tribunal and providing planning panels with specific advice in relation to approvals of potentially contaminated sites.

I was recently project director for the assessment of a state government development site and a private due diligence site where the Environment Protection and Biodiversity Conservation Act 1999 applied due to the presence of endangered plant and animal species.

I have been accepted as suitably experienced to assess disposal of dredged sediment under the Commonwealth Environmental Protection (Sea Dumping) Act 1981.

I have extensive experience interacting with statutory planners in Victoria and South Australia; particularly in achieving acceptable conditions in Statements of Environmental Audit. Recent examples include; Monash (Oakleigh South development), Wodonga (Junction Place development), Kingston (Cavanagh Street, Cheltenham), Hume; (a due diligence for land near Melbourne airport and Emu Parade Jacana).

I am a member of the Victorian Planning and Environmental Law Association.

Description of experience

I have a detailed understanding of the sampling and testing guidelines applicable to site contamination. In my laboratory roles, I was involved in collecting samples for chlorophyll, biochemical oxygen demand and microbiological analysis, so developed a very good understanding of the need for the precautions needed to prevent sample contamination and importance of careful storage.

In considering biodegradation of groundwater contaminants, it has become important to sample test and interpret the microbiological status of groundwater; in particular in relation to chlorinated hydrocarbons. I am familiar with the procedures used and general aspects of the interpretation of dehalococoides RNA test results.

I have designed, implemented and overseen quality assurance programs and quality control testing on hundreds of contaminated site investigations; and reviewed similar numbers of programs implemented by others. A strong interest of mine is ensuring that this aspect of the assessment program is reviewed in a timely way and the findings are not interpreted in generically but site specifically. I also have a strong interest in trend analysis particularly as it applies to cessation of groundwater monitoring programs.

The range of site I have been involved in as an officer of EPA, while completing hundreds of site assessments and environmental audits as a consultant and during my early career visiting and sampling sites with a range of polluting processes means I have the ability to identify a broad range of sources of pollution.

Career summary

- 2009-present
Principal Environmental Scientist, Leader - Audit Specialist Practice, Coffey.
- 2005-2009
Principal Environmental Scientist, Chair of Council of Principals, Service Development Manager, Coffey.
- 2000-2005
Principal Environmental Scientist, Coffey.
- 1997-2000
Associate Environmental Scientist, Coffey.
- 1995-1997
Environmental Auditor (Contaminated Land), Victorian Environment Protection Authority.
- 1994-1995
Environmental Chemistry Unit, Senior Consultant, Victorian EPA.
- 1988-1994
Various roles including Chemicals Management and Emergency Response, Acting Manager, Contaminated Sites Unit, Consultant, Control Officer, Scientific Officer, EPA Victoria.
- 1987-1988 Travel overseas.
- 1985-1987
Laboratory Manager, CSIRO Division of Water and Land Resources, Canberra.
- 1984-1985
Scientific Officer, State Chemistry Laboratory, Victoria (Soil Science Section).
- 1980-1984
Master of Applied Science Candidate, Water Studies Centre, Chisholm Institute of Technology.
- 1974-1980
Scientific Officer, LaTrobe Valley Water and Sewerage Board Traralgon, Victoria.

Relevant project experience

Boeing Aerostructures Australia (BAA), Section 53V environmental audit, Fishermans Bend, Victoria (2014 - 2015)

Project Director, Environmental Auditor

- BAA engaged Coffey and me to prepare a Section 53V audit of its aerostructure manufacturing site in Fishermans Bend, Victoria. Eight separate groundwater investigation areas were identified across the site and in some cases these extended off-site.
- Key features of the audit were the assessor's use of direct data collection and modification of the investigative program and approaches in response to the data collected. In the audit role, we were able to support this approach, by having a very good understanding of the geology and limitations of the methodologies employed and from our thorough understanding of the conceptual site model/s.
- The rapport we developed with the BAA project team and outcome-focussed approach resulted in a pragmatic and practical environmental audit report delivered in the time required by BAA. The report addressed all regulatory and key stakeholder concerns and enabled BAA to confidently plan its approach to further assessment and remediation.

Outcome: A Section 53V environmental audit report which found there was no unacceptable risk to key on and off-site receptors. Comment was also provided on the groundwater monitoring and management plan; which was fit for purpose subject to refinement of trends and pathway analysis.

Department of Justice (DoJ), Ravenhall Prison Project, Victoria – Project Approvals Support (2013 - 2014)

Project Director

- To enable a public private partnership to develop this former Defence rocket testing range for a prison complex, Coffey completed the investigation and oversaw contamination clean up in a very limited time. Unexploded ordinance, explosive wastes and endangered species (plants and animals) posed challenges for investigative works.

- Three phases of site contamination assessment, a single geotechnical investigation phase and two phases of hazardous materials assessment and removal, plus oversight of demolition and stockpile removal were completed between late 2013 and July 2014 when the independent environmental audit was completed by others.

Environmental Audit - Elizabeth Street, Coburg, Kodak Australasia, Australia

- Completed the audit (in 2014) of this large former industrial site in a northern suburb (Coburg) of Melbourne. Production of chemicals used to produce photographic film occurred at the site for more than 40 years. Soil contamination due to silver, hydrocarbons, solvents and asbestos, groundwater contamination by solvents, metals and nitrates and potential impact of impacted groundwater on nearby surface waters were issues for the audit. There were a large number of potential contaminants that needed to be assessed and have acceptance criteria developed prior to completion of the audit. Part of a landfill encroaches on the western portion of the site.

Outcome: Statements of Environmental Audit (SoEA) allowing sale and redevelopment of the site for a mix of industrial, open space and residential uses.

John King, PCB site assessment and remediation, High Street, Thomastown (Current)

Project Director.

- In a due diligence program for sale of part of John King's property, the presence of PCB-contaminated soil was identified
- Under Phil's direction, the site history was updated and a program of PCB assessment commenced with the goal being to delineate and remediate PCB-contaminated soil on the portion of the site under sale. A notification to EPA under the Notifiable Chemicals Order was required and an independent auditor verified EIP was prepared. Further assessment, including consideration of dioxin-like PCBs and PCB-contaminated soil clean up then commenced. The presence of asbestos containing material has complicated the remediation. Initially, soil was relocated, stockpiled and managed on the portion of the site not for sale to enable sale and

development works to proceed. A range of remediation options have been implemented for the stockpiled soil; including thermal destruction and landfilling. Completion of PCB remediation is anticipated in 2017.

Sterling Global / Sinclair Brook – Geotechnical and Environmental Services, Development of former landfill and quarry – South Oakleigh (Current)

Project Director.

- This project involves planning for and designing the geotechnical and environmental components of the rehabilitation of this former quarry and landfill in South Oakleigh.
- Key contributions have been liaising with the appointed auditor, the clients planning consultants and Council engineers and planners to obtain approvals.
- Integrated geotechnical and environmental backfill design for the quarry component is the critical part of the project has been completed.
- Early development works are underway.

Former Albion Explosives Factory at Cairnlea, Defence, Australia (1997 – 2015)

- Auditor.
- Defence has remediated the former Albion Explosives Factory, located approximately 15km west of Melbourne CBD, now developed as the suburb of Cairnlea by its partner Victorian Urban Renewal Authority (Places Victoria). Of the 180 ha under audit by Coffey, 160 ha has been developed to date.

The site was used for almost 50 years for the manufacture of explosives prior to closure in 1986. Manufacturing activities are known to have impacted upon the potential uses of the land with elevated concentrations of a broad range of contaminants, including explosives; such as trinitrotoluene (TNT), dinitrotoluene (DNT), mononitrotoluene (MNT), RDX and carbamate and precursor and breakdown products such as aniline-related chemicals and nitrates, and metals; such as copper, mercury and lead. Disposal of waste chemicals and products at burning grounds and through infiltration galleries resulted in contamination of soil, rock and groundwater; mainly by nitrogen-containing

chemicals, including explosives and their residues.

Coffey was appointed by Defence to conduct the environmental audit of 180 ha of land.

Key areas where Coffey contributed to the assessment program were:

- Validation of data from earlier phases of assessment.
- Use of two auditors early in the audit to allow completion of first stage deliverables.
- Strategies for assessment of underground service lines.
- Allowance for localised results exceeding criteria, where these could be accepted as “outliers”.
- Inclusion of statistical and spatial assessment of contaminant concentrations in the decision making process.
- Separation of environmental and engineering design objectives, particularly for the on-site repository.
- Project Approach: The project approach was to form an integrated team with the client; assessor and remedial contractor to ensure the project ran quickly and efficiently during the remediation stage while still meeting all the requirements of the EPA Audit system. Sufficient time and effort was spent during the planning stages of the project to form and agree a project specification that supported the proposed landuses at the site.
- Outcomes: Certificates of Environmental Audit issued for areas where low density residential use has occurred. Statements of Environmental Audit were issued for areas where other less sensitive uses have occurred or are planned.

Environmental Audit –Cheltenham, R.Corporation, Australia (2010 - 2011)

Environmental auditor for a redevelopment of a former solid inert landfill for medium and high density residential use required completion of an environmental audit to ensure the site was suitable for the development i.e. that human health and the environment were not currently at risk or would not be put at risk by the proposed development. This was the first successfully completed s53X audit of a

former landfill in the post-Cranbourne (Brooklands Green) era.

Key contributions to the project included ensuring that:

- The construction method, whether on-ground slab or piled structure (eventually adopted), did not result in addition landfill gas reaching the surface and prevent residential use of the site.
- The site conceptual model was enhanced through the gathering of additional site-specific information, particularly in locations where piling was to occur.
- The landfill gas assessment and mitigation methods were compliant with then relatively new EPA guidelines.
- The post-audit human health and environmental management requirements were robust.

Hospital Extension projects – Northern suburbs of Melbourne, Northern Health, Australia

- Project Director.
- Coffey provided geotechnical and environmental services for the Department of Human Services for the extension of a major suburban hospital in northern Melbourne onto land next to a landfill.

Coffey assessed the occurrence of landfill gas (LFG), installed and sampled gas wells, modelled LFG transport, assessed the risk and located and help integrate a cold-spray applied membrane LFG barrier into the design of the extension. The work was subject to a successful environmental audit by others allowing use of the extension subject to a management plan.

In 2013, a new building was planned for this site. Coffey provided detailed design advice for landfill gas mitigation.

Environmental Audit - Northcote, Joshua Pitt Leather Works, Australia (2005 - 2008)

- This was an environmental audit of a former leather works site in an inner urban and mainly residential setting completed prior to sale and redevelopment of the property. The leather works produced tanned leather for a range of uses including for the iconic Sherrin Australian Rules footballs and Kookaburra cricket balls. Predominantly naturally-derived organic tanning agents were used, although bleaching agents and solvents were also used. The main issue for the audit was the presence of groundwater contaminated with a chlorinated solvent which originated from off-site.

Outcome: Statement of Environmental Audit allowing medium density residential use.

A submission to a planning panel was provided post-audit in 2009. Coffey is providing post-audit verification services for the Gadd Street project.

Environmental Audits – Former Gasworks Horsham and Castlemaine, SP AusNet, Australia (2005 - 2015)

- These were environmental audits of a former manufacturing gasworks sites in the rural cities of Horsham and Castlemaine, Victoria. At Horsham, contaminated soil was present to depths of approximately 10m and impacts on groundwater extended off-site, the most significant being due to nitrate. The auditor's CUTEP submission to EPA Victoria resulted in a determination which allowed groundwater monitoring to cease. At Castlemaine, there were two residences on a boundary of the site, which meant assessment of off-site impacts due to contaminant vapour formed part of the audit. Ongoing groundwater monitoring is required at Castlemaine.

Outcomes: Statement of Environmental Audit allowing commercial / industrial use of the sites, subject to management plans.

Environmental Audit – Nepean Highway, Mentone, Nylex Limited, Australia (2006 - 2007)

- This former Nylex plastic product manufacturing factory was audited in 2006 / 2007. Issues for the audit were the assessment and remediation of phthalate-contaminated soil and groundwater which had leaked from numerous underground

storage tanks and services. Site-specific criteria for a range of phthalates were developed and adopted. The auditor's CUTEP submission to EPA Victoria resulted in a determination which allowed groundwater treatment to cease.

Outcomes: CoEA for proposed residential land and SoEA for commercial use land.

Environmental Audit –Dandenong, Grocon, Australia (2009 - 2010)

- As part of the redevelopment of the Dandenong CBD, the builder cleared the site to construct an eight storey building to provide up-to-date accommodation for a range of government sector service providers.

Former uses of the site include a showground, mortuary, homestead and residences workshop/compound and commercial properties (including restaurant and function centre). Underground fuel storage tanks were present on and adjacent to the property.

Outcome: Certificate of Environmental Audit.

Environmental Audit supported accommodation, Melbourne, Grocon, Australia (2009 - 2010)

- This was the first project of its type in Victoria and was completed on a not-for-profit basis. The constructed building provided 131 studio apartments and 30 two-bedroom apartments for low-income earners and those at risk of long-term homelessness. Partners in the project were: the Victorian Government, Yarra Community Housing and HomeGround Services. Past uses included galvanised iron and timber merchants, a farrier shop, furniture manufacturing, engineering shop, a motor body builder, medical practice and a plumbing supplies store.

Outcome: Statement of Environmental Audit allowing the high-density residential use.

Environmental Audit - Wyndham Street, Shepparton, Calnob Pty Ltd, Australia (2003 - 2005)

- This former Bonlac butter factory was audited in 2004 / 2005. Issues for the audit were locating former underground storage tanks, describing groundwater flow which was complicated by a sewer traversing the site, defining hydrocarbon contamination of groundwater and obtaining a CUTEP determination.

Outcome: The Statement of Environmental Audit (SoEA) issued for the site indicated it was suitable for the proposed commercial development. There was remnant groundwater contamination at the site and the SoEA contained a condition that groundwater was not to be used other than for clean up or monitoring. An Environmental Management Plan was also required as a condition of the SoEA.

A recommendation to cease groundwater monitoring was provided in 2009, after a 'risk-to-the-environment' audit was completed.

Environmental Audit - Noble Park, BASF Australia Pty Ltd, Australia (

- This was an environmental audit of an industrial site as part of the sale due diligence procedures; BASF was on-selling the site. The site had produced plastic additives and animal feed supplements. BASF required completion of the audit within a tight timeframe; which was met, with audit reporting occurring approximately 24 hours after receipt of the assessor's final ESA report. Issues considered were the presence of underground storage tanks and their potential impact on groundwater quality and an electricity sub-station in the centre of the site.

Environmental Audit, - Dawson Street – Brunswick, Hoffman Brickworks Pty Ltd, Australia (1999/2001)

- Conducted the audit of a 2.9 hectare portion of this former Brickworks site adjacent to parkland constructed over a 25 metre deep quarry. Filling of the quarry with municipal waste occurred over the period commencing in the late 1940's. Issues for the audit were retention of contaminated soil at depth beneath roadways and protection of infrastructure maintenance workers. Challenges included gaining agreement from Council on conditions

related to roadways and land bordering the adjacent Gilpin Park, which were to be resumed by Council after completion of the development and setting acceptance criteria consistent with the proposed layering and future uses of the site.

Outcome: Statement of Environmental Audit for Lots A-D (residential use area).

Environmental Audit, Hythe Street Pughole, Ridleyton SA, Adelaide Civil Pty Ltd, Australia

- Conducted the Environmental Audit for this 0.27 hectare site which was a former pughole (clay-winning pit) in Ridleyton Adelaide, SA. This site was a 6 metre to 7 metre deep "quarry". Waste placed in the pughole after closure included metal wastes, lime waste and concrete and construction materials. Remediation by stabilisation and encapsulation was proposed. The auditor's requirements included the construction of a 2 metre thick base-liner, installation of groundwater quality monitoring bores and controlled construction of a surface clay cap. Wastes from within the pughole were mixed with lime-waste and stabilised to achieve low contaminant mobility.

Outcome: Restricted Use, Medium Density Residential.

Assessment and Auditing Advice, Forbes Gasworks, Australia

- Provision of assessment and auditing advice on the audit of a NSW Gasworks site to Coffey's NSW-based auditor. For this site, site history and assessment checklists against NSW EPA and ANZECC/NHMRC documentation were prepared to provide the auditor with confidence that the assessment (by others) was sufficient and satisfactory.

Environmental Audit of former depot – St Albans Road, Sunshine West, City West Water, Australia (2009 - 2010)

- This was an Environmental Audit of a 13 ha head office and depot complex in Sunshine West. The site was used as a machinery and vehicle depot, contained a refuelling depot and was briefly used for drying of spoil removed from water utility works. Prior to use by water authorities, the site was used by agricultural machinery manufacturers.

A key issue was confirmation of an earlier clean up of the underground storage tank pits associated with the fuel depot.

Outcomes: Certificate of Environmental Audit for Area B located in the north-eastern part of the site and Statement of Environmental Audit for Area A located in the south western part of the site.

Environmental Audit - 750 Collins Street - Grocon Constructors, Australia

- A Statement of Environmental Audit was issued for this 0.8 hectare site in Collins Street, Melbourne Docklands. Past uses of the site included rail yard use, freight storage and car-parking. The proposed use was commercial within a multi-storey building covering the site. An auditor-approved site management plan allowed early works at the site to proceed prior to completion of the audit. In 2007/08, a re-audit was required as child care use was proposed for part of the ground floor of the property.

Outcome: SoEA allowing commercial use (2006) and after the re-audit; and SoEA allowing commercial and child care uses (2008).

Environmental Audit - Bullarto Road, Skye, Charles Lloyd Property Group, Australia

- This was a “one step” audit where, apart for limited assessment and clean up around the former locations of the farm house and outbuildings the auditor collected the primary contamination information for the site.

Outcome: A Certificate of Environmental Audit was issued.

Environmental Audit – Parkside Gardens, Shepparton, VicUrban (now Places Victoria), Australia

- This project involved the audit of the former Shepparton International Village site and adjoining land, and included assessment of sediments in the pond surrounding the village. There were aesthetic limitations to soil on some parts of the site.

Outcomes: The SoEA allowed residential use subject to aesthetic limitations. After sorting and removal of aesthetically unacceptable material in 2007/ 08, a CoEA was issued.

Environmental Audits – Former Council Depot, Dandenong, VicUrban (now Places Victoria), Australia

- This was the audit of two parcels of a former Council works depot site that was affected by storage of construction materials, street sweepings and municipal wastes. A stormwater treatment plant was located on the site.

Waters Management Plan - Ferro-Manganese Smelter - Bell Bay, Tasmania, Temco Samancor - BHP-Billiton, Australia

- Coffey conducted a review of the management of waste water streams at Temco’s Bell Bay plant. As well as providing the basis for a management plan and policies, this project assessed the potential implications of introduction and application of the ANZECC (2000) guidelines on the current and future water management at the site and in particular, waste water discharges from the plant.

A number of system improvements were identified and categorised for short, medium or long-term action. These included: review of wash down procedures, preparation of mass-balances, further delineation of groundwater quality, assessment of potential reuse of fume dam solids, and investigation of potential low water use production methods.

Conducted the initial site visit / walkover and staff interviews, peer review of the report and liaised with Coffey’s sub-consultant; WSL Consultants Pty Ltd.

Brisbane River and Moreton Bay, Queensland, Port of Brisbane, Australia

- Project reviewer for Coffey’s reporting.
- This study involved vibro-coring the estuarine and sea-bed sediments within a defined area in the field for physical and chemical laboratory analysis. A report was prepared by Coffey staff outlining the results of field work and laboratory testing and providing comment on their significance with regard to relevant environmental guidelines.

Comparison was made of sediment contamination with sediments from port environments elsewhere in Australia. Much of this additional information was provided which enabled an improved assessment of the significance of the sediment contamination to be made in the report.

Canaipa Passage, Queensland, Queensland Transport, Australia

- Project reviewer for this study that involved vibro-coring the sea-bed sediments within a defined area in the field for physical and chemical laboratory analysis. A report was prepared by Coffey staff outlining the results of field work and laboratory testing and providing comment on their significance with regard to relevant environmental guidelines.

Rosslyn Bay, Queensland, Queensland Transport, Australia; And Karragarra W's, Queensland, Australia

- Project reviewer. These studies involved vibro-coring the sea-bed sediments at defined locations, using a differential GPS, for field and laboratory analysis. Laboratory analysis included mono-, di- and tri-butyl tins. Reports were prepared by Coffey staff outlining the results of field work and laboratory testing and providing comment on their significance with regard to relevant environmental guidelines.

Coomera River, Queensland Transport, Australia

- Project reviewer for this initial phase of work. This study involved vibro-coring the river-bed sediments at defined locations, using a differential GPS, for field and laboratory analysis. This study had a particular emphasis on acid sulphate soils, which are common to the region. A report was prepared by Coffey staff outlining the results of field work and laboratory testing and providing comment on their significance with regard to relevant environmental guidelines.

This project led to further work involving vibro-coring at two sites on the banks of the Coomera River for spoil disposal. Field and laboratory analysis were undertaken to determine the suitability of these sites for acid sulphate soil disposal. Coffey staff prepared an additional report providing comments and recommendations on the disposal of acid sulphate soil at these locations.

West Gate Bridge Bund Spoil Disposal Options, VicRoads, Australia

- Project Manager.
- Phase I of the project involved a survey of and preparation of indicative costings for contaminated sediment disposal options; the spoil being associated with enlargement of the bund protecting Pier 12 of the West Gate Bridge. Phase II involved the preparation of advice to VicRoads on contract clauses relating to environmental management of spoil dredging, treatment and disposal.

Corio Channel Environmental Effects Statement, Environment Protection Authority (Vic), Australia

- Part of the Environmental Effects Statement Working Group for the major dredging projects that has occurred in Victoria, the Corio Bay channel improvement. Primary contribution to the Working Group was in the assessment of sediment contamination status.

Bass Strait Benthic Survey, Museum of Victoria / Victorian Marine Science Association, Australia

- Assisted Dr Gary Poore of the Museum of Victoria and the Victorian Marine Science Association in the conduct of a 7-day Bass Strait benthos sampling program.
- Acted as assistant to the marine scientists assessing marine organisms dredged for the floor of Bass Strait.

Masters Thesis, Monash University / EPA (Vic), Australia

- Completed a Master of Applied Science at the Water Studies Centre supervised by (now) Professor Barry Hart. The Master's Thesis was titled "The Transport of Pollutants by Suspended Sediment in the Yarra River" and was also supervised by VicEPA senior staff. This work included assessment of Yarra River estuary suspended sediments and bioassay work to assess the phosphorus bioavailability of the suspended sediment bound phosphorus.

Inner south-eastern suburbs –capital city location, Land Development Authority, Australia

- Project Director.
- An Australian state government authority engaged Coffey to complete a due diligence of four properties it was proposing to assume responsibility for from another agency. One of the properties had been a major gas manufacturing plant and had been remediated and subject to audit, though with ongoing management conditions. Another was a Commonwealth agency's facility with many small-scale potentially contaminating activities; also under audit. Coffey reviewed available information for the four sites, prepared remediation and liability cost estimates for each site for a range of future uses.

Completion of S53V audit of a transport corridor adjacent to a former gasworks, rural Victoria.

- S53V audit completed as a requirement of a clean up notice issued by EPA Victoria on land adjacent to a former regional gasworks. Assessment of adjacent land under audit identified that contamination extended onto a transport corridor.
- The audit confirmed that contamination posed an unacceptable risks for some site uses and that a Clean Up Plan prepared by others was appropriate to manage the risks associated with the contamination.

Completion of S53V audit of solid inert waste dumping at a utility site, Thomastown

- To comply with a Clean Up Notice issued by EPA Victoria, the site owner was required to complete a 'condition of the environment' audit (soil, groundwater and surface water) because a tenant had accepted and disposed of mixed industrial waste, including asbestos containing materials. The site was located immediately adjacent to a waterway

The auditor approved the remediation action plan, site environmental management plan, assessed its implementation and whether the clean up activities themselves had contributed to contamination of soil, groundwater and surface water.

Outcome: The uses of the site for commercial and industrial purposes were not impacted by soil or groundwater contamination. Groundwater and surface waters were not impacted by the waste that had been placed at the site or by the clean up activities. Recommendations related to ongoing site management were also provided.

EPA Emergency Response Team, EPA (Victoria), Australia

- Managed EPA's 24-hour Emergency Response Team in 1993 and 1994.
- Joined EPA's response team in 1991 after completing a Hazardous Materials Training Course with the Victorian Country Fire Authority.
- Attended more than 80 incidents on behalf of EPA between 1991 and 1996. These incidents ranged from factory fires, tyre fires, chemical and pesticide spills, road accidents involving hazardous materials, gas and hazardous vapour leaks.
- Advised the combat agency (usually the fire service) at the scene of incidents of the priorities for action, together with other agencies, advice on "combat" procedures that would protect the environment and with others that would protect human health.
- Responsible for initiating clean-up of a suburban electroplating factory where bulk acids, cyanide complexes and other hazardous materials had been abandoned. The state of the factory at the time of the inspection was such that it posed a serious hazard to nearby residents and to students at a tertiary and further education complex that was adjacent to the site.

Expert Opinion, Phillips Fox Lawyers, Australia

- Provided expert opinion to Phillips Fox for a consulting company and its professional indemnity insurer involved in litigation with a construction company. The construction company made claims about the quality of work conducted by the consulting company at a former health facility site.
- Provided advice focussed on whether the environmental site assessment work conducted was of a reasonable standard. The case proceeded to settlement.

Expert Opinion, Madgwicks Solicitors, Australia

- Provided expert opinion to Madgwicks on behalf of a client who owned a service station site in suburban Melbourne. The client was concerned that the lessee had affected the value of his property by not taking adequate actions to prevent contamination / pollution at the site due to leaking fuel tanks. The case proceeded to settlement.

Expert Opinion, Jerrard & Stuk Lawyers, Australia

- Provided expert opinion to Jerrard & Stuk's client, the owner of a former service station site in Tasmania. The property owner required an opinion about the adequacy of environmental site assessment work conducted in 1992.

Expert Witness Statements and environmental oversight, EPA (Victoria), Australia

- Preparation of expert witness statements for potential prosecution cases involving chemical spills and soil contamination.
- Representing EPA at emergency incidents to provide environmental oversight of clean ups and emergency agency responses to incidents.

Publications

- Redevelopment of the Former Kodak Manufacturing and Distribution Plant in the heart of suburban Melbourne -Challenges for a system of Environmental Audit; in Environmental Geotechnology and Global Sustainable Development 2008, Proceedings of the 9th International Symposium on Environmental Geotechnology and Global Sustainable Development; Eds. Albert T. Yeung and Irene M.C Lo.

Authors: Michael Main and Phil Sinclair.

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Authors: P Sinclair, S Richards & F Howe.

- Integrating the Development and Auditing of Cairnlea, the Former Albion Explosives Factory, Environmental Geotechnics. Proceedings of the 2nd Australia & New Zealand Conference on Environmental Geotechnics, Newcastle, November 2001, Authors: Sinclair P, Creek A & Marshall T.
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- The transport of pollutants by suspended sediment in the Yarra River. Report to the Environment Protection Authority (Victoria). Authors: Sinclair P L, Hart B T & Beckett R.
- The nature and bioavailability of particulate phosphorus presented at the Australian Water and Wastewater Association conference, May 1983. Authors: Hart B T, Beckett R, Sinclair P L, Weston B A, Smalls I C and Shaw S.
- Pollution from recreational boating in the bays and arms of the Gippsland Lakes. Ministry for Conservation - Environmental Studies Series Publication No. 268. Author: Sinclair P L.

Presentations

- EcoForum 2016. Successful, safe housing development on a polluted planet Authors: Phil Sinclair, Stephen Cambridge, Dr Sarah Richards, Nick Woodford
- EcoForum 2016. Should we have independent verification of contaminated site clean up?
- Clean Up 2015. Data Quality Issues – Assessor and Auditor perspectives.
- Clean Up 2013. Landfill Gas & Development Approvals: Regulatory Requirements in Australian Jurisdictions; 17 September 2013.
- ALGA Forum. Post Closure Site Management forum. – 4 August 2010. An Auditor's Perspective - 'Post Closure' Site Management.
- VPELA / ALGA Planning and Contaminated Land Seminar. Audit Practice – Yesterday, Today, Tomorrow; 16 March 2010.

- EcoForum 2010 conference, Sydney; Management Plans for Remnant Site Contamination - Practical Application of the Principles of Sustainable Development. Co-author with Tony Scott; 23 February 2010.
- CRC CARE – Clean Up 09 Conference, Adelaide, September 2009. Co-author with Tim Marshall. How to Avoid Explosive Situations on Contaminated Sites – Lessons Learnt from the Albion Explosives Site, Melbourne.
- CRC CARE – Clean Up 09 Conference, Adelaide, September 2009. Co-author with Anna Cochrane and Kate Fairway. Landfill gas control measures for building protection incorporating a cold spray-applied methane-proof membrane.
- EcoForum 2009, Sydney, April 2009. Co-author with Michael Main. Use of Nitrate Nitrogen Isotopic Signature to Determine Source of Nitrate Pollution in Groundwater. Presented by Michael Main.
- CRC CARE – Clean Up 07 Conference, Adelaide, June 2007. Co-author with Casey O'Farrell and Sarah Richards of presentation Naphthalene analysis in water samples – are we detecting it all? Presented by Sarah Richards.
- CRC CARE – Clean Up 07 Conference, Adelaide, June 2007. Co-author with John Throssell of presentation Aesthetics and Groundwater Clean Up Remediation and Auditing of a Foreshore Residential Property Southern Victoria. Presented by John Throssell.
- Siena University, Italy and Wessex Institute of Technology. Brownfields 2004 – Assessment, Rehabilitation and Development. The former Albion explosives factory: cordite and TNT to suburban dream. Principal author, co-authors: Tim Marshall & Adam Creek, 15 June 2004.
- NATO-CCMS (North Atlantic Treaty Organization – Committee for the Challenges of Modern Society). Pilot Program - Evaluation of Demonstrated and Emerging Technologies for Treatment of Contaminated Land and Groundwater. Presentation Contaminated Land Auditing in Victoria, Australia - A Risk Sharing System. 13 September 2001.
- Urban Development Institute of Australia, South Australian Chapter; Contaminated Land Auditing 19 April 2001.
- Institute of Engineers Australia and Risk Management Society, Melbourne (June 1997).
- Australian Geomechanics Society: “Contaminated Land and the ANZECC/NHMRC Guidelines” (April 1997).
- Auditor Induction Course, Melbourne (April 1997).
- Introduction to Statutory Environmental Auditing, South Australian Workshop, Adelaide (July 1996).
- First International Conference on Contaminants and the Soil Environment in the Australia-Pacific Region, Adelaide (February 1996).
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