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Buried Drums Assessment
Fiskville Training College,
4549 Geelong-Ballan Road, Fiskville, Victoria

Ref: 212163.3

Prepared for Ashurst

March 2014

DOCUMENT CONTROL

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BURIED DRUMS ASSESSMENT

CFA Fiskville Training College,

4549 Geelong-Ballan Road, Fiskville, Victoria

EXECUTIVE SUMMARY

Background

Cardno Lane Piper Pty Ltd (Cardno Lane Piper) was engaged by Ashurst (the Client) on behalf of the Country Fire Authority (CFA), to conduct an investigation for suspected buried drums at the Country Fire Authority Fiskville Training College located at 4549 Geelong-Ballan Road, Fiskville, Victoria (the site). The location of the site is shown on Figure 1 and the facilities and features[1] relevant to this investigation are shown on Figure 2 presented in Appendix A. This was in response to the recommendations of the Independent Fiskville Investigation[2] by Professor Rob Joy (IFI Report).

While the IFI Report does not contain a specific recommendation to investigate the site for presence of buried drums, it does recommend investigation for contamination. CFA considered it prudent to also investigate each of these areas for potential presence of buried drums in the nominated burial areas. These are listed in Recommendation 7 of the IFI Report, which states:

> *That soil and groundwater quality be assessed in the following areas that were not examined during the site investigation stage of the Preliminary Site Assessment of Fiskville (Figure 8-1):*
>
> - *Part of Drum Burial Area 1 (south of the airstrip and south of Deep Creek Road);*
> - *Drum Burial Area 2 (north of the Administration Building);*
> - *Drum Burial Area 3 (east of the Administration Building); and*
> - *Historic Landfills 1 and 2.*

The IFI Report identified four areas where drums, previously containing flammable liquids may have been or may still be buried at the site, referred to here as Drum Burial Area (DBA) 1, DBA 2, DBA 3 and the former landfill area. The IFI Report discusses anecdotal reports of drums being placed in trenches, split open and the contents burnt before the drums were covered. It also identified records indicating that drums were extracted from the ground on two occasions, although the exact locations are not clear in either case. Further anecdotal information was received, following publication of the IFI Report, from a former geotechnical technician involved in a site investigation in the late 1980s regarding the potential for drums to be located near area DBA 3 (referred to as DBA 3a).

The investigation into the presence of buried drums in this landfill area is not included within the scope of this report. This additional investigation area is included in the Cardno Lane Piper report titled *Investigation of Risks at Former Landfills* (Cardno Lane Piper, 2014d).

[1] For example Feature 23a is the former location of an above ground fuels storage tank.
[2] Report prepared by Prof Robert *Joy, Understanding the Past to Inform the Future – Report of the Independent Fiskville Investigation*, June 2012

Purpose & Objectives

The purpose of this assessment is to provide the Client with advice on the possibility of buried drums to still be present at the site. Where any drums are identified, the purpose is also to provide advice on whether contamination (if any) sourced from these buried drums is affecting the use of the site as a CFA Training College.

The specific objectives of the assessment were to:

- Identify the presence of drums in the drum burial areas identified in the IFI Report and in one additional area from anecdotal information provided recently.
- If drums are found, assess the presence of contamination and the potential for protected beneficial uses of land to be impacted.
- Provide recommendations for further work as needed.
- Conduct the work to a standard which will enable it to be used as part of the assessment required by an EPA Environmental Auditor.

Scope & Method of Assessment

To meet the objectives of this assessment, Cardno Lane Piper carried out the following tasks:

- A desktop site history review using relevant available information and environmental reports;
- An electromagnetic (EM) geophysical survey three areas on site DBA1,2 3 &3a;
- An intrusive investigation of geophysical “anomalies” identified by the EM Survey;
- Meeting and interview with a former geotechnician about DBA 3a;
- Soil sampling and laboratory testing; and
- The preparation of this report.

This Buried Drums Assessment specifically reports on four areas, namely DBA 1, DBA 2, DBA 3 and DBA 3a. The locations of the DBAs within the site are shown on Figure 2 (Appendix A). Details of the locations of the DBAs are as follows:

- **DBA 1 (Feature 46):** located south of the airstrip (7,050 m^2);
- **DBA 2 (Feature 47):** located north of the administration building (2,520 m^2); and
- **DBA 3 (Feature 48):** located at the golf course, east of the administration building (1,750 m^2).
- **DBA 3a (Feature 48a):** located at the golf course, east of the administration building (2,082 m^2).

Site History Review

The IFI report and site history review identified four main areas where drums may be buried at the site:

- **DBA 1 (Feature 46):** This DBA is located south of the airstrip and has an area of approximately 7,050 m^2. The western portion of DBA 1 contains plantation eucalyptus trees. The eastern portion is grassed and contains several fire fighting props including a decommissioned helicopter (removed from site during the period of this assessment), empty 200L drums and a concrete pipe. The eastern portion of DBA 1 is understood to be used intermittently for fire fighting drills;

- **DBA 2 (Feature 47):** This DBA is located north of the administration building and has an area of approximately 2,520 m^2. DBA 2 has a thick tree cover (which limits access to the subsurface). It is understood that there is no regular use of this area;
- **DBA 3 (Feature 48):** This DBA is located at the golf course, east of the administration building and has an area of approximately 1,750 m^2. This DBA is predominantly grassed, and also contains scattered trees, golf tees and concrete anchor blocks for a radio transmitter antenna formerly operated by Amalgamated Wireless Australasia (AWA);
- **Landfills 1 and 2 (Features 42 and 43):** These areas are located together in the south western corner of the site. They are outside the scope of this assessment and are not discussed in detail further.

After the fieldworks had been completed, two further areas were identified as requiring further investigation. These are:

- **DBA 3a (Feature 48a):** This is located immediately south of DBA 3 and was identified by a geotechnician employed on the AS James investigation in 1988 who approached CFA with anecdotal information on a burial area following the publication of the IFI Report.
- **DBA 1 south Feature 46b:** This area is immediately to the south of Deep Creek Road, within DBA 1 and was interpreted on the basis of a site plan in a report by Minenco as showing a potential trench line when compared with contemporary aerial photographs.

A review of the site history presented in the IFI Report indicates four possible drum burial events and two documented drum extraction events at the site:

- **First Drum Burial Event:** This occurred in 1979 or 1980 and involved the burial of approximately 100 drums at or in the vicinity of either of the two landfills. There is no available evidence for extraction of drums from this area and based on the site history review alone, there remains a potential for drums to remain buried there (however this is outside the scope of this assessment and is not discussed in detail further);
- **Second Drum Burial Event:** On 22 December 1982, several drums containing flammable liquids that were being stored behind the training centre caught fire. Following this fire, approximately 20 to 30 fire-affected drums were buried in three trenches that may be at DBA 2. There is no available evidence for the extraction of drums from this area;
- **Third Drum Burial Event:** Anecdotal evidence indicated that between 1983 and 1986 the remaining drums that were not affected by the fire were buried in three trenches in DBA 3 or possibly in one of the other burial areas. More than 100 drums were buried. The available evidence suggests that most of these were removed in 1991 during the **First Extraction Event**. At that time, 75 drums and 243 tonnes of contaminated soil were removed;
- **Fourth Drum Burial Event:** Between 1984 and 1985 somewhere between 120 and 400 drums were buried in three trenches most likely in DBA 1. The documented evidence shows that 56 of these drums and 136 tonnes of contaminated soil were removed from this area during the **Second Drum Extraction Event** in 2002.

It should be noted here that the review conducted by Cardno Lane Piper of the available relevant environmental reports indicates that the reliability of information on burial events is less than that for extraction events, the former being anecdotal and the latter based on EPA waste records. In addition, the information on location of drums is inadequately documented and site plans (when present) do not show the exact locations investigated. Further information provided by the former subcontractor who worked at the site is no more reliable than other anecdotal information reported within the 2012 IFI Report, see section 6.3.

Due to the uncertainty in the information on the drum burial areas, Cardno Lane Piper has completed detailed geophysical and intrusive investigations of the suspected drum burial areas improve the state of knowledge about buried drums within DBA 1, DBA 2, DBA 3a and DBA 3 in order to locate buried drums.

Site Investigation Results

A total of fifty five (55) geophysical "anomalies" were identified in DBA 1, DBA 2, DBA 3 and DBA 3a during the EM Survey. EM anomalies can indicate changes in ground conduction of electromagnetic fields such as that caused by the presence of metal objects in the subsurface (such as buried drums). The EM anomalies detected were all reported as 1 to 3m in diameter at the most; which indicates if drums were present they are only individual (and not mass burials).

A program of test pitting was then undertaken to assess whether drums were present in the locations where EM anomalies were reported. No drums were uncovered during the test pitting program (to a maximum depth of 2.0 m).

Soil samples were taken from test pits in the anomaly areas. Thirty-five (35) selected samples were tested in the laboratory for petroleum hydrocarbons and other chemicals indicative of flammable liquids. No elevated contaminants indicative of leaking flammable liquids from buried drums were reported. One surface sample collected in DBA 1 had elevated petroleum hydrocarbons, however being at surface this is unlikely to be related to buried drums.

An assessment of the lines of evidence to presence of drums has indicated that drums have most likely been buried and removed from DBA 1, and it is most unlikely that drums were buried in DBA 2, DBA 3 and DBA 3a. DBA 3a was investigated after publication of the IFI Report following receipt of anecdotal information from a person involved with the assessment conducted by AS James in 1988. While AS James reported the presence of drums and flammable hydrocarbons in the soil and in the drum contents, it did not include a site plan showing the location of the burial at the CFA site. DBA 3a was investigated and no drums or flammable hydrocarbon contamination was found.

Risks due to Unknown Buried Drums

If unknown buried drums remain at the site the potential risk to human health (via inhalation of any volatile vapours or direct contact with the drums, their contents or any surrounding contaminated material) must be considered. This risk is minimised if the drums remain buried, and also if the area where they are buried is not built upon (such as in areas of open space or vacant land at the site; in areas without buildings that vapour could intrude in; and in areas not regularly used by CFA or others). Given that no drums have been found, no recommendations are made at this stage regarding management of that potential risk.

If there are drums still buried anywhere at the site, then there is a minor potential for them to be a source of impact to groundwater beneath the site. However, this would only be the case if residual liquids were present in any drums that could leak or leach into the soil and migrate to the underlying groundwater. Groundwater has been investigated and the results detailed in a separate report titled *Groundwater Contamination Assessment, Fiskville Training College* (Cardno Lane Piper, 2014c). This investigation found that there is not a shallow water table aquifer at the site, however regional groundwater occurs at a significant depth (greater than 60 metres) and the aquifer is overlain by low permeability soils. No contamination of groundwater was detected that indicated the source was a buried drum. Should additional

drums be uncovered in the future outside of areas already assessed, further intrusive investigation of groundwater is required

Management of Environmental Risks

CFA are in the process of developing an Environmental Management System (EMS) including a Site Contamination Management Plan to provide information on potential contamination hazards and their management. The future surveillance of any future discoveries of buried drums and associated contaminated soil and water should be managed by this plan.

Recommendations

Following completion of this investigation, no further recommendations are made to investigate for buried drums. However it is recommended that

1. In the event that further information becomes available regarding possible drum burial or any discoveries of buried drums are made, the proposed Site Contamination Management Plan and its protocols should be implemented to investigate and manage the issue.
2. Should additional drums be uncovered in the future outside of areas already assessed, further investigation of groundwater is required including the perched water areas if identified.
3. Perched water identified in DBA1 and DBA2 should also be further investigated as per the recommendation discussed in the Groundwater *Contamination Assessment Report, Fiskville Training College* (Cardno Lane Piper, 2014c) to further investigate the presence and quality of the perched water areas at the site.

Limitations

While this Executive Summary has endeavoured to accurately summarise the key points of the Report, the latter shall take precedence and the Executive Summary must be read in conjunction with the full report.

While this report has been undertaken in accordance with the current industry guidelines and standards of practice, there may be some limitations on the meaning and use of this report. The reader is advised to read this report in conjunction with the attached document *Information about Environmental Reports* (Appendix H).

Cardno Lane Piper Pty Ltd
March 2014

BURIED DRUMS ASSESSMENT

Fiskville Training College,

4549 Geelong-Ballan Road, Fiskville, Victoria

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LIST OF ABBREVIATIONS AND UNITS

Chemical Names

BTEX	Benzene, Toluene, Ethylbenzene and Xylene
C	Hydrocarbon Chain Length Fraction
SVOC	Semi-volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compounds

Technical Terms

<	Less Than
>	Greater Than
CCME	Canadian Council of Ministers of the Environment
COC	Chain of Custody
EIL	Interim Urban Ecological Investigation Levels
EM	Electromagnetic
EPA	Environment Protection Authority of Victoria
ESA	Environmental Site Assessment
GPS	Global Positioning System
HIL	Human Health Based Investigation Levels
ID	Identification
LOI	Limit of Investigation
NATA	National Association of Testing Authorities
NEPM 1999	National Environment Protection Council (1999) *National Environment Protection (Assessment of Site Contamination) Measure*
PID	Photo-ionisation Detector

Units

m^2	Square Metres
m	Metres
mg/kg	Milligrams per Kilogram
mHz	Megahertz

Site Specific Terms

A. S. James Pty. Ltd.	AS James
AWA	Amalgamated Wireless Australasia
Cardno Lane Piper	Cardno Lane Piper Pty Ltd
CFA	Country Fire Authority
Client	Ashurst Lawyers (acting on behalf of CFA)
DBA	Drum Burial Area
IFI	Independent Fiskville Investigation
Minenco	Minenco Environmental Services

BURIED DRUMS ASSESSMENT

Fiskville Training College,

4549 Geelong-Ballan Road, Fiskville, Victoria

1 INTRODUCTION

1.1 Background

Cardno Lane Piper Pty Ltd (Cardno Lane Piper) was engaged by Ashurst (the Client) on behalf of the Country Fire Authority (CFA), to conduct an investigation for suspected buried drums at the Country Fire Authority Fiskville Training College located at 4549 Geelong-Ballan Road, Fiskville, Victoria (the site). The location and features of the site are shown on Figure 1 and Figure 2 (Appendix A).

This Buried Drums Assessment has arisen from the findings presented in Professor Rob Joy's report titled *Fiskville, Understanding the Past to Inform the Future - Report of the Independent Fiskville Investigation* (hereinafter referred to as the IFI Report) issued in June 2012. The IFI Report identified four areas where drums previously containing flammable liquids could be buried at the site (the locations of which are detailed in Section 3.1 and shown on Figure 2, Appendix A). This assessment specifically addresses Recommendation 7 of the IFI Report, which requires investigation of soil and groundwater in suspected burial area and states:

> *That soil and groundwater quality be assessed in the following areas that were not examined during the site investigation stage of the Preliminary Site Assessment of Fiskville (Figure 8-1):*
>
> - *Part of Drum Burial Area 1 (south of the airstrip and south of Deep Creek Road);*
> - *Drum Burial Area 2 (north of the Administration Building);*
> - *Drum Burial Area 3 (east of the Administration Building); and*
> - *Historic Landfills 1 and 2.*

The IFI Report discusses anecdotal reports of drums being placed in trenches, split open and the contents burnt before the drums were covered. The IFI Report also identified records showing that drums were extracted from the ground on two occasions, although the exact locations are not clear in either case. An assessment was therefore recommended in the IFI Report, as it is not clear whether all the drums were removed (and there is potential for some buried drums to remain at site). Further anecdotal information was received from a former geotechnical technician involved in a site investigation in the late 1980s regarding the potential for drums to be located near area DBA3 (referred to as DBA3a).

Subsequent to the commencement of this assessment, EPA issued two Clean Up Notices (CUN) to EPA for the site. These require an s53X Environmental Audit and an s53V Environmental Audit of the site to be carried out by an EPA accredited Environmental Auditor.

1.2 Purpose & Objectives

The purpose of this assessment is to provide the Client with advice on the possibility of buried drums to still be present at the site. Where any drums are identified, the purpose is also to provide advice on whether contamination (if any) sourced from these buried drums is affecting the use of the site as a CFA Training College.

The specific objectives of the assessment (subject to the limitations stated in Section 1.4 were to:

- Identify the presence of drums in the drum burial areas identified in the IFI Report and in one additional area based on anecdotal information provided.
- If drums are found, assess the presence of contamination and the potential for protected beneficial uses of land to be impacted.
- Provide recommendations for further work as needed.
- Conduct the work to a standard which will enable it to be used as part of the assessment required by an EPA Environmental Auditor.

1.3 Scope of Assessment

1.3.1 Methodology

To meet the objectives of this assessment, Cardno Lane Piper carried out the following tasks:

- A desktop site history review using relevant available information and environmental reports;
- An electromagnetic (EM) geophysical survey of three areas of the site (DBA1,2 &3);
- An intrusive investigation of geophysical “anomalies” identified by the EM Survey;
- Soil sampling and laboratory testing; and
- Meeting and interview with a former subcontractor who had worked at the site in 1988
- The preparation of this report.

1.3.2 Investigation Area

It should be noted here that Cardno Lane Piper is completing a number of environmental investigations across the entire site on behalf of the Client. This Buried Drums Assessment specifically reports on three areas within the site, Drum Burial Area (DBA) 1, DBA 2, DBA 3 and DBA 3a. The locations of the DBAs within the site are shown on Figure 2 (Appendix A). Details of the locations of the DBAs are as follows:

- **DBA 1 (Feature 46):** located south of the airstrip (7,050 m^2);
- **DBA 2 (Feature 47):** located north of the administration building (2,520 m^2); and
- **DBA 3 and DBA 3a (Feature 48 and Feather 48a):** located at the golf course, east of the administration building (2,082m^2).

Areas DBA 1 to 3 were identified for the purpose of this Buried Drums Assessment, specifically to target areas identified in the IFI Report. DBA 3a was identified on the basis of anecdotal information received in January 2013 from a former geotechnician involved in the AS James investigation of 1988. The IFI Report also identified an additional area where drums could be buried – the landfills in the south western corner of the site (the locations of which are also shown on Figure 2, Appendix A). These landfills are not included in the investigation areas addressed as part of this Buried Drums Assessment. Rather, they are

included within the investigation area assessed in a separate report titled *Investigation of Risks at Former Landfills, CFA Fiskville Training College* (Cardno Lane Piper, 2014d) – hereinafter referred to as the Cardno Lane Piper 2014 Landfill Report.

1.4 Standard of Assessment & Limitations

This assessment has been undertaken in general accordance with the current "industry standards" for an Environmental Site Assessment (ESA), for the purpose and objectives and scope identified in Section 1.2 and Section 1.3. These standards are set out in:

- National Environment Protection Council (December 1999) *National Environment Protection [Assessment of Site Contamination] Measure* (NEPM 1999); and
- Standards Australia (2005) Australian Standard AS4482.1 *Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*.

The agreed scope of this assessment has been limited for the current purposes of the Client. The assessment may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This assessment is not any of the following:

- An Environmental Audit Report as defined under the *Environment Protection Act* 1970;
- A detailed ESA or Environmental Site Investigation of the entire site. It is limited to four designated areas of the site (DBA 1, DBA 2, DBA 3 and DBA 3a); and
- A geotechnical report (and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice).

While this assessment has been undertaken in accordance with the current industry guidelines and standards of practice, there may be some limitations on the meaning and use of this report. The reader is advised to read this report in conjunction with the attached document *Information about Environmental Reports* (included in Appendix H).

2 SITE DESCRIPTION & SETTING

2.1 Site Identification

Table 2-1 below summarises the key details defining the site. The location of the site is shown on Figure 1 (Appendix A).

Table 2-1: Site Identification Details

Item	Detail
Site Name	CFA Fiskville Training College
Site Address	4549 Geelong-Ballan Road, Fiskville, Victoria
Site Area	Approximately 150 hectares
Title Details	Lots 1, 2, 3 and 4 on Title Plan 845669K Volume 09503 Folio 693
Municipality	Moorabool Shire Council
Current Site Owner	CFA
Planning Zone	Farming Zone

2.2 Site Use & Infrastructure

A plan of the site and its features is presented as Figure 2 (Appendix A). A detailed description of onsite infrastructure is provided in the separate report titled *Site History Review* (Cardno Lane Piper, 2014a).

The site currently operates as a CFA fire fighting training college occupied by instructors, trainees and administration/maintenance staff. The site is also used by other government agencies (such as the Melbourne Fire Brigade, the State Emergency Services) as well as other private companies. In addition to hot fire fighting training, the site is used for operational and class room based training, such as emergency response and incident management; road accident rescue simulation; four wheel drive vehicle driver training; and leadership training. While the site is open all year-round and seven days per week, hot fire training does not generally occur during the fire season between December and March.

2.3 Geographic Setting

The site and its geographic setting are shown in Figure 3-1 (presented on Page 18 of this report). The site and its immediate surrounding area is low lying with undulating areas to the west. The central part of the site is elevated and falls away towards Yaloak Creek to the east and towards Beremboke Creek and Lake Fiskville to the west. The land is also elevated on the western boundary of the site, sloping down towards Beremboke Creek and Lake Fiskville to the east and south respectively. The lowest point is near the south-western corner, where Beremboke Creek exits the site in a southerly direction. The maximum difference in elevation of land across the site is approximately 8.0 metres (m). The site is rectangular in shape, with the majority of surface water draining to the west into Beremboke Creek or Lake Fiskville.

2.4 Soil Profile

The site is underlain by Quaternary to Tertiary aged basalt from near surface to a depth of between 24 m and 29 m. The basalt is overlain by basaltic clay soil derived from weathering of the basalt. This is typically grey, silty, high plasticity and low permeability. The thickness of the clay is highly variable, with rocky outcrops at the surface in some areas (and almost no clays present) and clays up to 2.4 m thick in other areas (*Targeted Soil Assessment,* Cardno Lane Piper). The clay would also be intermittently inter-dispersed with basalt “floaters” of varying sizes.

It is important to note that, in areas where basalt rocky outcrops or large basalt floaters are present, trench excavation is not possible (and in fact the deepest trenches excavated at the site would be less than 2.4 m deep). As a result, the maximum depth that a drum would be intercepted would be less than 2 m.

3 SITE HISTORY

A detailed review of site history covering the potential for contamination across the entire site is presented in the Cardno Lane Piper 2013 Site History Review and Targeted Soil Assessment Report. The following discussion of site history focuses on activities and features relevant to areas impacted by potentially buried drums.

3.1 Drum Burial Areas Identified

As was stated in Section 1, the IFI Report identified four potential DBAs, which are detailed below and shown in Figure 3-1 :

- **DBA 1 (Feature 46):** This DBA is located south of the airstrip and has an area of approximately 7,050 m^2. The western portion of DBA 1 contains plantation eucalyptus trees. The eastern portion is grassed and contains several fire fighting props including a decommissioned helicopter (removed from site during the period of this assessment), 200L drums and a concrete pipe. The eastern portion of DBA 1 is understood to be used intermittently for fire fighting drills;
- **DBA 2 (Feature 47):** This DBA is located north of the administration building and has an area of approximately 2,520 m^2. DBA 2 has a thick tree cover (which limits access to the subsurface). It is understood that there is no regular use of this area;
- **DBA 3 (Feature 48):** This DBA is located at the golf course, east of the administration building and has an area of approximately 1,750 m^2. This DBA is predominantly grassed, and also contains scattered trees and concrete anchor blocks for a radio transmitter antenna formerly operated by Amalgamated Wireless Australasia (AWA);
- **Landfills 1 and 2 (Features 42 and 43):** These areas are located together in the south western corner of the site. They are outside the scope of this assessment and are not discussed in detail further in this report.

After the fieldworks had been completed, two further areas were identified as requiring further investigation. These are:

- **DBA 3a (Feature 48a):** This is located immediately south of DBA3 and was identified by a geotechnician employed on the AS James investigation in 1988 who approached CFA with anecdotal information on a burial area following the publication of the IFI Report.
- **DBA 1 south Feature 46b: :**This area is immediately to the south of Deep Creek Road, within DBA1 and was interpreted on the basis of a site plan in a report by Minenco as showing a potential trench line when compared with contemporary aerial photographs.

Figure 3-1: DBA and Landfill Locations

3.2 Previous Environmental Investigations

This Section presents a brief summary of relevant information obtained from a review of environmental reports pertaining to the site made available to Cardno Lane Piper.

3.2.1 Minenco Environmental Services (1996) *CFA Site Visit by Philip Peck, 14 May 1996* (reference: 5991)

Minenco Environmental Services (Minenco) reported that "three drum burial pits are located to the north of Deep Creek Road" which is correlates with Feature 46a (Figure 2, Appendix A). According to Minenco, the "*pit locations remain evident due to reduced grass growth along the lines of the pit*". It was also reported that the pits were excavated to a depth of 1 m, and that residual material in the drums ran into the bottom of the trenches and was burnt[3].

3.2.2 A.S. James Pty. Ltd. (1 July 1988) *Waste Disposal Site, Fiskville Training Centre* (reference: 72024)

A.S. James Pty. Ltd. (AS James) advanced test pits in an area where drums were buried, and analysed drum contents, soils from between the drums and one soil sample from 3 m away. The drums appeared to have been disposed in three trenches, each 20 m to 30 m in length.

[3] Minenco were not on site at the time of the reported drum burial. It is believed that this information was verbally reported to them during their site visit in 1996.

No details were provided on the number or the condition of drums observed. The investigation location is unknown as the report does not contain a site plan showing site features or a detailed description of the investigation location. Further information has since been received by CFA (discussed in Section 3.6) which indicates that the AS James 1988 Report investigation locations may have occurred immediately to the south of DBA 3 (Feature 48), referred to here as DBA (Feature 48a).

3.2.3 Diomides & Associates (27 June 1996) *Environmental Site Assessment*

This report has not been provided to Cardno Lane Piper (however the findings are summarised in the CRA ATD 1996 Report, discussed below).

3.2.4 Coffey Partners International Pty Ltd (October 1996) *CFA Training College, Groundwater Monitoring Network Installation, Ballan, VIC (Reference: E3523/1-AK)*

Eight groundwater monitoring wells were installed to target areas of concern, including DBA 1 (Feature 46a). It is understood that monitoring wells BH4 and BH5 were installed to target impacts from possible burial of drums in DBA 1. Soils analysed from BH4 contained low levels of petroleum hydrocarbons – with concentrations of total petroleum hydrocarbons (TPH) hydrocarbon chain length fraction C_{15}-C_{28} of 48 mg/kg) and TPH C_{29}-C_{36} of 40 mg/kg detected. Groundwater sampled from monitoring well BH5 contained relatively low levels of TPH (C_{15}-C_{28} of 0.4 mg/L). Chlorinated hydrocarbons were not analysed. Groundwater was not encountered in monitoring well BH4. Soil logs and field observations provided no evidence of the existence of buried drums in DBA 1.

3.2.5 Technological Resources Pty Ltd (CRA ATD) (28 November 1996) *Fiskville Training College Review of Site Assessments and Remediation Options*

The CRA ATD 1996 Report presents a summary of results from the Coffey 1996 Report and the Diomides & Associates 1996 Report. Diomides & Associates collected three soil samples from DBA 1 and analysed them for petroleum hydrocarbons (TPH and benzene, toluene, ethylbenzene and xylenes [BTEX]). TPH concentrations in soil up to 7,040 mg/kg and BTEX concentrations up to 62 mg/kg were reported which is indicative of flammable liquids. A figure within this report shows three burial trenches located adjacent to bore locations BH4 and BH5 which are reported as ‘Coffey bores’ which are still present at the site. This figure is reproduced in Figure 3-2. Remediation of contaminated soils and drums (if discovered) was recommended by Technological Resources Pty Ltd.

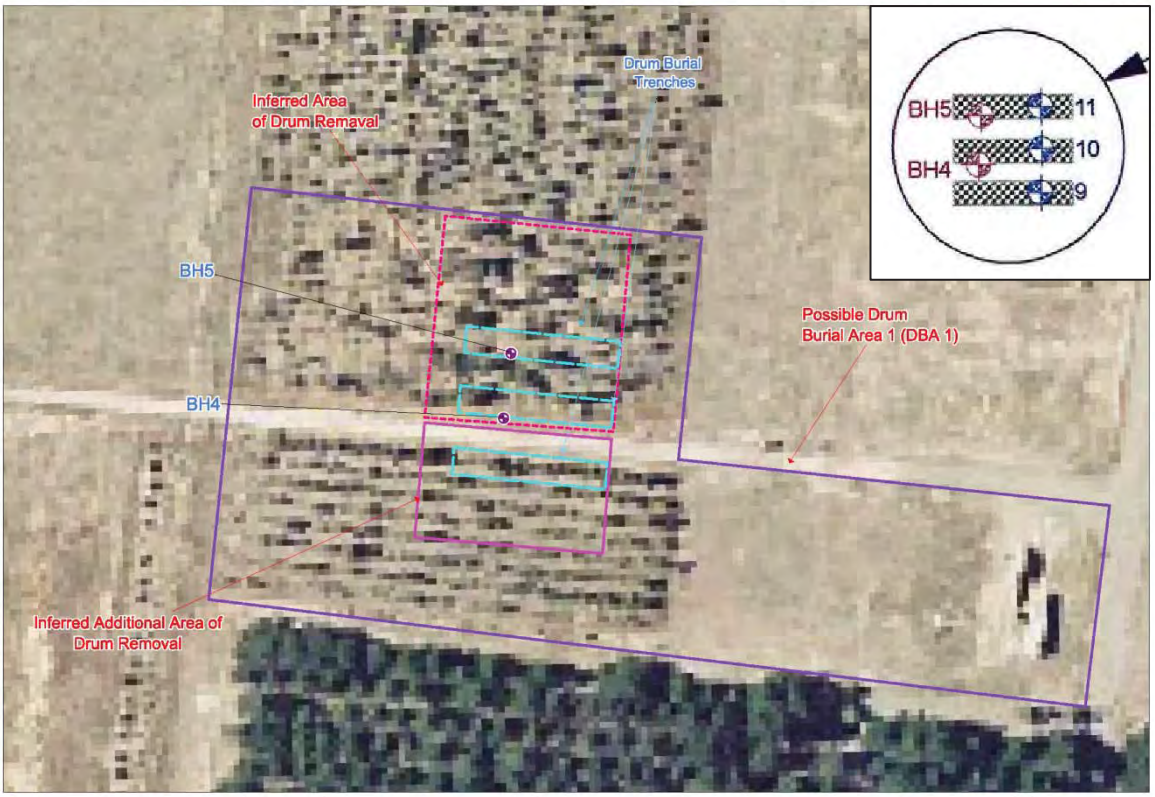

Figure 3-2: Location of Drum Burial Trenches in DBA 1 (Insert from the CRA ATD 1996)

3.2.6 Golder Associates (15 June 2012) *CFA Training College, Fiskville, VIC Preliminary Site Assessment* (reference: 117613201-002-R-Rev0)

Golder Associates arranged a Ground Penetrating Radar Survey of the three possible DBA (Features 46, 47 and 48). Their survey did not detect any anomalies indicative of buried drums. Seven soil samples were collected from the area believed to relate to the fourth drum burial event and second extraction event (Feature 46a, within DBA 1). The soil samples were analysed for TPH, BTEX, polycyclic aromatic hydrocarbons, metals, volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), phenols, perchlorates, perfluorooctanoic acid, Perfluorooctyl sulfonate, polychlorinated biphenyls and pesticides. The results were generally less than the limits of reporting, with the exception of TPH C_{15}-C_{28} (600 mg/kg) at A6PT8 within DBA 1 (Feature 46a). This may indicate a trace of residual contamination by flammable liquids.

3.3 Drum Burial Events and Extractions Summary

The information about the burial and extraction of drums at the site that is described in the IFI Report and the environmental investigation reports provided to Cardno Lane Piper is presented in Table 3-1. A summary and interpretation of the information is presented as follows:

Figure 3-3: 1990 Aerial Photograph Showing Trenches in DBA 1

In summary, a number of drum burial and extraction events were identified:

- **First Drum Burial Event:** This occurred in 1979 or 1980 and involved the burial of approximately 100 drums at or in the vicinity of either of the two landfills. There is no available evidence for extraction of drums from this area and based on the site history review alone, there remains a potential for drums to remained buried there (however this is outside the scope of this assessment and is not discussed in detail further);
- **Second Drum Burial Event:** On 22 December 1982, several drums containing flammable liquids that were being stored behind the training centre caught fire. Following this fire, approximately 20 to 30 fire-affected drums were buried in three trenches that may be at DBA 2. There is no available evidence for the extraction of drums from this area and based on the site history review alone, this suggests that there is a potential for drums to remain in this area, justifying the current investigation;
- **Third Drum Burial Event:** Anecdotal evidence indicated that between 1983 and 1986 the remaining drums that were not affected by the fire were buried in three trenches in DBA 3 or possibly in one of the other burial areas. More than 100 drums were buried. The available evidence suggests that most of these were removed in 1991 during the **First Extraction Event**. At that time, 75 drums and 243 tonnes of contaminated soil were removed. Based on the site history review alone, this suggests that there is a potential for drums to remain in this area, justifying the current investigation;
- **Fourth Drum Burial Event:** Between 1984 and 1985 somewhere between 120 and 400 drums were buried in three trenches most likely in DBA 1 (see Figure 3-2 and Figure 3-3). The documented evidence shows that 56 of these drums and 136 tonnes of contaminated soil were removed from this area during the **Second Drum Extraction Event** in 2002. Once again, based on the site history review alone, this suggests that there is a potential for drums to remain in this area, justifying the current investigation.

Table 3-1: Summary of Possible Burial Event Details

Burial Event	Burial Year	Possible Location	Possible Burial Details	Year Extracted	Extraction Event	Extraction Details
First Drum Burial Event	1979 or 1980	Landfill 1 and Landfill 2	• AWA commenced occupation of the site for use as a radio transmitter station in 1925 (and vacated in 1971 when CFA acquired the site). Landfill 1 (the AWA Landfill) was established during this time; • Landfill 2 (the CFA Landfill) was established in the 1980s. CFA used the AWA Landfill for several years prior to establishing its own adjacent facility; • Approximately 100 corroded drums were buried during this event, with many releasing unpleasant vapours (2012 IFI Report); • The drums were buried in a large pit at or in the vicinity of either Landfill 1 or Landfill 2 (2012 IFI Report); and • While it is known that the drums were buried at the landfills, the exact location and extent of this burial is not known (2012 IFI Report).	Not Known	Not Known	There is no evidence available in the IFI Report or any of the environmental investigation reports of any extraction of drums from the landfill area.

Burial Event	Burial Year	Possible Location	Possible Burial Details	Year Extracted	Extraction Event	Extraction Details
Second Drum Burial Event	1982	DBA 2	• This event is reported to have occurred following a fire on 22 December 1982 in a stack of about 160 drums delivered to site in mid-1981 (2012 IFI Report); • 20 to 30 fire affected drums were placed in three trenches. The drums were then split open and burnt prior to covering (2012 IFI Report); • "a significant amount of product had not been burnt" (2012 IFI Report); and • Three people reported that the burial area was located north of the current administration building (which would locate it as DBA 2). Two other people reported that this event occurred to the east (and could possibly be DBA 3) or a third location much further to the west[4]. The 2012 IFI Report considers these last two locations (DBA 2 & DBA 3) unlikely burial areas.	Not Known	Extraction Event Unknown	There is no evidence available in the IFI Report or any of the environmental investigation reports of any extraction of drums in DBA 2.

[4] The exact location was not identified in the IFI report

Burial Event	Burial Year	Possible Location	Possible Burial Details	Year Extracted	Extraction Event	Extraction Details
Third Drum Burial Event	1983 to 1986	Not Known	• The remaining drums that had not been affected by the 1982 fire were subsequently buried during this event (2012 IFI Report); • More than 100 drums were buried in this event (2012 IFI Report); • Contaminated soil was present in the immediate vicinity of drums following burial (AS James 1988 Report); • The drums were buried in three trenches, described as 30 m to 50 m in length (2012 IFI Report) or 20 m to 30 m in length (AS James 1988 Report); • The burial event described in the 1988 AS James Report is likely to be this third event (The 2012 IFI Report); and • The AS James 1988 Report does not contain a site plan or detailed descriptions of the location of this DBA.	1991	First Drum Extraction Event	• The removal is documented in EPA Waste Transport Certificates dated 16 and 17 January 1991 (2012 IFI Report); • Records show 75 drums and 243 tonnes of contaminated soil were removed from the site, however more than 100 drums were reportedly buried during the event (2012 IFI Report); • The location of the extraction event is not known as it was not recorded however it is assumed to extraction of drums from the third burial event (2012 IFI Report).
Fourth Drum Burial Event	1984 or 1985	DBA 1	• Reported as between 120 and 400 drums (2012 IFI Report); • Three trenches, south of the airstrip (2012 IFI Report); • Drums reported to be empty or partially empty (2012 IFI Report);	2002	Second Drum Extraction Event	• Relates to the fourth burial event (2012 IFI Report); • Drums discovered

Burial Event	Burial Year	Possible Location	Possible Burial Details	Year Extracted	Extraction Event	Extraction Details
			• Drums rolled in, crushed and buried (2012 IFI Report); • Three drum burial trenches were reported to have been observed to the north of Deep Creek Road. Drums were reportedly placed in trenches approximately 12 years prior to 1996. (Minenco 1996); • Some evidence exists that the most southerly trench was on or south of Deep Creek Rd (See Figure 3-2 and CRA ATD 1996); • Anecdotal information indicated that residual material in the drums flowed into the bottom of the trenches, was lit and allowed to burn (Minenco 1996 Report); • Elevated petroleum hydrocarbon concentrations in soil were reported in DBA 1 (CRA ATD 1996 Report); • Area reportedly identified in 1996 aerial photograph, which was unable to be located by the IFI investigation or Cardno Lane Piper; and • Ground disturbance in DBA 1 can be seen in the 1990, 1998 and 2002 aerial photographs, which is likely to be associated with this burial event (the 1990 aerial photograph is presented as Figure 3-3 in this report).			accidentally during ripping of the soil by an excavator in preparation for a tree plantation south of the airstrip. The actual location is not documented but is believed to be to the north of Deep Creek Road (2012 IFI Report); • The exposed drums contaminated the excavator with chemicals which required decontamination (location unknown) and emitted odorous vapours which reportedly affected the plant operator (2012 IFI Report); • 56 drums, 136 tonnes of contaminated soil and 2,940 litres of "product" were removed from the burial area by Chemsal (based

Burial Event	Burial Year	Possible Location	Possible Burial Details	Year Extracted	Extraction Event	Extraction Details
						on EPA waste transport certificates) (2012 IFI Report); and • The drums extracted were described as mainly damaged or crushed (2012 IFI Report).

3.4 Cardno Lane Piper 2013 Landfill Investigation

As stated in Section 1.2, the landfills are not included in the current Buried Drums Assessment but are investigated and reported separately in the Cardno Lane Piper 2014 Landfill Report.

3.5 Recent Anecdotal Information

During the field work program, additional anecdotal information was made available to Cardno Lane Piper regarding potential drum burials at the site. A former geotechnician who was employed by A.S. James (Geotechnical Engineers) came forward with further information. During an interview conducted on 15 January 2013, it was noted that this person was on site during the investigation of a buried drum area in 1988. This work was reported in the AS James report dated 1 July 1988 and referred to in the IFI Report.

A summary of the information obtained is as follows:

- The interviewee confirmed that drums were uncovered during works completed at the time of the AS James 1988 investigation, as documented in that report. No further information was available regarding the number of drums or depths uncovered in 1988. The exact location of the investigation could not be established during the interview; however it was claimed that the 1988 investigation may have been conducted on the area immediately south of DBA 3 (Feature 48) and not DBA 1;
- No further solid information could be obtained as to the exact date of fieldwork occurring prior to the issue of the Report by A.S James (1988) however he was certain drums were revealed during his time on site at Fiskville.
- Cardno Lane Piper notes that this information is no more reliable than other anecdotal information reported within the 2012 IFI Report.

In summary, on the basis of this anecdotal information there is a possibility that drums remain in an area south of DBA 3 (Feature 48) that cannot be discounted without further investigation and has been included in this report.

3.6 The Reliability of Historical Evidence of Buried Drums

The key issues identified regarding the reliability of evidence for locations of DBA (and whether or not they have been subsequently extracted) are:

- Inconsistent identification numbers were used for the DBA between different sections of the 2012 IFI Report. Cardno Lane Piper has adopted the naming convention used in the IFI Report recommendations section;
- The available information regarding the locations of DBA is largely anecdotal; contained in reports with inadequate details; or contained within reports with no site plans showing exact locations. Only the location of DBA 1 can be determined with some certainty based on a site plan from the Minenco 1996 report (and the other DBA locations are highly uncertain);
- There is a high probability that the third and fourth burial events are the same event, or at least occurred at the same location at different times. This is because of the overlap in report information such as years of the event and the number of trenches;
- There is anecdotal information which suggests there is potential for an additional DBA at the site to the south of DBA 3, reference as DBA 3a;

- A figure within CRA (1996) suggests that the portion of DBA 1 that drums were buried in and subsequently removed from may be slightly further to the south (by about 10 m) than previously thought, in an area now denoted as Feature 46b.
- There is no documented information confirming that drums were buried in DBA 2 or DBA 3 (and only limited anecdotal information is available). There is documented evidence (via waste transport certificates) of two drum extraction events occurring between 1991 and 2002 (however the locations cannot be confirmed); and
- Geophysical investigations (Ground Penetrating Radar) were conducted in May 2012 by Golder Associates. These did not find evidence of potentially buried drums in DBA 1, DBA 2 or DBA 3. Intrusive investigations were then completed at part of DBA 1 were conducted by Golder Associates to look for hydrocarbons potentially originating from drums. Low levels of hydrocarbons were reported at one test location that may indicate a trace of residual contamination by flammable liquids. Intrusive investigations at DBA 2 or DBA 3 were not conducted at that time.

Due to the uncertainty of the information on the drum burial areas, Cardno Lane Piper has completed a detailed geophysical and intrusive investigation of DBA 1, DBA 2, DBA 3 and DBA 3a in order to locate buried drums. This investigation is reported in the following sections.

4 SITE INVESTIGATIONS

The aim of the site investigations was to assess whether any buried drums were present in DBA 1, DBA 2, DBA 3 or DBA 3a. In the first instance, an EM Survey was undertaken to identify any geophysical "anomalies" (in particular, any metallic objects in the subsurface that could be buried drums). Where geophysical "anomalies" were identified, a program of test pitting was then undertaken to confirm whether drums were actually present in these areas. Soil sampling and laboratory analysis was then undertaken as the presence of contaminated soil could indicate drums had been buried in the vicinity. The findings of each of these three stages of the site investigation are discussed in detail in the following Sections.

4.1 Electromagnetic Survey

Three EM Surveys were conducted at the site by a specialist subcontractor (GBG Australia). The minimum anomaly size reported is determined by the coil size: in this case the coil was 0.5 by 1.0 m, and thus the minimum reported size of an anomaly is1.0 m, even if the object detected is physically smaller than 1m. therefore there is a very high probability of detecting a crushed drum. Table 4-1 summarises the methodology of the EM Surveys completed.

GBG Australia provided three geophysical reports attached as Appendix E. EM anomalies are shown in Figures 3 to 5 (Appendix A) and summarised in Table 5-1, Table 5-2 and Table 5-3. Figure 4-1 shows a photograph of the equipment used to complete the EM Survey.

Table 4-1: EM Survey Activity Summary

Activity	First Event	Second Event	Third Event
Dates of Field Activity	6 and 7 August 2012	17 September 2012	27 March 2013
Investigation Areas	DBA 1, DBA 2 and DBA 3 (Features 46, Feature 47 and Feature 48 respectively)	DBA 2 (Feature 47)	DBA 1 and DBA 3a
EM Method	Time Domain EM	Frequency Domain Electro-Magnetic	Time Domain EM
Instrumentation	EM61-MK2 with differential GPS[1] location[2]	GSSI EMP-400 instrument (GBG 2102b)	EM61-MK2 with differential GPS[1] location[2]
Transect Spacing	1.0 m	1.0 m	1.0 m
Investigation Frequency	Not Applicable	3,000 MHz[3], 6,000 MHz and 10,000 MHz	Not Applicable
Approximate Investigation Depth[4]	3.0 m	6.0, 3.0 and 1.0 m (at 3,000 MHz, 6,000 MHz and 10,000 MHz respectively)	3.0 m
Precision of EM Anomaly Location	+/-1.0 m	+/-1.0 m	+/-1.0 m
Accuracy of EM Anomaly Size[5]	+/-1.0 m	+/-1.0 m	+/-1.0 m
Notes:			

Activity	First Event	Second Event	Third Event
1. GPS = Global Positioning System 2. Refer to Figure 4.1 in GBG Australia's first report, included in Appendix E. 3. MHz = megahertz 4. The effective investigation depth is dependent on several factors including the soil profile, moisture content, size of target and nearby (metallic) objects causing interference.			

Figure 4-1: Geophysical Survey Instrument

4.2 Intrusive Soil Investigation

The identification of an EM anomaly does not confirm that buried drums are present. EM anomalies can indicate changes in ground conditions of electromagnetic fields such as that caused by the presence of buried metal objects such as drums. Contrasts in soil and soil moisture can also cause EM anomalies. As a result, test pitting was conducted to confirm the presence or absence of drums at EM anomalies.

The methodology for intrusive investigations undertaken is summarised in Table 4-2. Sampling locations within the target areas are summarised in Table 5-6, Table 5-7 and Table 5-8, and shown on Figure 6 and Figure 7 (Appendix A). Photographs taken of the test pits advanced are presented in Appendix D.

Table 4-2: Soil Investigation Activity Summary

Activity	Details
Dates of Field Activity	5 to 7 September 2012 25 to 27 September 2012 11 to 12 April 2013

Activity	Details
Qualifications and Conformance with Scope	The fieldwork was undertaken by an experienced environmental scientist in accordance with the agreed scope of work and using methods set out in the Cardno Lane Piper Integrated Management System (which conforms to industry standard of practice).
Number of Samples collected at each location Locations	**DBA 1:** 27 targeted sample locations at EM anomalies 10 targeted sample locations **DBA 2:** 7 targeted sample locations at EM anomalies **DBA 3:** 8 targeted sample locations at EM anomalies **DBA 3a:** 16 targeted sample locations at EM anomalies
Sample Position	The target areas were identified by a licensed surveyor, based on GPS coordinates of the EM anomalies surveyed. Due to the precision of the location measurements of the EM Survey (+/- 1.0 m), sample positions for excavation were refined using a metal detector or magnetometer (a photograph taken of the equipment used during this work is presented as Figure 4-2).
Service Location	Underground utilities/services were identified by a locating contractor (Cardno AUS) prior to any sub-surface works being undertaken.
Excavation	Locations were excavated by non-destructive digging, mini-excavator or hand auger.
Target Depths	Test pits were excavated until there was no metal detector response at that location or natural soil was reached, whichever was encountered first.
Soil Logging	Soil encountered during excavation and hand augering was described and logged. Bore logs are presented in Appendix C.
Soil Sampling	Soil samples were planned to be taken where there was any information of potential contamination or a change in soil lithology, or at depths of 0.5 m, 1.0 m and 1.5 m. If indications of potential contamination were observed, such as imported fill, buried rubbish, odorous soils or soil staining, then soil sampling continued until a depth where natural or non-impacted soil was encountered or the excavator refused on rock, to assess the nature and extent of potential contamination. Soil samples were stored in glass jars provided by the laboratory. The records of the soils encountered, the samples collected, including depths, and related observations are presented in the test pit and borehole records/logs. All samples were labelled with an indelible marker pen on water resistant labels attached to the sample jars.
Decontamination Procedure	Decontamination of sampling equipment was not required as samples were collected directly from within the excavator bucket without contacting the bucket.
Soil Screening	Soil samples were field screened by using a calibrated photo-ionisation detector (PID) and noting any olfactory signs (odours) of contamination. PID calibration records are provided in Appendix G.
Sample Preservation and Transport	Samples were stored on ice, in an esky while onsite and in transit to the laboratory under Chain of Custody (COC) documentation. COC documentation is included alongside the laboratory reports in Appendix F.

Figure 4-2: Metal Detector Scanning EM Anomaly during Intrusive Investigations

4.3 Laboratory Analysis

Soil samples were collected during the intrusive works at the site. Selected samples were tested for a broad range of inorganic and organic parameters at a National Association of Testing Authorities (NATA) accredited laboratory (ALS Laboratory Group) in Melbourne. The analysis program was based on general screening for potential contamination, visual and olfactory observations, and the site history review.

The purpose of the testing was not to provide a comprehensive assessment of the total area of the DBA. Rather, it was intended to provide evidence of flammable liquid (hydrocarbon) contamination at EM anomalies where drums were suspected. The laboratory analyses undertaken are summarised in Table 4-3 at the listed test pit and borehole locations (and were selected based on the contaminants of potential concern identified in the site history review).

Table 4-3: Laboratory Testing Program

Area	Samples	Analysis
DBA 1	TP-A1-1, TP-A1-3, TP-A1-4, TP-A1-5 TP-A1-28, TP-A1-33, TP-A1-34 and TP-A1-36,	TRH[1], BTEX, Metals[2], VOC and SVOC.
DBA 1	TP-A1-8	TRH and Metals, Naphthalene, Total PAH, Total MAH
DBA 1	TP-A1-31	TRH and Metals.
DBA 1	TP-A1-6, TP-A1-12 and TP-A1-13.	TRH, BTEX and Lead.
DBA 1	TP-A1-30, TP-A1-32, T1-A1-35	VOC and SVOC and TRH
DBA 1	TP-A1-29, TP-A1-37	TRH
DBA 2	TP-A2-3.	TRH, BTEX Lead, Naphthalene, Total PAH, Total MAH
DBA2	BH-A2-2.4	TRH, BTEX Lead
DBA 3	TP-A3-1 and TP-A3-5.	TRH, BTEX, Metals, VOC and SVOC.

Area	Samples	Analysis
DBA 3a	TP-A3a-01, TP-A3a-04, TP-A3a-08, TP-A3a-09 and TP-A3a-13	TRH, BTEX, Metals, VOC and SVOC.
DBA 3a	TP-A3a-07, TP-A3a-10 and TP-A3a-14	TRH
DBA 3a	TP-A3a-05, TP-A3a-11	VOC and SVOC and TRH

Notes:
1. TRH - Total Recoverable Hydrocarbons
2. Metals-(Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Lead, Vanadium and Zinc)
3. SVOC – Semi Volatile organic contaminants (Phenols, Poly Aromatic Hydrocarbons, Phthalate Esters, Nitrosamines, Nitroaromatics & Ketones, Halothers, Chlorinated Hydrocarbons, Anilines, Benzidines, OC/OP Pesticides)
4. VOC – Volatile Organic Contaminants (Monocyclic Aromatics, Oxygenated Compounds, Fumigants, Halogenated Aliphatics, Halogenated Aromatics)

Copies of the NATA stamped laboratory reports and the Cardno Lane Piper COC and sample receipt records are included in Appendix F. Tabulated soil laboratory results including depths of samples are presented in Appendix B. The quality control / quality assurance of the soil testing program is discussed in Section 4.3.1.

4.3.1 Quality Control / Quality Assurance

A critical aspect of any assessment of contamination is to demonstrate the quality of the data used as the basis for the assessment. This is achieved through a data quality review process which includes a review of the following aspects of the data collection process:

- project quality objectives and plans;
- data representativeness;
- data precision and accuracy;
- laboratory performance;
- data comparability; and
- data set completeness.

A detailed review of these aspects has been undertaken by Cardno Lane Piper and is presented in Appendix F. The data validation process has concluded that there are no significant systematic errors in the data collection process. Therefore, the soil contamination data set used as the basis for this assessment is considered valid and complete.

4.3.2 Soil Assessment Criteria

This Section discusses the sources of assessment criteria adopted for this investigation. The relevant assessment criteria are included and compared with the tabulated analytical data in Appendix B.

The Victorian Government (2002) *State Environment Protection Policy - Prevention and Management of Contamination of Land* designates protected beneficial uses according to a site's land use. The proposed ongoing uses of the buried drum investigation areas are for a golf course and open space. The land uses associated with the investigation areas would be Industrial (for the targeted areas).

Therefore, the beneficial uses and assessment criteria commensurate with this land use are:

- **NEPM 1999 Interim Urban Ecological Investigation Levels (EIL):** to assess potential risks to natural ecosystems; and

- **NEPM 1999 Human Health Based Investigation Levels (HIL-F):** For commercial/Industrial. Includes premises such as shops and offices as well as factories and industrial sites. A fire training facility would constitute a commercial land use.

The initial screening levels for determining the "contamination status of land" are generally the most conservative of these levels, which are the EIL, with the exception of lead (where HIL-A is lower than the EIL).

Where NEPM 1999 does not include a criterion for a particular chemical parameter, a suitable criterion can be sourced from authorities in other jurisdictions. In this case, the Canadian Council of Ministers of the Environment (CCME) criteria for BTEX and TPH were adopted as consideration is given to both human health[5] and environmental concerns[6]. The specific CCME criteria adopted are:

- **CCME (2008) *Soil, Air and Sediment Quality Guidelines*:** these were used to assess potential risk of TPH to human health and the environment on an industrial site; and
- **CCME 2004a, b, c and d) *Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health*:** these were used to assess potential risk of BTEX to human health and the environment on an industrial site.

Friebel, E and Nadebaum, P (September 2011) *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide Australia* also provides criteria for TPH and BTEX. These criteria were not adopted for the current investigation as they were not endorsed by EPA at the time of investigation.

It is important to note that the NEPM 1999 EIL and NEPM 1999 HIL adopted for assessing soil contamination are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels" at the site. Generally it can be said that the NEPM 1999 investigation levels are set conservatively low (which is appropriate as an initial broad screening level). Should they be exceeded, further investigation or assessment of risk should be undertaken. Often this further site-specific assessment can result in higher investigation or assessment levels being considered acceptable.

This report has been completed following the general requirements of the ASC NEPM (1999). The ASC NEPM was amended in 2013 and came formally into operation on 16 May 2013. The ASC NEPM is implemented in Victoria through State Environmental Protection Policy (SEPP). EPA Victoria has directed that all current investigations can use the 1999 NEPM during the transition period of 12 months before full implementation of the amended ASC NEPM (2013) in May 2014. This phase of the assessment was completed prior to the amended ASC NEPM becoming operational and the report has been completed prior to May 2014.

[5] Human Health the following include ingestion of soil, dermal exposure to soil, inhalation of dusts, vapour intrusion and uptake in produce consumed.
[6] Environmental considerations in deriving CCME criteria include soil contact, soil ingestion, nutrient cycling and contamination of groundwater.

5 RESULTS

The following Section presents the findings of the EM Survey, the test pitting and soil analysis program completed at the site.

5.1 Electromagnetic Survey Findings

The survey identified 25 locations where EM "anomalies" were present in DBA 1, seven locations where EM "anomalies" were present in DBA 2, seven locations where EM "anomalies" were present in DBA 3 and sixteen locations where EM "anomalies" were present in DBA 3a. The results of the survey are shown in Figures 3 to 5 (Appendix A) and summarised in Table 5-1, Table 5-2, Table 5-3 and Table 5-4 respectively.

Table 5-1 indicates the probability of finding a buried metallic object at each anomaly based on the signal strength of the EM instrument.

Table 5-1: Electromagnetic Anomalies (DBA 1)

Anomaly ID[1]	Easting	Northing	Diameter (m)	Depth (m)	Probability of a buried metallic object
1	254738.22	5826167.66	2.0	0.8	high
2	254743.46	5826149.54	1.0	0.9	high
3	254769.03	5826153.57	1.0	0.9	high
4	254764.34	5826163.36	1.0	1.1	high
5	254778.21	5826106.51	1.0	0.5	moderate
6	254793.47	5826106.51	1.0	0.5	moderate
7	254815.30	5826109.37	1.0	<[2]0.4	low
8	254820.11	5826108.53	2.0	<0.4	moderate
9	254823.60	5826108.37	2.0	<0.4	low
10	254823.60	5826110.36	2.0	0.6	low
11	254825.76	5826110.36	2.0	<0.4	low
12	254821.78	5826102.55	2.0	0.5	moderate
13	254836.39	5826105.34	2.0	0.6	low
14	254836.20	5826109.31	2.0	0.6	moderate
15	254833.93	5826108.75	1.0	0.5	low
16	254829.08	5826100.24	1.0	<0.4	moderate
17	254833.11	5826096.54	1.0	<0.4	moderate
18	254840.54	5826105.49	2.0	<0.4	low
19	254839.09	5826112.42	2.0	0.5	low
20	254841.03	5826112.58	2.0	0.6	low

Anomaly ID[1]	Easting	Northing	Diameter (m)	Depth (m)	Probability of a buried metallic object
21	254845.21	5826099.21	1.0	0.6	moderate
22	254848.11	5826096.47	1.0	<0.4	moderate
23	254839.90	5826108.55	1.0	<0.4	low
24	254836.63	5826097.33	2.0	<0.4	low
25	254834.32	5826101.43	1.0	<0.4	low

Notes:
1. ID = identification
2. < = less than

Table 5-2: Electromagnetic Anomalies (DBA 2)

Anomaly ID	Easting	Northing	Diameter (m)	Depth (m)	Probability of a buried metallic object
1	254839.45	5826007.79	1.0	0.8	moderate
2	254836.59	5826007.79	1.0	0.8	moderate
3	254819.83	5826001.86	2.0	1.0	moderate
4	254811.24	5825966.71	1.0	1.2	moderate
5	254804.50	5825970.59	1.0	1.0	moderate
6	254790.20	5825971.00	1.0	0.9	moderate
7	254779.36	5825971.00	1.0	1.2	moderate

Table 5-3: Electromagnetic Anomalies (DBA 3)

Anomaly ID	Easting	Northing	Diameter (m)	Depth (m)	Probability of a buried metallic object
1	254940.93	5825919.20	1.0	1.7	moderate
2	254937.21	5825914.55	1.0	1.7	moderate
3	254921.41	5825917.92	1.0	1.8	moderate
4	254917.69	5825919.83	1.0	1.7	moderate
5	254916.12	5825921.06	1.0	1.9	moderate
6	254915.48	5825915.01	1.0	1.6	moderate
7	254904.15	5825924.02	1.0	1.2	moderate

Table 5-4: Electromagnetic Anomalies (DBA 3a)

Anomaly ID	Easting	Northing	Diameter (m)	Depth (m)	Probability of a buried metallic object
1	254899.91	5825883.99	1.0	1.8	Moderate
2	254900.98	5825887.50	1.0	1.8	Moderate
3	254905.86	5825791.01	1.0	1.8	low
4	254914.54	5825881.25	2.0	1.8	moderate
5	254927.35	5825869.36	2.0	1.8	moderate
6	254932.22	5825880.18	2.0	1.8	moderate
7	254940.15	5825874.55	3.0	1.5	high
8	254941.52	5825866.32	2.0	1.8	moderate
9	254942.89	5825872.11	3.0	1.5	high
10	254946.40	5825875.61	3.0	<1.5	high
11	254948.53	5825873.78	3.0	<1.5	high
12	254952.80	5825862.20	1.0	1.8	low
13	254952.95	5825874.24	2.0	1.5	high
14	254954.78	5825871.19	3.0	1.5	high
15	254958.89	5825883.39	5.0	<1.5	low
16	254896	5825864	Background Test-pit. EM survey did not show any anomalies in this location		

In summary, the results of the EM survey show that the diameter of the EM anomalies detected are between 1 m and 2 m – which is relatively small[7]. This indicates that if those EM anomalies actually corresponded to buried drums then only individual drums are present. Much larger mass burials are highly unlikely, as a much larger diameter of the EM anomaly would be detected in that case.

5.2 Intrusive Investigation Observations

5.2.1 Soil Profile Encountered

Soil conditions observed during the soil sampling completed as part of this assessment at DBA 1, DBA 2, DBA 3 and DBA 3a are summarised in Table 5-5, Table 5-6 Table 5-6 and Table 5- respectively. A total of 27 test pits were investigated at DBA 1, seven test pits at DBA 2, eight test pits at DBA 3 and 16 test pits at DBA 3a (in areas where EM “anomalies” were reported). Detailed soil descriptions are provided in the logs included in Appendix C.

[7] Minimum reported anomaly size is 1m, even is anomaly is physically much smaller; see Table 4-1

Table 5-5: Typical Soil Profile (DBA 1)

Sub-Surface Horizon	Typical Depth Range	Description
Fill	0.0 m to ~1.7 m	The fill typically comprises clayey silt (with occasional gravel, root matter, asphalt, natural quartz and sand). Fill thickness generally ranged between 0.2 m and 0.8 m, with deeper fill (up to 1.7 m in thickness) encountered in test pit locations TP-A1-26 and TP-A1-27 which are located on the Deep Creek Road (west of inferred area of drum removal). Hydrocarbon odours were not observed. Perched water was observed in DBA1 just beneath the surface (0.05m-0.2m bgs) at TP-A1-3 and TP-A1-17.
Silty CLAY	~1.0 m to ~1.8 m (LOI)	The natural soil profile typically comprised silty clay (which was medium to high plasticity and yellow orange brown to orange grey brown in colour). Ten locations were not extended to depths greater than 1.0m as a sufficient amount of samples were collected in each location to provide information regarding soil contamination. Hydrocarbon odours were not observed.
Notes: 1. LOI = limit of investigation		

Table 5-6: Typical Soil Profile (DBA 2)

Sub-Surface Horizon	Typical Depth Range	Description
Fill	0.0 m to ~1.8 m	The fill typically comprised clayey silt (with occasional gravel, root matter and sand). Fill thickness was variable between sample locations (ranging between 0.3 m to 1.8 m). The maximum depth of the fill could not be determined in some locations due to ingress of water or services pipes being encountered. In general, the fill encountered near the car park was deeper than in other areas. Hydrocarbon odours were not observed. Perched water was observed in DBA2 just beneath the surface (0.05m-0.2m bgs) at BH-A2-4 and BHA2-5.
Silty CLAY	~1 m to ~2.5 m (LOI)	The natural soil profile comprised silty clay (which was medium to high plasticity and brown grey to yellow brown in colour). Hydrocarbon odours were not observed.

Table 5-7: Typical Soil Profile (DBA 3)

Sub-Surface Horizon	Typical Depth Range	Description
Fill	0.0 m to ~0.9 m	The fill typically comprised silty clay with occasional gravel. Fill was not encountered in all sample locations. Hydrocarbon odours were not observed.

Sub-Surface Horizon	Typical Depth Range	Description
Silty CLAY	~1.0 m to ~2.5 m (LOI)	The natural soil profile comprised silty clay (which was low to high plasticity and grey orange to brown in colour). Four locations were not extended beneath about 0.15 m as near surface excavator scrapings were sufficient to remove the metal detector signal from these locations. Hydrocarbon odours were not observed.

Table 5-8: Typical Soil Profile (DBA 3a)

Sub-Surface Horizon	Typical Depth Range	Description
Fill	0.0 m to ~0.55 m	The fill typically comprised clay silt with occasional gravel, root matter and sand. Fill was not encountered in all sample locations. Hydrocarbon odours were not observed.
Silty CLAY	~1.0 m to ~1.5 m (LOI)	The natural soil profile comprised silty clay (which was low to high plasticity and grey orange to brown in colour). Four locations were not extended beneath about 1.0 m as near surface excavation was sufficient to remove the metal detector signal and two uncover pieces of metal. Hydrocarbon odours were not observed.

5.2.2 Test Pitting Results

A summary of the test pitting findings for DBA 1, DBA 2, DBA 3 and DBA 3a is presented in Table 5-6, Table 5-7 Table 5-8 and Table 5-9 respectively.

No drum or other metal object was observed or identified by the metal detector to the depth of investigation. At that depth the metal detector ceased to identify a metallic anomaly.

Table 5-6: Electromagnetic Anomalies (DBA 1)

Location ID	Investigation Depth (m)	Depth of Fill (m)	Observation
TP-A1-1	1.8	0.5	No drum or other metal object was observed
BH-A1-2	0.6	>0.6	No drum or other metal object was observed
TP-A1-3	0.85	>0.85	No drum or other metal object was observed
TP-A1-4	1.7	0.4	No drum or other metal object was observed
TP-A1-5	1.6	0.4	No drum or other metal object was observed
TP-A1-6	1.5	0.2	No drum or other metal object was observed.
TP-A1-7	-	-	This area was not investigated as an underground service is present (and as such, the probability of a drum being present is low).
TP-A1-8	0.9	0.3	No drum or other metal object was observed or identified by the metal detector.

Location ID	Investigation Depth (m)	Depth of Fill (m)	Observation
TP-A1-9	-	-	This area was not investigated as an underground service is present (and as such, the probability of a drum being present is low).
TP-A1-10	-	-	This area was not investigated as an underground service is present (and as such, the probability of a drum being present is low).
TP-A1-11	0.15	>0.15	No drum or other metal object was observed
TP-A1-12	-	-	This area was not investigated as an underground service is present (and as such, the probability of a drum being present is low).
TP-A1-13	0.15	>0.15	No drum or other metal object was observed
TP-A1-14	0.15	>0.15	No drum or other metal object was observed
TP-A1-15	0.15	>0.15	No drum or other metal object was observed
TP-A1-16	0.15	>0.15	No drum or other metal object was observed
TP-A1-17	0.6	0.4	No drum or other metal object was observed
TP-A1-18	0.5	>0.15	No drum or other metal object was observed
TP-A1-19	0.15	>0.15	No drum or other metal object was observed
TP-A1-20	0.4	>0.15	No drum or other metal object was observed
TP-A1-21	0.15	>0.15	No drum or other metal object was observed
TP-A1-22	1.1	0.2	No drum or other metal object was observed
TP-A1-23	0.3	>0.15	No drum or other metal object was observed
TP-A1-24	1.4	0.6	No drum was encountered. One metal object (steel strapping observed).
TP-A1-25	1.3	0.6	No drum or other metal object was observed
TP-A1-26	1.7	>1.7	No drum or other metal object was observed
TP-A1-27	1.7	>1.7	No drum or other metal object was observed
TP-A1-28	1.0	0.2	No drum or other metal object was observed
TP-A1-29	0.6	0.4	No drum or other metal object was observed
TP-A1-30	0.95	0.95	No drum or other metal object was observed
TP-A1-31	0.6	0.3	No drum or other metal object was observed
TP-A1-32	0.7	0.4	No drum or other metal object was observed
TP-A1-33	0.6	0.3	No drum or other metal object was observed
TP-A1-34	0.75	0.4	No drum or other metal object was observed
TP-A1-35	0.55	0.3	No drum or other metal object was observed
TP-A1-36	0.75	0.25	No drum or other metal object was observed
TP-A1-37	1.0	0.35	No drum or other metal object was observed

Table 5-7: Electromagnetic Anomalies (DBA 2)

Location ID	Investigation Depth (m)	Depth of Fill (m)	Probability of Drum at Location
TP-A2-1	0.3	>0.3	No drum or other metal object was observed (only a service trench was encountered, but no service was uncovered).
TP-A2-2	1.3	0.2	No drum or other metal object was observed
TP-A2-3	1.7	0.0	No drum or other metal object was observed
BH-A2-4	0.8	>0.8	No drum or other metal object was observed.(only a storm water and water main pipes were observed)
BH-A2-5	1.6	>1.6	No drum or other metal object was observed (only a plastic pipe was observed)
BH-A2-6	1.8	>1.8	No drum or other metal object was observed.
BH-A2-7	1.7	0.3	No drum or other metal object was observed

Table 5-8: Electromagnetic Anomalies (DBA 3)

Location ID	Investigation Depth (m)	Depth of Fill (m)	Probability of Drum at Location
TP-A3-1	1.2	0.0	No drum or other metal object was observed
TP-A3-2	0.15	>0.15	No drum or other metal object was observed
TP-A3-3	0.15	>0.15	No drum or other metal object was observed
TP-A3-4	0.15	>0.15	No drum or other metal object was observed
TP-A3-5	1.5	0.9	No drum or other metal object was observed
TP-A3-6	0.15	>0.15	No drum or other metal object was observed
TP-A3-7	0.4	>0.4	No drum or other metal object was observed
TP-A3-8	1.2	0.0	No drum or other metal object was observed

Table 5-9: Electromagnetic Anomalies (DBA 3a)

Location ID	Investigation Depth (m)	Depth of Fill (m)	Probability of Drum at Location
TP-A3a-1	1.2	0.0	No drum or other metal object was observed
TP-A3a-2	0.15	>0.15	No drum or other metal object was observed
TP-A3a-3	0.15	>0.15	No drum or other metal object was observed
TP-A3a-4	0.15	>0.15	No drum or other metal object was observed
TP-A3a-5	1.5	0.9	No drum or other metal object was observed
TP-A3a-6	0.15	>0.15	No drum or other metal object was observed
TP-A3a-7	0.4	>0.4	No drum or other metal object was observed
TP-A3a-8	1.2	0.0	No drum was encountered. One piece of metal was observed.

Location ID	Investigation Depth (m)	Depth of Fill (m)	Probability of Drum at Location
TP-A3a-9	1.2	0.0	No drum was encountered. One piece of metal (metal can) was observed.
TP-A3a-10	0.15	>0.15	No drum or other metal object was observed
TP-A3a-11	0.15	>0.15	No drum or other metal object was observed
TP-A3a-12	0.15	>0.15	No drum or other metal object was observed
TP-A3a-13	1.5	0.9	No drum was encountered. One piece of metal was observed.
TP-A3a-14	0.15	>0.15	No drum or other metal object was observed
TP-A3a-15	0.4	>0.4	No drum or other metal object was observed, however three metal tree stakes were observed at this location

5.2.3 Photo-Ionisation Detector Screening Results

All soil samples collected were screened using a PID in the field. The PID will indicate the presence of a wide range of petroleum hydrocarbon compounds as an aggregated Volatile Organic Compounds (VOC) concentration. The results of PID screening are included in Appendix C. The PID headspace readings were low in all samples screened (a maximum 4.5 parts per million). This indicates that significant or widespread contamination by VOC that are normally associated with petroleum hydrocarbons (flammable liquids that could have leaked from buried drums) is not present.

5.3 Laboratory Soil Results

The results of laboratory analysis of selected soil samples have been compared against adopted assessment criteria and presented in Appendix B. It is noted that this soil investigation is not a detailed investigation of soil contamination and that only select targeted soil samples were analysed from locations where EM “anomalies” were identified. An interpretation of these data is summarised as follows:

- Except for vanadium and chromium, all samples analysed reported concentrations below either the laboratory limits of reporting or the adopted assessment criteria; and
- Several samples reported vanadium, barium and chromium concentrations above the NEPM 1999 EIL (but not the NEPM 1999 HIL-F, used to assess risk to human health). Neither vanadium, barium nor chromium are contaminants of concern likely associated with buried drums and as such, are not considered in detail further herein.
- One surface sample location A1-28 collected at 0.1m in DBA1 reported a concentration of 3,480 mg/kg of TPH C16-C_{34} above site specific criteria of 1,700mg/kg. This sample also recorded slightly elevated concentrations of all TPH fractions however these results were below criteria.

The soil sampling and analysis program did not detect any further organic chemicals typical of petroleum hydrocarbons or flammable liquids or organic solvents. This provides an additional line of evidence that drums containing such products were not buried in DBA 1, DBA 2, DBA 3 or DBA 3a (or if they were formerly, they have been removed and the areas remediated during two drum extraction events).

6 CONCLUSIONS

The conclusions of the current Drum Burial Assessment are presented below.

6.1 Site History Review

The site history review identified four main areas where drums may be buried at the site:

- **DBA 1 (Feature 46):** This DBA is located south of the airstrip and has an area of approximately 7,050 m^2. The western portion of DBA 1 contains plantation eucalyptus trees. The eastern portion is grassed and contains several fire fighting props including a decommissioned helicopter (removed from site during the period of this assessment), 200 L drums and a concrete pipe. The eastern portion of DBA 1 is understood to be used intermittently for fire fighting drills;
- **DBA 2 (Feature 47):** This DBA is located north of the administration building and has an area of approximately 2,520 m^2. DBA 2 has a tree cover (which limits access to the subsurface). It is understood that there is no regular use of this area;
- **DBA 3 (Feature 48):** This DBA is located at the golf course, east of the administration building and has an area of approximately 2,082 m^2. This DBA is predominantly grassed, and also contains scattered trees and concrete anchor blocks for a radio transmitter antenna formerly operated by Amalgamated Wireless Australasia (AWA);
- **Landfills 1 and 2 (Features 42 and 43):** These areas are located together in the south western corner of the site. They are outside the scope of this assessment and are reported separately in the Cardno Lane Piper 2014 Landfill Report.

After the fieldworks had been completed, two further areas were identified as requiring further investigation. These are:

- **DBA 3a (Feature 48a):** This is located immediately south of DBA3 and was identified by a geotechnician employed on the AS James investigation in 1988 who approached CFA with anecdotal information on a burial area following the publication of the IFI Report.
- **DBA 1 south Feature 46b:** This area is immediately to the south of Deep Creek Road, within DBA 1 and was interpreted on the basis of a site plan in a report by Minenco as showing a potential trench line when compared with contemporary aerial photographs.

A review of the site history presented in the IFI Report indicates the presence of four drum burial events and two documented drum extraction events at the site:

- **First Drum Burial Event:** This occurred in 1979 or 1980 and involved the burial of approximately 100 drums at or in the vicinity of either of the two landfills. There is no available evidence for extraction of drums from this area and based on the site history review alone, there remains a potential for drums to remained buried there (however this is outside the scope of this assessment and is not discussed in detail further);
- **Second Drum Burial Event:** On 22 December 1982, several drums containing flammable liquids that were being stored behind the training centre caught fire. Following this fire, approximately 20 to 30 fire-affected drums were buried in three trenches that may be at DBA 2. There is no available evidence for the extraction of drums from this area;
- **Third Drum Burial Event:** Anecdotal evidence indicated that between 1983 and 1986 the remaining drums that were not affected by the fire were buried in three trenches in DBA 3 or possibly in one of the other burial areas. More than 100 drums were buried. The available evidence suggests that most of these were removed in 1991 during the **First**

Extraction Event. At that time, 75 drums and 243 tonnes of contaminated soil were removed;

- **Fourth Drum Burial Event:** Between 1984 and 1985 somewhere between 120 and 400 drums were buried in three trenches most likely in DBA 1. The documented evidence shows that 56 of these drums and 136 tonnes of contaminated soil were removed from this area during the **Second Drum Extraction Event** in 2002.

It should be noted here that the review conducted by Cardno Lane Piper of the available relevant environmental reports indicates that the reliability of information on burial events is less than that for extraction events, the former being anecdotal and the latter based on EPA waste records. In addition, the information on location of drums is inadequately documented and site plans (when present) do not show the exact locations investigated. Further information provided by the former subcontractor who worked at the site is no more reliable than other anecdotal information reported within the 2012 IFI Report, see section 6.3.

Due to the uncertainty in the information on the drum burial areas, Cardno Lane Piper has completed detailed geophysical and intrusive investigations of the suspected drum burial areas improve the state of knowledge about buried drums within DBA 1, DBA 2, DBA 3a and DBA 3 in order to locate buried drums.

6.2 Site Investigation Results

A total of fifty five (55) geophysical anomalies were identified in DBA 1, DBA 2, DBA 3 and DBA 3a during the EM Survey. EM “anomalies” can indicate changes in electromagnetic fields caused by the presence of metal objects in the subsurface (such as buried drums nails, small aluminium cans or small pieces of scrap metal.). EM anomalies can also be caused by non-metallic objects such as changes in ground conditions including rock weathering profiles and presence or absence of water. EM Anomalies can also be small metallic objects which were not observed in the field. The EM anomalies detected were all reported as 1 to 2 m in diameter at the most; which indicates if drums were present they are only individual (and not mass burials).

A program of test pitting was then undertaken to assess whether drums were present in the locations where EM anomalies were reported. No drums were uncovered during the test pitting program (to a maximum depth of 2m). Perched water was identified just below the surface at one test pit location in DBA1 and two borehole locations in DBA2 see Table 5-5 and 5-6.

Soil samples were taken from testpits in the anomaly areas. Thirty-five (35) selected samples were tested in the laboratory for petroleum hydrocarbons and other chemicals indicative of flammable liquids. No elevated contaminants indicative of leaking of flammable liquids from buried drums were reported, with the exception of a surface sample collected at A1-28 in DBA1 which reported elevated TPHC16-C28 results above criteria. This provides an additional line of evidence that drums were either never present or, if formerly present, they had been removed and the areas remediated. The elevated TPH at A1-28 is unlikely to be associated with a buried drum as it is at the ground surface near where empty fuel drums were stored.

In summary, the results of the soil investigation program show no evidence of buried drums in DBA 1, DBA 2, DBA 3 or DBA 3a.

6.3 Summary Conclusions on Buried Drums

Table 6-1 presents a summary of the strength of the lines of evidence for buried drums in DBA 1, DBA 2, DBA 3 or DBA 3a at the site.

Table 6-1: Strength of Evidence of Drum Burial

Line of Evidence	DBA 1	DBA 2	DBA 3	DBA 3a	Comment
Documentation of Burial Location	4	1	1	1	The CRA ATD 1996 Report has a figure showing three burial trenches adjacent to BH4 and BH5, therefore in DBA 1. The AS James report site plan was not scaled or related to landmarks.
Documentation of Extraction	4	1	1	1	While there is good documented evidence of Drum Extraction Event 1 and Drum Extraction Event 2, the location of Drum Extraction Event 1 is not known.
Anecdotal Information	3	1	1	2	There is a lack of corroborated verbal evidence or site visits by witnesses confirming locations of DBA 1, DBA 2 or DBA 3. A separate interview provided further information that drums may have been buried in DBA3a.
Geophysical Survey Anomolies (Including Intrusive Investigation of Targets)	3	3	3	4	Section 5.1 and Section 5.2 of the report presents the findings of the EM Survey which identified anomalies, some being buried metal but no drums. Area DBA3a identified anomalies which were investigated with test pits, however no drums were found and rock was present from 1.5m which is the likely cause of the anomalies.
Soil Chemical Testing	5	1	1	1	Low levels of petroleum hydrocarbons in soil were reported in DBA 1 – none in other areas
Evident on Air photos	5	1	1	1	Potential trenches identified in DBA 1 in 1990, 1998 and 2002 air photos
Total	***24***	*8*	*8*	*10*	
Strength of Evidence Scores: 5 = Very strong; 4 = Strong; 3 = neutral; 2 = weak; 1 = very weak evidence;					

In summary, this analysis indicates that the weight of evidence for drums having been buried and removed from DBA 1 is strong. Conversely, it is considered most unlikely that drums were ever buried in DBA 2 or DBA 3. The evidence for drums in DBA 3a is only anecdotal based on a recent approach from a geotechnician involved with the investigation by AS James in 1988. While AS James reported the presence of drums and flammable hydrocarbons in the soil and in the drum contents, it did not include a site plan showing the location of the burial. It has been inferred that their report relates to DBA 1 which has other lines of evidence for its existence. DBA 3a was investigated and no drums or flammable hydrocarbon contamination was found.

6.4 Management of Environmental Risks

6.4.1 Risks Due to Unknown Buried Drums

If buried drums remain at the site outside of the areas investigated (DBA 1, DBA 2, DBA 3 or DBA 3a), then the potential risk to human health (via inhalation of any volatile vapours or direct contact with the drums, their contents or any surrounding contaminated material) must be been considered. This risk is minimised if the drums remain buried, and also if the area where they are buried is not occupied or used (such as in areas of open space or vacant land at the site; in areas without buildings where vapour could intrude; and in areas not regularly used by CFA or others). Given that no drums have been found, no recommendations are made at this stage regarding management of that potential risk.

If there are drums still buried anywhere at the site, then there is a minor potential for them to be a source of impact to groundwater beneath the site. However, this would only be the case if residual liquids were present in any drums that could leak or leach into the soil and migrate to the underlying groundwater. Groundwater has been investigated and the results detailed in a separate report titled *Groundwater Contamination Assessment, Fiskville Training College* (Cardno Lane Piper, 2014c). This investigation found that there is not a shallow water table aquifer at the site, however regional groundwater occurs at a significant depth (greater than 60 metres) and the aquifer is overlain by low permeability soils. No contamination of groundwater was detected that indicated the source was a buried drum. Should additional drums be uncovered in the future outside of areas already assessed, further investigation of groundwater is required including areas with perched water as discussed in the *Groundwater Contamination Assessment, Fiskville Training College* (Cardno Lane Piper, 2014c).

Given no drums have been found, no recommendations are made at this stage regarding management of that potential risk, beyond noting this information in a Site Contamination Management Plan.

6.4.2 Site Contamination Management Plan

CFA are in the process of developing an Environmental Management System (EMS) to include the future promotion of ecological sustainability programs and management of environmental risks at the FTC. CFA are proposing a Site Contamination Management Plan under their EMS to provide information on potential contamination hazards and their management. The future surveillance of any future discoveries of buried drums and associated contaminated soil and water should be included in this plan.

It is noted that the EPA Environmental Auditor would probably recommend such a plan therefore it should be developed in consultation with the Auditor.

7 RECOMMENDATIONS

Following completion of this investigation, no further recommendations are made to investigate for buried drums. However it is recommended that:

1. In the event that further information becomes available regarding possible drum burial or any discoveries of buried drums are made, the proposed Site Contamination Management Plan and its protocols should be implemented to investigate and manage the issue.
2. Should additional drums be uncovered in the future outside of areas already assessed, further investigation of groundwater is required including the perched water areas if identified.
3. Perched water identified in DBA1 and DBA2 should also be further investigated as per the recommendation discussed in the Groundwater *Contamination Assessment Report, Fiskville Training College* (Cardno Lane Piper, 2014c) to further investigate the presence and quality of the perched water areas at the site.

8 REFERENCES

Legislation and Guidelines

1. *Environment Protection Act 1970*
2. *Victorian Government (2002) State Environment Protection Policy - Prevention and Management of Contamination of Land*

General References

1. *National Environment Protection Council (December 1999) National Environment Protection [Assessment of Site Contamination] Measure (NEPM 1999)*
2. *Standards Australia (2005) Australian Standard AS4482.1 Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*
3. *Victorian Government (2002) State Environment Protection Policy - Prevention and Management of Contamination of Land*
4. *Canadian Council of Ministers of the Environment (2008) Soil, Air and Sediment Quality Guidelines*
5. *Canadian Council of Ministers of the Environment 2004a, b, c and d) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.*
6. *Friebel, E and Nadebaum, P (September 2011) Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide Australia*

Site Specific References

1. *Professor Rob Joy (June 2012) Fiskville, Understanding the Past to Inform the Future - Report of the Independent Fiskville Investigation*
2. *Cardno Lane Piper (2014a). Site History Review, Fiskville Training College, 4549 Geelong – Ballan Road, Fiskville, Victoria. March 2014.*
3. *Cardno Lane Piper (2014b). Targeted Soil Assessment. Fiskville Training College, 4549 Geelong – Ballan Road, Fiskville, Victoria. March 2014.*
4. *Cardno Lane Piper (2014c). Groundwater Contamination Assessment. Fiskville Training College, 4549 Geelong-Ballan Rd, Fiskville, Victoria. March 2014.*
5. *Cardno Lane Piper (2014d). Investigation of Risks at Former Landfills, Fiskville Training College, 4549 Geelong-Ballan Road, Fiskville, Victoria. March 2014*
6. *Minenco Environmental Services (1996) CFA Site Visit by Philip Peck, 14 May 1996 (reference: 5991)*
7. *A.S. James Pty. Ltd. (1 July 1988) Waste Disposal Site. Fiskville Training Centre (reference:72024)*
8. *Coffey Partners International Pty Ltd (October 1996) CFA Training College, Groundwater Monitoring Network Installation, Ballan, VIC (Reference: E3523/1-AK)*
9. *3Diomides & Associates (27 June 1996) Environmental Site Assessment*
10. *Technological Resources Pty Ltd (CRA ATD) (28 November 1996) Fiskville Training College Review of Site Assessments and Remediation Options*
11. *Golder Associates (15 June 2012) CFA Training College, Fiskville, VIC Preliminary Site Assessment (reference: 117613201-002-R-Rev0)*

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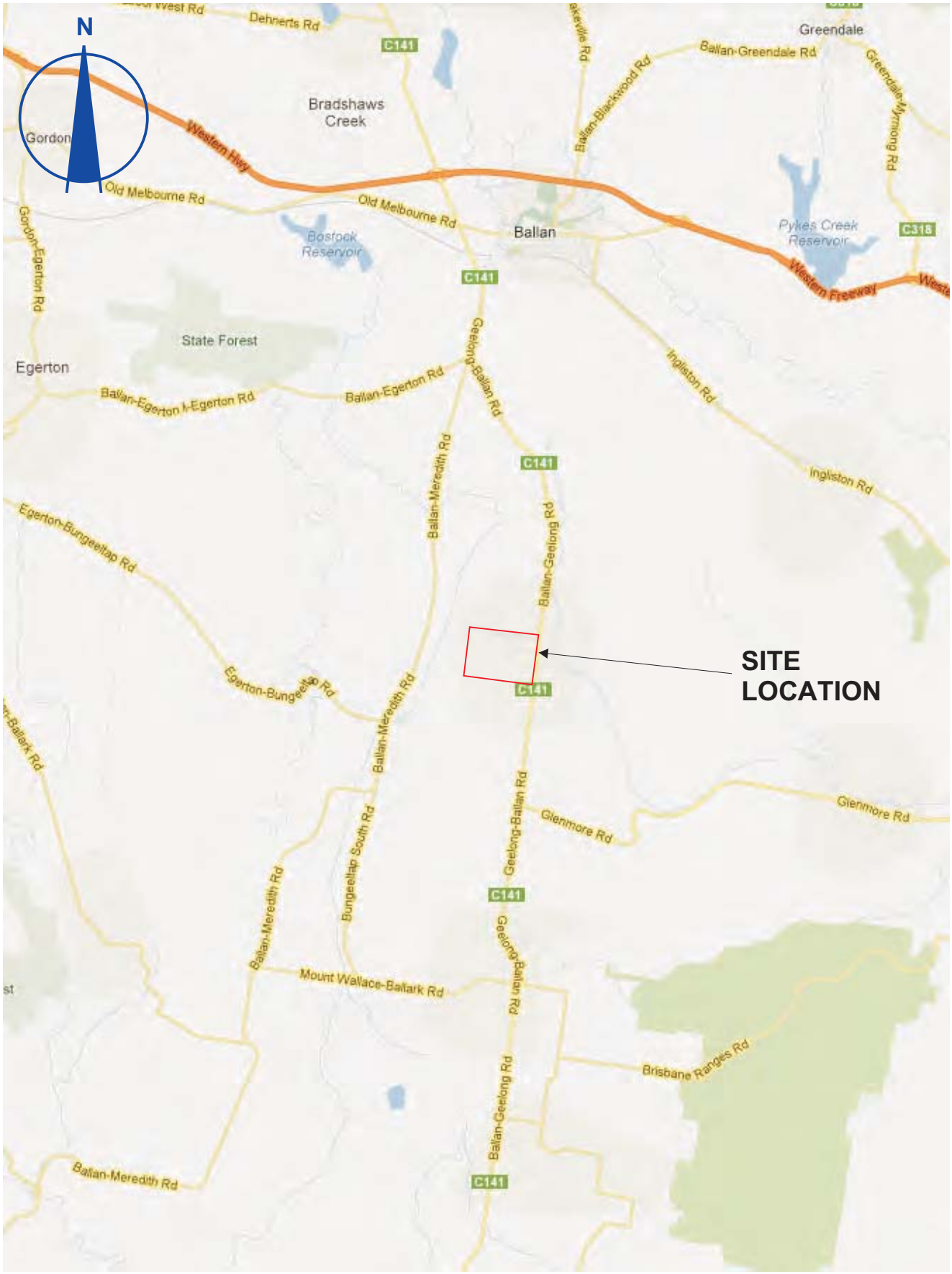
Appendix A
8 Pages

Figures

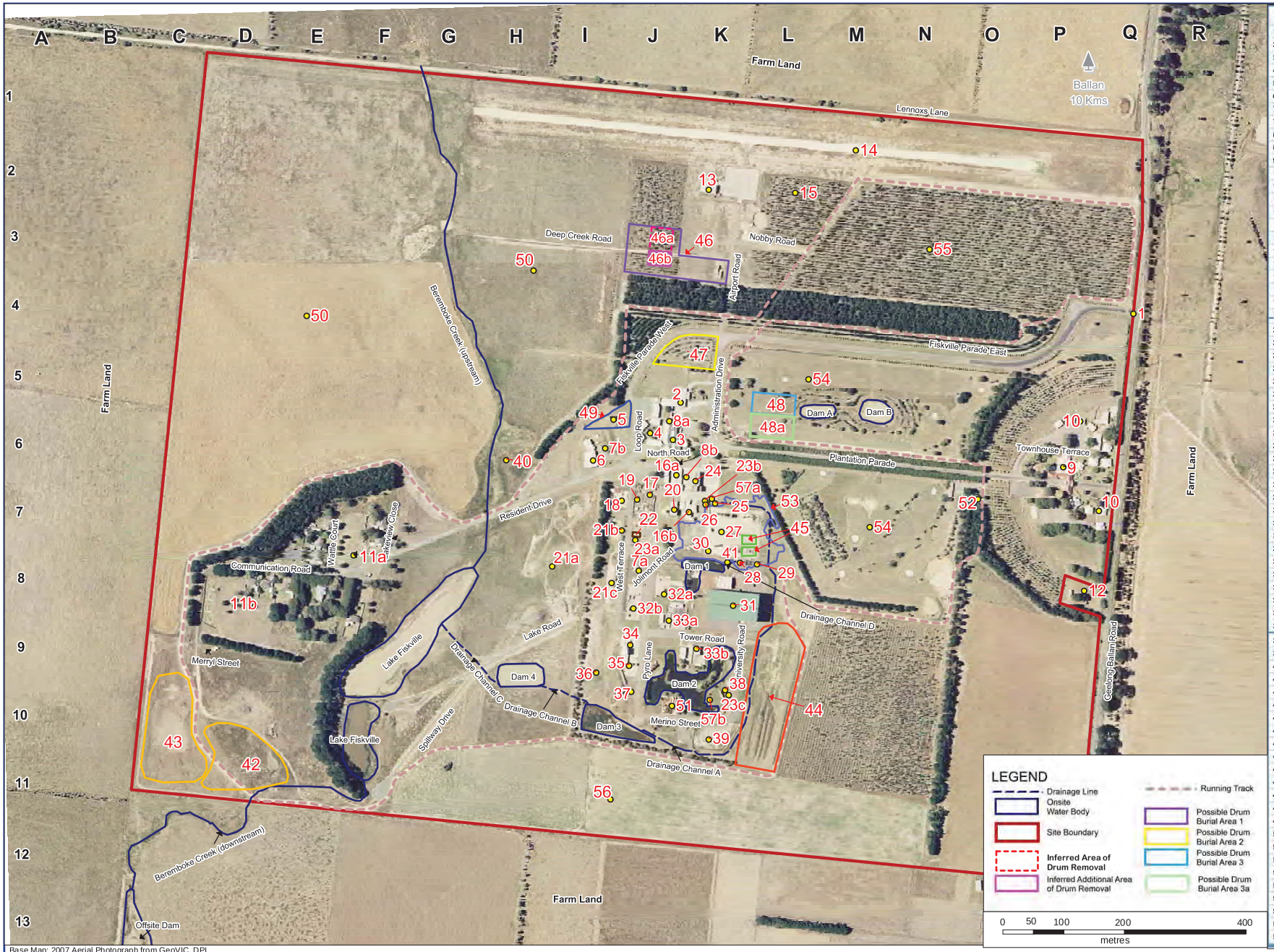


After Google Maps 2012

Approximate Site boundary

2km

Cardno LanePiper Shaping the Future Cardno Lane Piper Pty Ltd	PROJECT: Buried Drum Assessment Fiskville Training College Geelong-Ballan Rd, Fiskville, VIC	TITLE: Site Locality	
	SCALE(A4): As shown DRAWN/ CHECKED: PAM/JCE	DATE:October 2013	JOB No: 212163.3
	REF: 212163.3 Figure1.cdr	REV: 1	FIG: 1



Location_N	Location_Name
1	Main Entrance
2	Main Reception
3	Learning Centre
4	Classrooms
5	Sewerage Treatment Plant (STP)
6	Maintenace Workshop
7a	AST- Gas 1 (LPG AST 1)
7b	AST- Gas 2 (LPG AST 2)
8a	Former UST Area 1 (UST 1)
8b	Former UST Area 2 (UST 2)
9	Dining Room and Recreational Facilities
10	Temporary Accommodation (Cottages)
11a	Residential Area (Temporary)
11b	Residential Area (Permanent)
12	Former School Site
13	Airport Hangar
14	Airstrip
15	Wildfire PAD (WF PAD)
16a	Amenities Building 1
16b	Amenities Building 2
17	Prop Storage Area (PSA)
18	Fire Truck Storage (under construction)
19	Materials storage
20	Confined Space Rescue PAD (CSR PAD) + Rope Rescue PAD (RR PAD)
21a	Driver Education Training PAD (DET PAD), Explosives PAD (EX PAD)
21b	Water Crossing (DET PAD)
21c	Sand Crossing (DET PAD)
22	Fuel Mixing Area (FMA)
23a	AST- Diesel/Fuels 1 (AST 1)
23b	AST- Diesel/Fuels 2 (AST 2)
23c	AST- Diesel/Fuels 3 (AST 3)
24	Compressed Air Breathing Apparatus (BA PAD)/Fire Attack Building
25	Water Supply Pit (WSP)
26	Parade Ground Water Storage Tank and Pumphouse 1
27	Flammable Liquid PAD (FLP)
28	Triple Interceptor Trap (TIT)
29	Surge Basin
30	Tank (Former Fire Prop)
31	VUT Building
32a	Liquid Petroleum Gas PAD (LPG PAD) Standard
32b	Liquid Petroleum Gas PAD (LPG PAD) Advance
33a	Structural Fire Attack (SFA PAD) Single Storey
33b	Structural Fire Attack (SFA PAD) Double Storey
34	Great Southern Stand
35	Mess Hall
36	Trench Rescue PAD (TR PAD)
37	Road Accident Rescue PAD (RAR PAD)
38	Back Up Water Tank and Pumphouse 2
39	Urban Search and Rescue PAD (USR PAD)
40	Sewerage Release Point from Septic Tank
41	Water Storage Pump
42	Former Landfill 1 (AWA)
43	Former Landfill 2 (CFA)
44	Soil Composting Area (SCA)
45	Former Foam Training Pits (FTP)
46	Possible Drum Burial Area 1 (DBA 1)
46a	Inferred Area of Drum Removal
46b	Inferred Additional Area of Drum Removal
47	Possible Drum Burial Area 2 (DBA 2)
48	Possible Drum Burial Area 3 (DBA 3)
48a	Possible Drum Burial Area 3a (DBA 3a)
49	Former Drum Fire Area (DFA)
50	Vacant Land
51	Car Storage
52	Garden and Maintenance Shed
53	Remediated Area (1998)
54	Golf Course
55	Plantations
56	Leased Land for Farming
57a	AST Water Storage Tank 1
57b	AST Water Storage Tank 2

Base Map: 2007 Aerial Photograph from GeoVIC, DPI

Cardno LanePiper
Shaping the Future

PROJECT: Buried Drum Assessment
Fiskville Training College,
Geelong-Ballan Road, Fiskville, Vic

SCALE: As Shown | DATE:

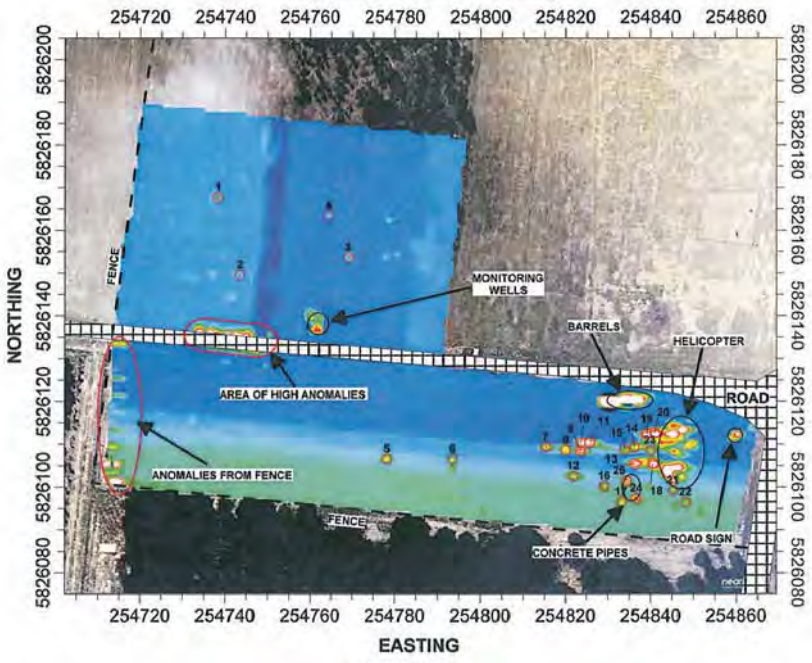
DRAWN/CHECKED: PXT/ JCE | JOB NO. 212163.3

REF: 212163.3 Current & Historical Site Features Plan.wor

TITLE: CURRENT & HISTORICAL SITE FEATURES PLAN

REV. NO. 1 | FIG. NO. 2

D3 (DEEPER RESPONSES)



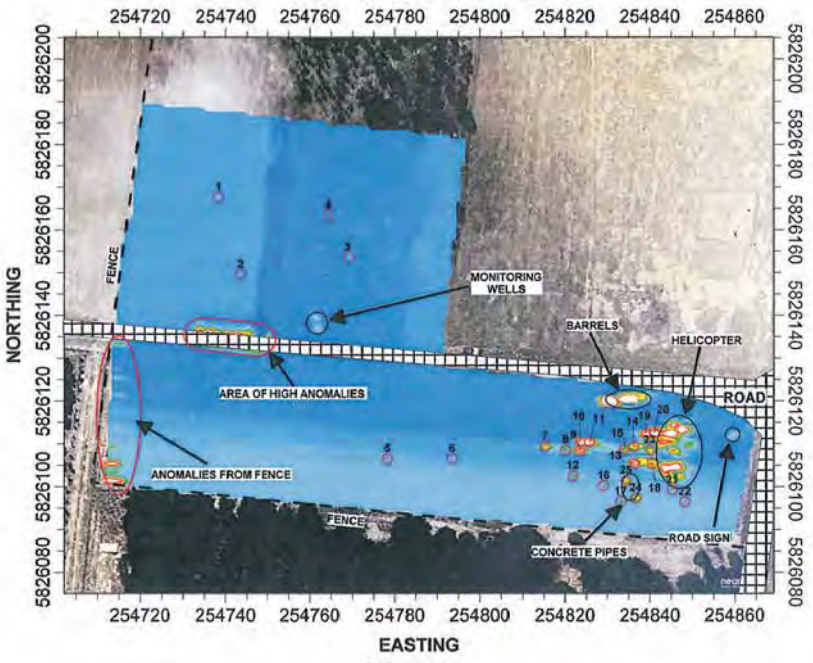
SCALE

ID	Eastings	Northings
1	254738.22	5826167.66
2	254743.46	5826149.54
3	254769.03	5826153.57
4	254764.34	5826163.37
5	254778.21	5826106.51
6	254793.47	5826106.51
7	254815.30	5826109.37
8	254820.11	5826108.53
9	254823.60	5826108.37

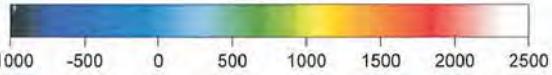
ID	Eastings	Northings
10	254823.60	5826110.36
11	254825.76	5826110.36
12	254821.78	5826102.55
13	254836.39	5826105.34
14	254836.20	5826109.32
15	254833.93	5826108.75
16	254829.08	5826100.24
17	254833.11	5826096.54
18	254840.54	5826105.49

ID	Eastings	Northings
19	254839.09	5826112.42
20	254841.03	5826112.58
21	254845.21	5826099.21
22	254848.11	5826096.47
23	254839.90	5826108.55
24	254836.63	5826097.33
25	254834.32	5826101.43

TOP (DIFFERENTIAL)



SCALE



NOTES:

Most anomalies detected in the vacinity of the helicopter are interpreted as near surface scrap metal.

Scale is in millivolts (mV).

LEGEND

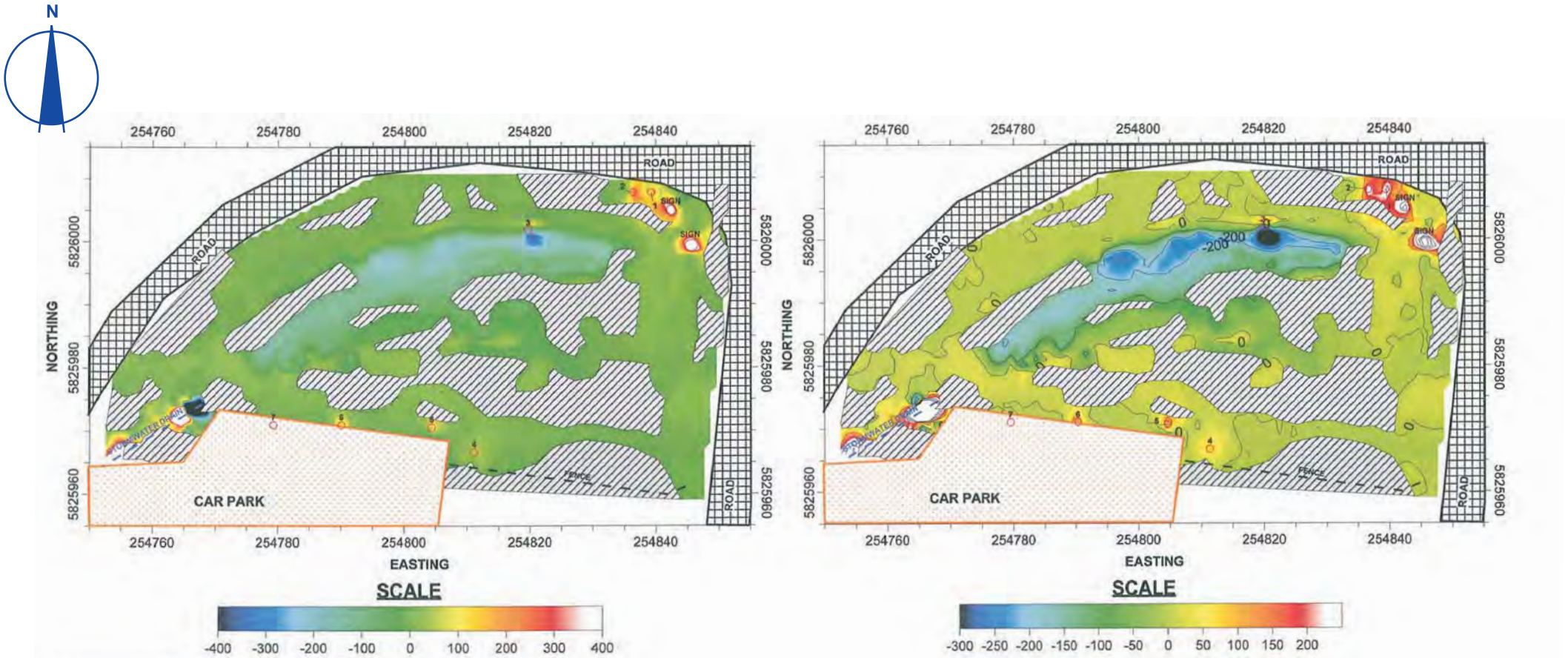
- ROAD
- SUBSURFACE FEATURE
- SURFACE FEATURE
- TARGET ANOMALY
- FENCE

Base Plan: 2012 GBA Australia

Cardno LanePiper
Shaping the Future

PROJECT: Buried Drum Assessment
Fiskville Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE: NA	DATE: October 2013	TITLE: Electromagnetic Geophysical Investigation Area 1	
DRAWN: MCD	JOB No: 212163.3		
REF: 212163.3 Figure 3		REV: 1	FIG: 3



ID	Eastings	Northings
1	254839.45	5826007.79
2	254836.59	5826007.79
3	254819.83	5826001.86
4	254811.24	5825966.71
5	254804.50	5825970.59
6	254790.20	5825971.00
7	254779.36	5825971.00

NOTES:
Due to the high density of tree cover and the lower position of GPS satellites in the area, GPS data was of very poor quality for up to 40% of the area surveyed and hence data could not be gridded in these areas.

Results of the survey were not overlayed onto an aerial image due to the poor quality of availible aerial imagery.

Scale is in millivolts (mV).

LEGEND

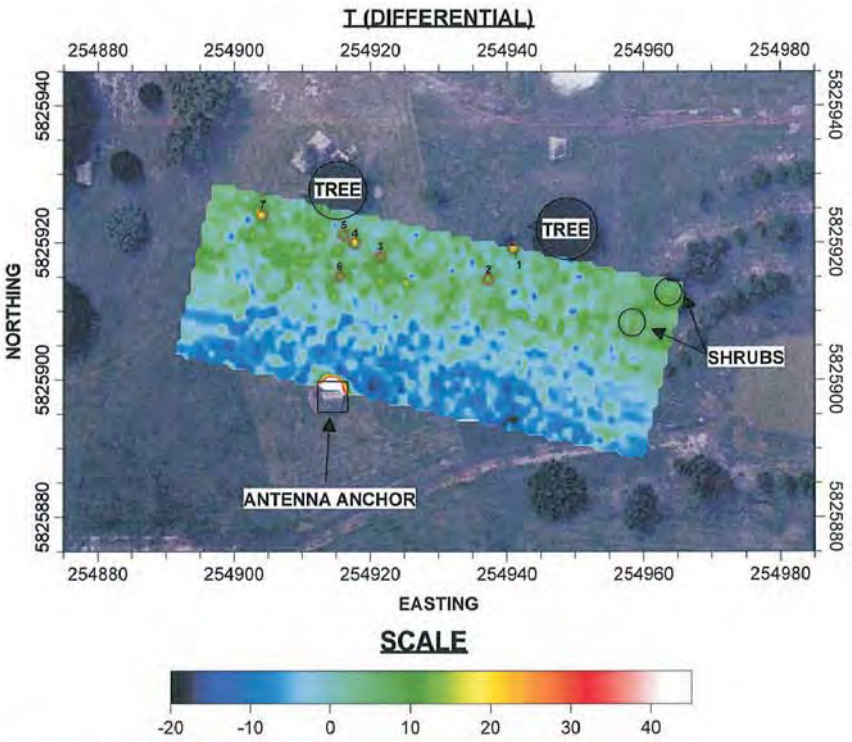
- AREA NOT GRIDDED (GPS ERRORS)
- CAR PARK
- ROAD
- TARGET ANOMALY
- SURFACE FEATURE
- STORMWATER DRAIN
- FENCE

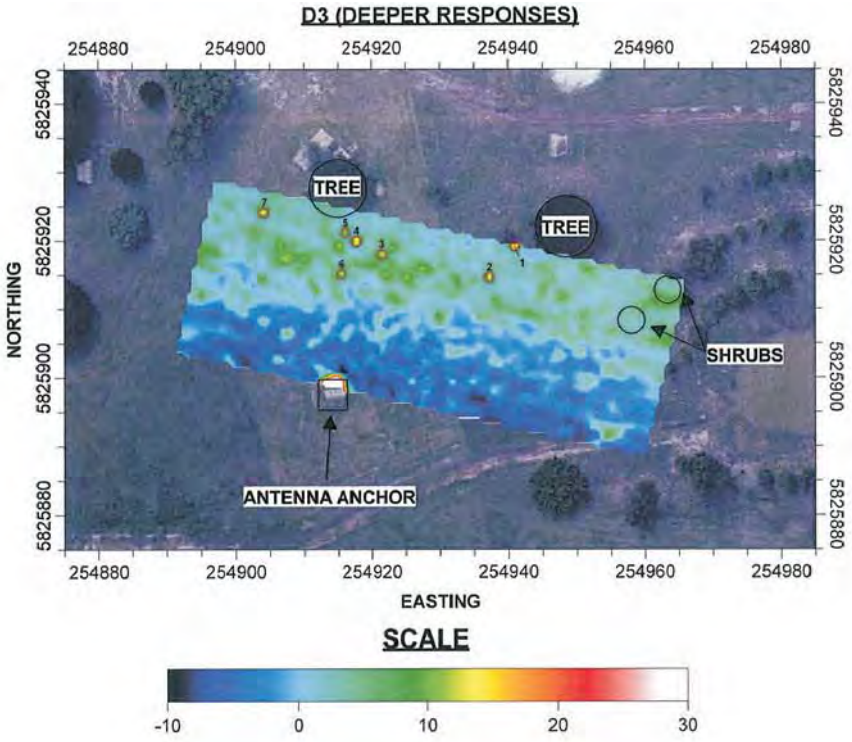
Base Plan: 2012 GBA Australia

Cardno LanePiper
Shaping the Future

PROJECT: Buried Drum Assessment
Fiskville Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE: NA	DATE: October 2013	TITLE: Electromagnetic Geophysical Investigation Area 2	
DRAWN: MCD	JOB No: 212163.3		
REF: 212163.3 Figure 4		REV:1	FIG: 4





ID	Eastings	Northings
1	254940.93	5825919.20
2	254937.21	5825914.55
3	254921.41	5825917.92
4	254917.69	5825919.83
5	254916.12	5825921.06
6	254915.48	5825915.01
7	254904.15	5825924.02

NOTES:

Most features observed are believed to be related to water saturation in the ground.

Scale is in millivolts (mV).

LEGEND

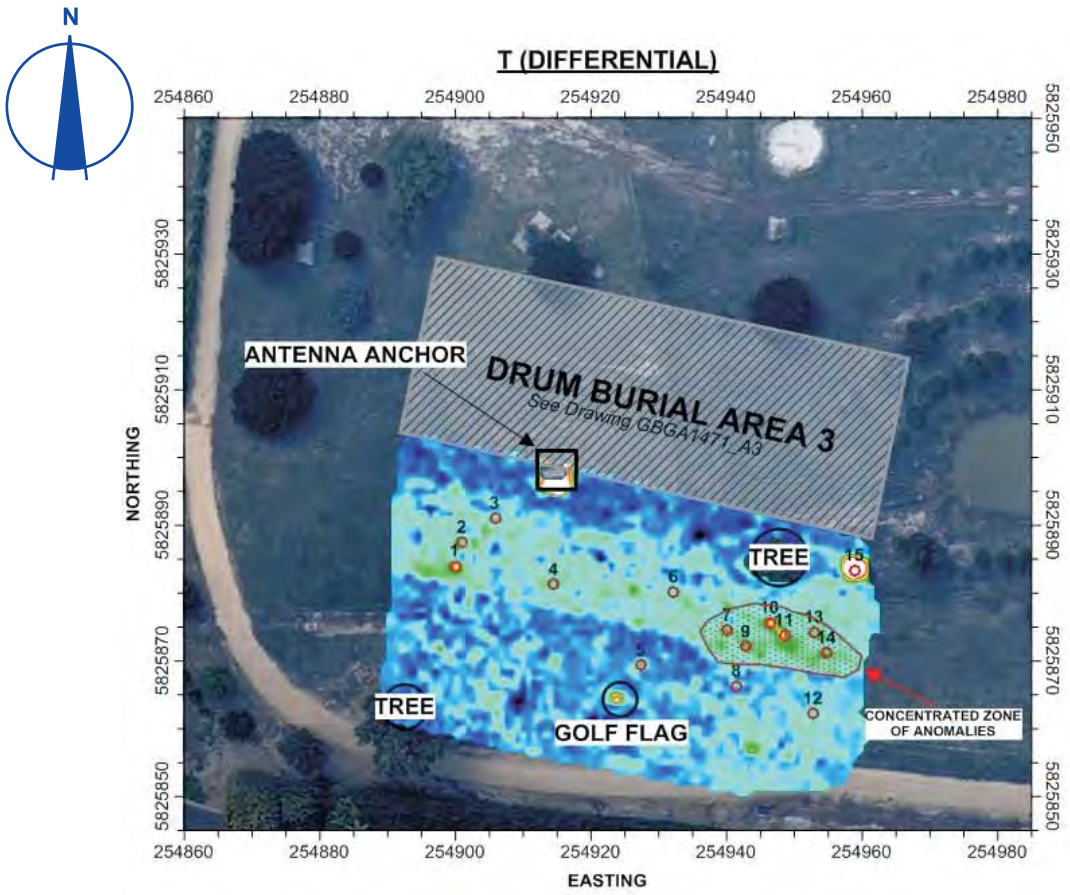
TARGET ANOMALY SURFACE FEATURE

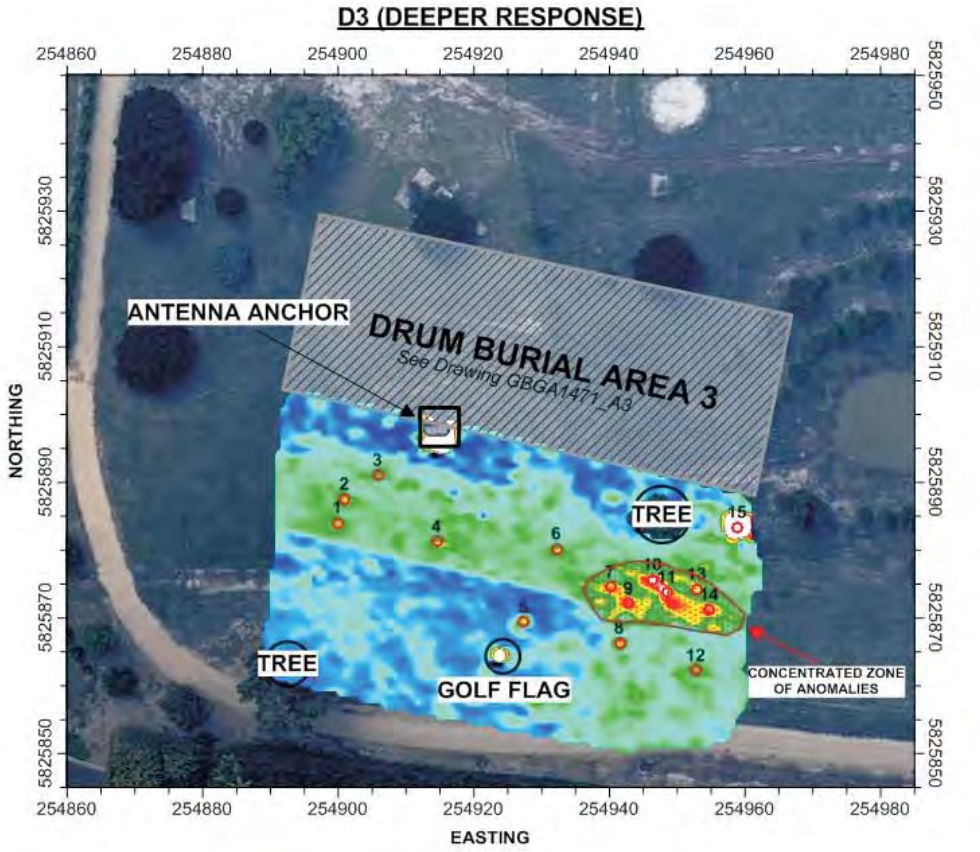
Base Plan: 2012 GBA Australia

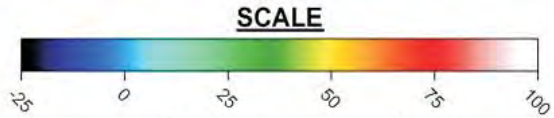
Cardno LanePiper
Shaping the Future

PROJECT: Buried Drum Assessment
Fiskville Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE: NA	DATE: October 2013	TITLE: Electromagnetic Geophysical Investigation Area 3	
DRAWN: MCD	JOB No: 212163.3		
REF: 212163.3 Figure 5		REV: 1	FIG: 5







ID	Easting	Northing
1	254899.91	5825883.99
2	254900.98	5825887.50
3	254905.86	5825891.01
4	254914.54	5825881.25
5	254927.35	5825869.36

ID	Easting	Northing
6	254932.22	5825880.18
7	254940.15	5825874.55
8	254941.52	5825866.32
9	254942.89	5825872.11
10	254946.40	5825875.61

ID	Easting	Northing
11	254948.53	5825873.78
12	254952.80	5825862.20
13	254952.95	5825874.24
14	254954.78	5825871.19
15	254958.89	5825883.39

NOTES:

Scale is in millivolts (mV).

LEGEND

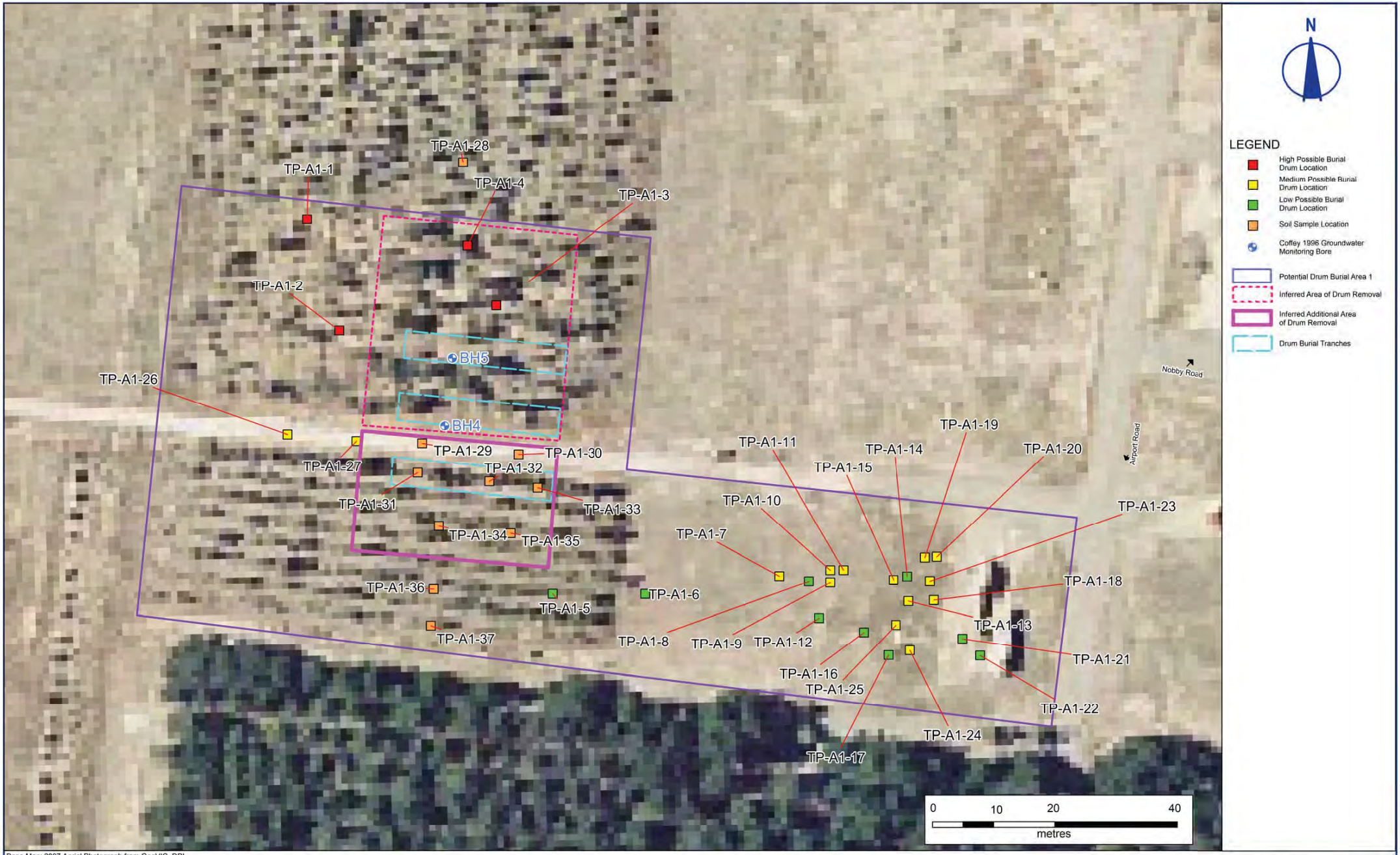
- TARGET ANOMALY
- SURFACE FEATURE
- CONCENTRATED ZONE OF ANOMALIES

Base Plan: 2012 GBA Australia

Cardno LanePiper
Shaping the Future

PROJECT: Buried Drum Assessment
Fiskville Training College
Geelong-Ballan Rd, Fiskville, VIC

SCALE: NA	DATE: October 2013	TITLE: Electromagnetic Geophysical Investigation Area 3a	
DRAWN: MCD	JOB No: 212163.3		
REF: 212163.3 Figure 6		REV: 0	FIG: 6



Base Map: 2007 Aerial Photograph from GeoVIC, DPI

Cardno LanePiper
Shaping the Future

PROJECT: **Buried Drum Assessment**
Fiskville Training College,
Geelong-Ballan Road, Fiskville, Vic

SCALE: As Shown	DATE: 8 MAY 2013	TITLE: **POSSIBLE BURIED DRUMS LOCATIONS (AREA 1)**	
DRAWN/CHECKED: PXT/ DMM	JOB NO. 212163.3		
REF: 212163.3Report01.4		REV. NO. 4	FIG. NO. 7

Base Map: 2007 Aerial Photograph from GeoVIC, DPI

Cardno LanePiper
Shaping the Future

PROJECT: **Buried Drum Assessment**
Fiskville Training College,
Geelong-Ballan Road, Fiskville, Vic

SCALE: As Shown	DATE: 8 MAY 2013	TITLE: **POSSIBLE BURIED DRUMS LOCATIONS (Areas 2 & 3)**	
DRAWN/CHECKED: PXT/ DMM	JOB NO. 212163.3		
REF: 212163.3Report01.4		REV. NO. 4	FIG. NO. 8

Appendix B
15 Pages

Tables of Test Results

Table 1: Soil Analytical Results Table

Table 2: Duplicate Table

Field_ID	BHA2.4/0.5	TP-A1-1/1.0	TP-A1-3/0.8	TP-A1-4/0.5	TP-A1-5/1.0	TP-A1-6/1.5	TP-A1-8/0.5	TP-A1-12/0.5	TP-A1-13/1.0	TP-A1-28/0.1	TP-A1-29/0.5	TP-A1-30/0.5	TP-A1-31/0.5
LocCode	BHA2.4	TP-A1-1	TP-A1-3	TP-A1-4	TP-A1-5	TP-A1-6	TP-A1-8	TP-A1-12	TP-A1-13	TP-A1-28	TP-A1-29	TP-A1-30	TP-A1-31
Sample_Depth	0.5	1	0.8	0.5	1	1.5	0.5	0.5	1	0.1	0.5	0.5	0.5
Sampled_Date-Time	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	26/09/2012	7/09/2012	7/09/2012	11/04/2013	11/04/2013	11/04/2013	11/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F												
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
Amino Aliphatics	N-nitrosodiethylamine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-nitrosodi-n-butylamine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-nitrosodi-n-propylamine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-Nitrosomethylethylamine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Amino Aromatics	1-naphthylamine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Anilines	2-nitroaniline	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	3-nitroaniline	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	4-chloroaniline	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-nitroaniline	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-methyl-5-nitroaniline	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Aniline	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
BTEX	Benzene	mg/kg	0.2				0.2	0.2	0.2	0.2	0.2	0.2	-	0.2	0.2	0.2	-	0.2	-
	Ethylbenzene	mg/kg	0.5		36000 [1]		0.5	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	-	0.5	-
	Toluene	mg/kg	0.5		82000 [1]		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	-	-	-	-
	Xylene (m & p)	mg/kg	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	0.5				0.5	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	-	0.5	-
	Xylene Total	mg/kg	0.5				0.5	1	1	1	1	0.5	-	0.5	0.5	1	-	1	-
	C6-C10 less BTEX (F1)	mg/kg	10				10	-	-	-	-	10	-	10	10	-	-	-	-
Chlorinated Hydrocarbons	Other chlorinated hydrocarbons IWRG621	mg/kg					-	6.5	9.5	6.5	6.5	-	-	-	-	14	-	6.5	-
	1,1,1,2-tetrachloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1,1-trichloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1,2,2-tetrachloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1,2-trichloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1-dichloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1-dichloroethene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,1-dichloropropene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,2,3-trichloropropane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,2-dibromo-3-chloropropane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,2-dichloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,2-dichloropropane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,3-dichloropropane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	2,2-dichloropropane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Bromodichloromethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Bromoform	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Carbon tetrachloride	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Chlorodibromomethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Chloroethane	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	Chloroform	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Chloromethane	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	Chlorinated hydrocarbons IWRG621	mg/kg					-	12	16	12	12	-	-	-	-	22	-	12	-
	cis-1,2-dichloroethene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	cis-1,3-dichloropropene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Dibromomethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Hexachlorobutadiene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Hexachlorocyclopentadiene	mg/kg	2.5				-	2.5	7.5	2.5	2.5	-	-	-	-	15	-	2.5	-
	Hexachloroethane	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Trichloroethene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Tetrachloroethene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	trans-1,2-dichloroethene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	trans-1,3-dichloropropene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Vinyl chloride	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2,4-Dinitrotoluene	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	2,6-dinitrotoluene	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	Nitrobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,2,4-trichlorobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	1,2-dichlorobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	1,3-dichlorobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	1,4-dichlorobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-chlorotoluene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	4-chlorotoluene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Bromobenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Chlorobenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Hexachlorobenzene	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	Pentachlorobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Halogenated Hydrocarbons	1,2-dibromoethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Bromomethane	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	Dichlorodifluoromethane	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	Iodomethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Trichlorofluoromethane	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
Halogenated Phenols	Phenols(halogenated) IWRG621	mg/kg					-	4	12	4	4	-	-	-	-	24	-	4	-
	2,4,5-trichlorophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2,4,6-trichlorophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2,4-dichlorophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2,6-dichlorophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-chlorophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Pentachlorophenol	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
Herbicides	Pronamide	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Inorganics	Moisture	%	1				28.9	23.4	24.8	19.9	24.1	23.2	37.5	19.4	20.1	9.2	7.2	20.8	19.1

Table 1:Analytical Results Table Soil

Field_ID	BHA2.4/0.5	TP-A1-1/1.0	TP-A1-3/0.8	TP-A1-4/0.5	TP-A1-5/1.0	TP-A1-6/1.5	TP-A1-8/0.5	TP-A1-12/0.5	TP-A1-13/1.0	TP-A1-28/0.1	TP-A1-29/0.5	TP-A1-30/0.5	TP-A1-31/0.5
LocCode	BHA2.4	TP-A1-1	TP-A1-3	TP-A1-4	TP-A1-5	TP-A1-6	TP-A1-8	TP-A1-12	TP-A1-13	TP-A1-28	TP-A1-29	TP-A1-30	TP-A1-31
Sample_Depth	0.5	1	0.8	0.5	1	1.5	0.5	0.5	1	0.1	0.5	0.5	0.5
Sampled_Date-Time	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	26/09/2012	7/09/2012	7/09/2012	11/04/2013	11/04/2013	11/04/2013	11/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F												
MAH	Monocylic aromatic hydrocarbons IWRG621	mg/kg					2.2	2.7	2.7	2.7	2.7	2.2	-	2.2	2.2	2.7	-	2.7	-
	1,2,4-trimethylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	1,3,5-trimethylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Isopropylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	n-butylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	n-propylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	p-isopropyltoluene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	sec-butylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Styrene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	tert-butylbenzene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
Metals	Arsenic	mg/kg	5	20		500	-	5	5	5	5	-	5	-	-	5	-	-	5
	Barium	mg/kg	10	300			-	20	50	10	230	-	80	-	-	630	-	-	40
	Beryllium	mg/kg	1			100	-	1	1	1	2	-	1	-	-	1	-	-	1
	Cadmium	mg/kg	1	3		100	-	1	1	1	1	-	1	-	-	1	-	-	1
	Chromium (III+VI)	mg/kg	2				-	60	58	39	63	-	52	-	-	63	-	-	72
	Cobalt	mg/kg	2			500	-	4	8	2	94	-	4	-	-	8	-	-	8
	Copper	mg/kg	5	100		5000	-	9	9	5	11	-	8	-	-	8	-	-	12
	Lead	mg/kg	5	600		1500	12	14	62	12	10	10	11	21	12	27	-	-	12
	Manganese	mg/kg	5	500		7500	-	13	58	12	396	-	12	-	-	74	-	-	25
	Mercury	mg/kg	0.1	1		75	-	0.1	0.1	0.1	0.1	-	0.1	-	-	0.1	-	-	0.1
	Nickel	mg/kg	2	60		3000	-	10	15	4	50	-	8	-	-	17	-	-	20
	Vanadium	mg/kg	5	50			-	98	106	148	73	-	79	-	-	129	-	-	95
	Zinc	mg/kg	5	200		35000	-	6	17	5	10	-	8	-	-	19	-	-	12
Nitroaromatics	2-Picoline	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-aminobiphenyl	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Pentachloronitrobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Organochlorine Pesticides	Organochlorine pesticides IWRG621	mg/kg					-	9	27	9	9	-	-	-	-	54	-	9	-
	Other organochlorine pesticides IWRG621	mg/kg					-	6	18	6	6	-	-	-	-	36	-	6	-
	4,4-DDE	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	a-BHC	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Aldrin	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Aldrin + Dieldrin	mg/kg				50	-	1	3	1	1	-	-	-	-	6	-	1	-
	b-BHC	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	d-BHC	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	DDD	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	DDT	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	DDT+DDE+DDD	mg/kg				1000	-	2	6	2	2	-	-	-	-	12	-	2	-
	Dieldrin	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Endosulfan I	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Endosulfan II	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Endosulfan sulphate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Endrin	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	g-BHC (Lindane)	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Heptachlor	mg/kg	0.5			50	-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Heptachlor epoxide	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Organophosphorous Pesticides	Chlorfenvinphos	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Chlorpyrifos	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Chlorpyrifos-methyl	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Diazinon	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Dichlorvos	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Dimethoate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Ethion	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Fenthion	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Malathion	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Prothiofos	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
PAH	7,12-dimethylbenz(a)anthracene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
PAH/Phenols	Polycylic aromatic hydrocarbons IWRG621	mg/kg					1	7	21	7	7	1	-	1	1	42	-	7	-
	2,4-dimethylphenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-chloronaphthalene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-methylnaphthalene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-methylphenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	2-nitrophenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	3-&4-methylphenol	mg/kg	0.5				-	1	3	1	1	-	-	-	-	3	-	0.5	-
	3-methylcholanthrene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-chloro-3-methylphenol	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Acenaphthene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Acenaphthylene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Acetophenone	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Anthracene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Benz(a)anthracene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Benzo(a) pyrene	mg/kg	0.5			5	-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Benzo(b)&(k)fluoranthene	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	Benzo(g,h,i)perylene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Chrysene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Dibenz(a,h)anthracene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Fluoranthene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Fluorene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Naphthalene	mg/kg	0.5				1	0.5	1.5	0.5	0.5	1	-	1	1	3	-	0.5	-
	Phenols (non-halogenated) IWRG621	mg/kg					-	2	6	2	2	-	-	-	-	12	-	2	-
	PAHs (Sum of total)	mg/kg	0.5			100	-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Phenanthrene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Phenol	mg/kg	0.5			42500	-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-

Table 1:Analytical Results Table Soil

Field_ID	BHA2.4/0.5	TP-A1-1/1.0	TP-A1-3/0.8	TP-A1-4/0.5	TP-A1-5/1.0	TP-A1-6/1.5	TP-A1-8/0.5	TP-A1-12/0.5	TP-A1-13/1.0	TP-A1-28/0.1	TP-A1-29/0.5	TP-A1-30/0.5	TP-A1-31/0.5
LocCode	BHA2.4	TP-A1-1	TP-A1-3	TP-A1-4	TP-A1-5	TP-A1-6	TP-A1-8	TP-A1-12	TP-A1-13	TP-A1-28	TP-A1-29	TP-A1-30	TP-A1-31
Sample_Depth	0.5	1	0.8	0.5	1	1.5	0.5	0.5	1	0.1	0.5	0.5	0.5
Sampled_Date-Time	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	7/09/2012	26/09/2012	7/09/2012	7/09/2012	11/04/2013	11/04/2013	11/04/2013	11/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F												
	Pyrene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Pesticides	Chlorobenzilate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Pirimphos-ethyl	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5				-	5	15	5	5	-	-	-	-	30	-	5	-
	Butyl benzyl phthalate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Diethylphthalate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Dimethyl phthalate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Di-n-butyl phthalate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Di-n-octyl phthalate	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
Solvents	Methyl Ethyl Ketone	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	2-hexanone (MBK)	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	4-Methyl-2-pentanone	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
	Carbon disulfide	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Isophorone	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Vinyl acetate	mg/kg	5				-	5	5	5	5	-	-	-	-	5	-	5	-
SVOCs	2-(acetylamino) fluorene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	3,3-Dichlorobenzidine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-(dimethylamino) azobenzene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-bromophenyl phenyl ether	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-chlorophenyl phenyl ether	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	4-Nitroquinoline-N-oxide	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Azobenzene	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	Bis(2-chloroethoxy) methane	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Bis(2-chloroethyl)ether	mg/kg	0.5				-	-	-	-	-	-	-	-	-	3	-	0.5	-
	Bis(2-chloroisopropyl) ether	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	-	-	-	-
	Carbazole	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Dibenzofuran	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Hexachloropropene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	Methapyrilene	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-nitrosomorpholine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-nitrosopiperidine	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
	N-nitrosopyrrolidine	mg/kg	1				-	1	3	1	1	-	-	-	-	6	-	1	-
	Phenacetin	mg/kg	0.5				-	0.5	1.5	0.5	0.5	-	-	-	-	3	-	0.5	-
TPH	C10-C16	mg/kg	50		260 [2]		50	50	50	50	50	50	50	50	50	200	50	50	50
	C16-C34	mg/kg	100		1700 [2]		100	100	100	100	100	100	100	100	100	3480	100	100	100
	C34-C40	mg/kg	100		3300 [2]		100	100	100	100	100	100	100	100	100	370	100	100	100
	C10 - C14	mg/kg	50		260 [2]		50	50	50	50	50	50	50	50	50	50	50	50	50
	C6 - C9	mg/kg	10		240 [2]		10	10	10	10	10	10	10	10	10	10	10	10	10
	C15 - C28	mg/kg	100				100	100	100	100	100	100	100	100	100	2580	100	100	100
	C29-C36	mg/kg	100				100	100	100	100	100	100	100	100	100	1150	100	100	100
	+C10 - C36 (Sum of total)	mg/kg	50				250	250	250	250	250	250	250	250	250	3730	50	50	50
	C10 - C40 (Sum of total)	mg/kg	50				50	50	50	50	50	50	50	50	50	4050	50	50	50
	C10 - C36 Fraction (sum)	mg/kg	50				50	50	50	50	50	50	50	50	50	-	-	-	-
	C6-C10	mg/kg	10		240 [2]		10	10	10	10	10	10	10	10	10	10	10	10	10
VOCs	cis-1,4-Dichloro-2-butene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	Pentachloroethane	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-
	trans-1,4-Dichloro-2-butene	mg/kg	0.5				-	0.5	0.5	0.5	0.5	-	-	-	-	0.5	-	0.5	-

Comment
1. Criterion from CCME (2008a) PH or TPH in soil
2. Soil Ingestion criterion for Commencial Use CCME (2004)

Table 1:Analytical Results Table Soil

Field_ID	TP-A1-32/0.65	TP-A1-33/0.5	TP-A1-34/0.7	TP-A1-35/0.1	TP-A1-36/0.1	TP-A1-37/0.9	TP-A2-3/1.5	TP-A3-1/0.5	TP-A3-1/1.0	TP-A3-1/1.5	TP-A3-5/0.5	TP-A3-5/1.0
LocCode	TP-A1-32	TP-A1-33	TP-A1-34	TP-A1-35	TP-A1-36	TP-A1-37	TP-A2-3	TP-A3-1	TP-A3-1	TP-A3-1	TP-A3-5	TP-A3-5
Sample_Depth	0.65	0.5	0.7	0.1	0.1	0.9	1.5	0.5	1	1.5	0.5	1
Sampled_Date-Time	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	7/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F											
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
Amino Aliphatics	N-nitrosodiethylamine	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
	N-nitrosodi-n-butylamine	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
	N-nitrosodi-n-propylamine	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
	N-Nitrosomethylethylamine	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
Amino Aromatics	1-naphthylamine	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
Anilines	2-nitroaniline	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	3-nitroaniline	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	4-chloroaniline	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
	4-nitroaniline	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
	2-methyl-5-nitroaniline	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
	Aniline	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
BTEX	Benzene	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
	Ethylbenzene	mg/kg	0.5		36000 [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
	Toluene	mg/kg	0.5		82000 [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
	Total BTEX	mg/kg	0.2				-	-	-	-	-	-	0.2	-	-	-	-	-
	Xylene (m & p)	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
	Xylene (o)	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
	Xylene Total	mg/kg	0.5				1	1	1	1	1	1	0.5	1	1	1	1	1
	C6-C10 less BTEX (F1)	mg/kg	10				-	-	-	-	-	-	10	-	-	-	-	-
Chlorinated Hydrocarbons	Other chlorinated hydrocarbons IWRG621	mg/kg					6.5	6.5	6.5	6.5	6.5	6.5	-	6.5	6.5	6.5	6.5	6.5
	1,1,1,2-tetrachloroethane	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
	1,1,1-trichloroethane	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
	1,1,2,2-tetrachloroethane	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
	1,1,2-trichloroethane	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
	1,1-dichloroethane	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
	1,1-dichloroethene	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
	1,1-dichloropropene	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
	1,2,3-trichloropropane	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
	1,2-dibromo-3-chloropropane	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
	1,2-dichloroethane	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
	1,2-dichloropropane	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
	1,3-dichloropropane	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
	2,2-dichloropropane	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
	Bromodichloromethane	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
	Bromoform	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
	Carbon tetrachloride	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
	Chlorodibromomethane	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
	Chloroethane	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Chloroform	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
	Chloromethane	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Chlorinated hydrocarbons IWRG621	mg/kg					12	12	12	12	12	12	-	12	12	12	12	12
	cis-1,2-dichloroethene	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
	cis-1,3-dichloropropene	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
	Dibromomethane	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
	Hexachlorobutadiene	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
	Hexachlorocyclopentadiene	mg/kg	2.5				2.5	2.5	2.5	2.5	2.5	2.5	-	2.5	2.5	2.5	2.5	2.5
	Hexachloroethane	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
	Trichloroethene	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
	Tetrachloroethene	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
	trans-1,2-dichloroethene	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
	trans-1,3-dichloropropene	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
	Vinyl chloride	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
Explosives	1,3,5-Trinitrobenzene	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
	2,4-Dinitrotoluene	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	2,6-dinitrotoluene	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	Nitrobenzene	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
Halogenated Benzenes	1,2,3-trichlorobenzene	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
	1,2,4-trichlorobenzene	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
	1,2-dichlorobenzene	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
	1,3-dichlorobenzene	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
	1,4-dichlorobenzene	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
	2-chlorotoluene	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
	4-chlorotoluene	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
	Bromobenzene	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
	Chlorobenzene	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
	Hexachlorobenzene	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	Pentachlorobenzene	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
Halogenated Hydrocarbons	1,2-dibromoethane	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
	Bromomethane	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Dichlorodifluoromethane	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Iodomethane	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
	Trichlorofluoromethane	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
Halogenated Phenols	Phenols(halogenated) IWRG621	mg/kg					4	4	4	4	4	4	-	4	4	4	4	4
	2,4,5-trichlorophenol	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
	2,4,6-trichlorophenol	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
	2,4-dichlorophenol	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
	2,6-dichlorophenol	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
	2-chlorophenol	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
	Pentachlorophenol	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
Herbicides	Pronamide	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
Inorganics	Moisture	%	1				18.2	5.5	23.2	7	8	21.8	27.8	24.7	26.3	24.5	21	25.2

Field_ID	TP-A1-32/0.65	TP-A1-33/0.5	TP-A1-34/0.7	TP-A1-35/0.1	TP-A1-36/0.1	TP-A1-37/0.9	TP-A2-3/1.5	TP-A3-1/0.5	TP-A3-1/1.0	TP-A3-1/1.5	TP-A3-5/0.5	TP-A3-5/1.0
LocCode	TP-A1-32	TP-A1-33	TP-A1-34	TP-A1-35	TP-A1-36	TP-A1-37	TP-A2-3	TP-A3-1	TP-A3-1	TP-A3-1	TP-A3-5	TP-A3-5
Sample_Depth	0.65	0.5	0.7	0.1	0.1	0.9	1.5	0.5	1	1.5	0.5	1
Sampled_Date-Time	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	7/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F											
MAH	Monocylic aromatic hydrocarbons IWRG621	mg/kg					2.7	2.7	2.7	2.7	2.7	2.7	2.2	2.7	2.7	2.7	2.7	2.7
	1,2,4-trimethylbenzene	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
	1,3,5-trimethylbenzene	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
	Isopropylbenzene	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
	n-butylbenzene	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
	n-propylbenzene	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
	p-isopropyltoluene	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
	sec-butylbenzene	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
	Styrene	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
	tert-butylbenzene	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
Metals	Arsenic	mg/kg	5	20		500	-	5	5	-	5	-	-	5	5	5	5	5
	Barium	mg/kg	10	300			-	20	50	-	20	-	-	30	30	40	50	40
	Beryllium	mg/kg	1			100	-	1	2	-	1	-	-	1	1	1	1	1
	Cadmium	mg/kg	1	3		100	-	1	1	-	1	-	-	1	1	1	1	1
	Chromium (III+VI)	mg/kg	2				-	38	89	-	54	-	-	52	22	22	24	52
	Cobalt	mg/kg	2			500	-	2	22	-	4	-	-	7	2	3	3	4
	Copper	mg/kg	5	100		5000	-	5	14	-	5	-	-	7	5	6	9	9
	Lead	mg/kg	5	600		1500	-	13	9	-	13	-	12	26	9	13	21	16
	Manganese	mg/kg	5	500		7500	-	36	30	-	60	-	-	21	11	20	44	12
	Mercury	mg/kg	0.1	1		75	-	0.1	0.1	-	0.1	-	-	0.1	0.1	0.1	0.1	0.1
	Nickel	mg/kg	2	60		3000	-	5	45	-	8	-	-	15	5	5	6	8
	Vanadium	mg/kg	5	50			-	122	76	-	104	-	-	160	47	60	96	77
	Zinc	mg/kg	5	200		35000	-	5	15	-	5	-	-	5	5	5	9	7
Nitroaromatics	2-Picoline	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
	4-aminobiphenyl	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
	Pentachloronitrobenzene	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
Organochlorine Pesticides	Organochlorine pesticides IWRG621	mg/kg					9	9	9	9	9	9	-	9	9	9	9	9
	Other organochlorine pesticides IWRG621	mg/kg					6	6	6	6	6	6	-	6	6	6	6	6
	4,4-DDE	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
	a-BHC	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
	Aldrin	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
	Aldrin + Dieldrin	mg/kg				50	1	1	1	1	1	1	-	1	1	1	1	1
	b-BHC	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
	d-BHC	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
	DDD	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
	DDT	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	DDT+DDE+DDD	mg/kg				1000	2	2	2	2	2	2	-	2	2	2	2	2
	Dieldrin	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
	Endosulfan I	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
	Endosulfan II	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
	Endosulfan sulphate	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
	Endrin	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
	g-BHC (Lindane)	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
	Heptachlor	mg/kg	0.5			50	0.5	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	0.5	0.5
	Heptachlor epoxide	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
Organophosphorous Pesticides	Chlorfenvinphos	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
	Chlorpyrifos	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
	Chlorpyrifos-methyl	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
	Diazinon	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
	Dichlorvos	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
	Dimethoate	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
	Ethion	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
	Fenthion	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
	Malathion	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
	Prothiofos	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
PAH	7,12-dimethylbenz(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
PAH/Phenols	Polycylic aromatic hydrocarbons IWRG621	mg/kg					7	7	7	7	7	7	1	7	7	7	7	7
	2,4-dimethylphenol	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
	2-chloronaphthalene	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
	2-methylnaphthalene	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
	2-methylphenol	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
	2-nitrophenol	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
	3-&4-methylphenol	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
	3-methylcholanthrene	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
	4-chloro-3-methylphenol	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
	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
	Acetophenone	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
	Benz(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			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)&(k)fluoranthene	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	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
	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
	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
	Naphthalene	mg/kg	0.5				0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5
	Phenols (non-halogenated) IWRG621	mg/kg					2	2	2	2	2	2	-	2	2	2	2	2
	PAHs (Sum of total)	mg/kg	0.5			100	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
	Phenol	mg/kg	0.5			42500	0.5	0.5	0.5	0.5	0.5	0.5	-	0.5	0.5	0.5	0.5	0.5

Table 1:Analytical Results Table Soil

Field_ID	TP-A1-32/0.65	TP-A1-33/0.5	TP-A1-34/0.7	TP-A1-35/0.1	TP-A1-36/0.1	TP-A1-37/0.9	TP-A2-3/1.5	TP-A3-1/0.5	TP-A3-1/1.0	TP-A3-1/1.5	TP-A3-5/0.5	TP-A3-5/1.0
LocCode	TP-A1-32	TP-A1-33	TP-A1-34	TP-A1-35	TP-A1-36	TP-A1-37	TP-A2-3	TP-A3-1	TP-A3-1	TP-A3-1	TP-A3-5	TP-A3-5
Sample_Depth	0.65	0.5	0.7	0.1	0.1	0.9	1.5	0.5	1	1.5	0.5	1
Sampled_Date-Time	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	11/04/2013	7/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F												
	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
Pesticides	Chlorobenzilate	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
	Pirimphos-ethyl	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
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Butyl benzyl phthalate	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
	Diethylphthalate	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
	Dimethyl phthalate	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
	Di-n-butyl phthalate	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
	Di-n-octyl phthalate	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
Solvents	Methyl Ethyl Ketone	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	2-hexanone (MBK)	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	4-Methyl-2-pentanone	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
	Carbon disulfide	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
	Isophorone	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
	Vinyl acetate	mg/kg	5				5	5	5	5	5	5	-	5	5	5	5	5
SVOCs	2-(acetylamino) 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
	3,3-Dichlorobenzidine	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
	4-(dimethylamino) azobenzene	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
	4-bromophenyl phenyl ether	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
	4-chlorophenyl phenyl ether	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
	4-Nitroquinoline-N-oxide	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
	Azobenzene	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	Bis(2-chloroethoxy) methane	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
	Bis(2-chloroethyl)ether	mg/kg	0.5				0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-
	Bis(2-chloroisopropyl) ether	mg/kg	0.5				-	-	-	-	-	-	-	0.5	0.5	0.5	0.5	0.5
	Carbazole	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
	Dibenzofuran	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
	Hexachloropropene	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
	Methapyrilene	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
	N-nitrosomorpholine	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
	N-nitrosopiperidine	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
	N-nitrosopyrrolidine	mg/kg	1				1	1	1	1	1	1	-	1	1	1	1	1
	Phenacetin	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
TPH	C10-C16	mg/kg	50		**260** [2]		50	50	50	50	50	50	50	50	50	50	50	50
	C16-C34	mg/kg	100		**1700** [2]		100	100	100	100	100	100	100	100	100	100	100	100
	C34-C40	mg/kg	100		**3300** [2]		100	100	100	100	100	100	100	100	100	100	100	100
	C10 - C14	mg/kg	50		**260** [2]		50	50	50	50	50	50	50	50	50	50	50	50
	C6 - C9	mg/kg	10		**240** [2]		10	10	10	10	10	10	10	10	10	10	10	10
	C15 - C28	mg/kg	100				100	100	100	100	100	100	100	100	100	100	100	100
	C29-C36	mg/kg	100				100	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	250	250	250	250	250	250
	C10 - C40 (Sum of total)	mg/kg	50				50	50	50	50	50	50	50	50	50	50	50	50
	C10 - C36 Fraction (sum)	mg/kg	50				-	-	-	-	-	-	50	50	50	50	50	50
	C6-C10	mg/kg	10		**240** [2]		10	10	10	10	10	10	10	10	10	10	10	10
VOCs	cis-1,4-Dichloro-2-butene	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
	Pentachloroethane	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
	trans-1,4-Dichloro-2-butene	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

Comment
1. Criterion from CCME (2008a) PH or TPH in soil
2. Soil Ingestion criterion for Commencial Use CCME (2004)

Field_ID	TP-A3a-01/1.4	TP-A3a-04/0.1	TP-A3a-05/1.3	TP-A3a-07/0.9	TP-A3a-08/0.1	TP-A3a-09/0.1	TP-A3a-10/1.0	TP-A3a-11/0.6	TP-A3a-13/0.1	TP-A3a-14/0.5
LocCode	TP-A3a-01	TP-A3a-04	TP-A3a-05	TP-A3a-07	TP-A3a-08	TP-A3a-09	TP-A3a-10	TP-A3a-11	TP-A3a-13	TP-A3a-14
Sample_Depth	1.4	0.1	1.3	0.9	0.1	0.1	1	0.6	0.1	0.5
Sampled_Date-Time	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F									
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1				1	1	1	-	1	1	-	1	1	-
Amino Aliphatics	N-nitrosodiethylamine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-nitrosodi-n-butylamine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-nitrosodi-n-propylamine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-Nitrosomethylethylamine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Amino Aromatics	1-naphthylamine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Anilines	2-nitroaniline	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	3-nitroaniline	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	4-chloroaniline	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-nitroaniline	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2-methyl-5-nitroaniline	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Aniline	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
BTEX	Benzene	mg/kg	0.2				0.2	0.2	0.2	-	0.2	0.2	-	0.2	0.2	-
	Ethylbenzene	mg/kg	0.5		36000 [1]		0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Toluene	mg/kg	0.5		82000 [1]		0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Total BTEX	mg/kg	0.2				-	-	-	-	-	-	-	-	-	-
	Xylene (m & p)	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Xylene (o)	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Xylene Total	mg/kg	0.5				1	1	1	-	1	1	-	1	1	-
	C6-C10 less BTEX (F1)	mg/kg	10				-	-	-	-	-	-	-	-	-	-
Chlorinated Hydrocarbons	Other chlorinated hydrocarbons IWRG621	mg/kg					6.5	6.5	6.5	-	6.5	6.5	-	6.5	6.5	-
	1,1,1,2-tetrachloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1,1-trichloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1,2,2-tetrachloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1,2-trichloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1-dichloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1-dichloroethene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,1-dichloropropene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2,3-trichloropropane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2-dibromo-3-chloropropane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2-dichloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2-dichloropropane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,3-dichloropropane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2,2-dichloropropane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bromodichloromethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bromoform	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Carbon tetrachloride	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chlorodibromomethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chloroethane	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Chloroform	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chloromethane	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Chlorinated hydrocarbons IWRG621	mg/kg					12	12	12	-	12	12	-	12	12	-
	cis-1,2-dichloroethene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	cis-1,3-dichloropropene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Dibromomethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Hexachlorobutadiene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Hexachlorocyclopentadiene	mg/kg	2.5				2.5	2.5	2.5	-	2.5	2.5	-	2.5	2.5	-
	Hexachloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Trichloroethene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Tetrachloroethene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	trans-1,2-dichloroethene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	trans-1,3-dichloropropene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Vinyl chloride	mg/kg	5				5	5	5	-	5	5	-	5	5	-
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2,4-Dinitrotoluene	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	2,6-dinitrotoluene	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	Nitrobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2,4-trichlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,2-dichlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,3-dichlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,4-dichlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2-chlorotoluene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-chlorotoluene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bromobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Hexachlorobenzene	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	Pentachlorobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Halogenated Hydrocarbons	1,2-dibromoethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bromomethane	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Dichlorodifluoromethane	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Iodomethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Trichlorofluoromethane	mg/kg	5				5	5	5	-	5	5	-	5	5	-
Halogenated Phenols	Phenols(halogenated) IWRG621	mg/kg					4	4	4	-	4	4	-	4	4	-
	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	-
	2,6-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	-
	Pentachlorophenol	mg/kg	1				1	1	1	-	1	1	-	1	1	-
Herbicides	Pronamide	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Inorganics	Moisture	%	1				27.7	9	28.7	21.8	10.8	6.9	23.4	22.5	7.1	19.8

Field_ID	TP-A3a-01/1.4	TP-A3a-04/0.1	TP-A3a-05/1.3	TP-A3a-07/0.9	TP-A3a-08/0.1	TP-A3a-09/0.1	TP-A3a-10/1.0	TP-A3a-11/0.6	TP-A3a-13/0.1	TP-A3a-14/0.5
LocCode	TP-A3a-01	TP-A3a-04	TP-A3a-05	TP-A3a-07	TP-A3a-08	TP-A3a-09	TP-A3a-10	TP-A3a-11	TP-A3a-13	TP-A3a-14
Sample_Depth	1.4	0.1	1.3	0.9	0.1	0.1	1	0.6	0.1	0.5
Sampled_Date-Time	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F									
MAH	Monocylic aromatic hydrocarbons IWRG621	mg/kg					2.7	2.7	2.7	-	2.7	2.7	-	2.7	2.7	-
	1,2,4-trimethylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	1,3,5-trimethylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Isopropylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	n-butylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	n-propylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	p-isopropyltoluene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	sec-butylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Styrene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	tert-butylbenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Metals	Arsenic	mg/kg	5	20		500	5	5	-	-	5	5	-	-	5	-
	Barium	mg/kg	10	300			180	30	-	-	20	30	-	-	20	-
	Beryllium	mg/kg	1			100	2	1	-	-	1	1	-	-	1	-
	Cadmium	mg/kg	1	3		100	1	1	-	-	1	1	-	-	1	-
	Chromium (III+VI)	mg/kg	2				60	22	-	-	58	32	-	-	20	-
	Cobalt	mg/kg	2			500	14	3	-	-	4	3	-	-	2	-
	Copper	mg/kg	5	100		5000	10	11	-	-	5	6	-	-	5	-
	Lead	mg/kg	5	600		1500	14	23	-	-	20	19	-	-	12	-
	Manganese	mg/kg	5	500		7500	36	40	-	-	22	51	-	-	54	-
	Mercury	mg/kg	0.1	1		75	0.1	0.1	-	-	0.1	0.1	-	-	0.1	-
	Nickel	mg/kg	2	60		3000	27	5	-	-	9	6	-	-	4	-
	Vanadium	mg/kg	5	50			90	96	-	-	163	100	-	-	59	-
	Zinc	mg/kg	5	200		35000	8	8	-	-	5	9	-	-	7	-
Nitroaromatics	2-Picoline	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-aminobiphenyl	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Pentachloronitrobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Organochlorine Pesticides	Organochlorine pesticides IWRG621	mg/kg					9	9	9	-	9	9	-	9	9	-
	Other organochlorine pesticides IWRG621	mg/kg					6	6	6	-	6	6	-	6	6	-
	4,4-DDE	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	a-BHC	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Aldrin	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Aldrin + Dieldrin	mg/kg				50	1	1	1	-	1	1	-	1	1	-
	b-BHC	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	d-BHC	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	DDD	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	DDT	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	DDT+DDE+DDD	mg/kg				1000	2	2	2	-	2	2	-	2	2	-
	Dieldrin	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Endosulfan I	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Endosulfan II	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Endosulfan sulphate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Endrin	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	g-BHC (Lindane)	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Heptachlor	mg/kg	0.5			50	0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Heptachlor epoxide	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Organophosphorous Pesticides	Chlorfenvinphos	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chlorpyrifos	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Chlorpyrifos-methyl	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Diazinon	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Dichlorvos	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Dimethoate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Ethion	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Fenthion	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Malathion	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Prothiofos	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
PAH	7,12-dimethylbenz(a)anthracene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
PAH/Phenols	Polycylic aromatic hydrocarbons IWRG621	mg/kg					7	7	7	-	7	7	-	7	7	-
	2,4-dimethylphenol	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2-chloronaphthalene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2-methylnaphthalene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	2-methylphenol	mg/kg	0.5				0.5	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	0.5	-
	3-&4-methylphenol	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	3-methylcholanthrene	mg/kg	0.5				0.5	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	0.5	-
	Acenaphthene	mg/kg	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	-
	Acetophenone	mg/kg	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	-
	Benz(a)anthracene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Benzo(a) pyrene	mg/kg	0.5			5	0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Benzo(b)&(k)fluoranthene	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	Benzo(g,h,i)perylene	mg/kg	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	-
	Dibenz(a,h)anthracene	mg/kg	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	-
	Fluorene	mg/kg	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	-
	Naphthalene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Phenols (non-halogenated) IWRG621	mg/kg					2	2	2	-	2	2	-	2	2	-
	PAHs (Sum of total)	mg/kg	0.5			100	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	-
	Phenol	mg/kg	0.5			42500	0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-

Field_ID	TP-A3a-01/1.4	TP-A3a-04/0.1	TP-A3a-05/1.3	TP-A3a-07/0.9	TP-A3a-08/0.1	TP-A3a-09/0.1	TP-A3a-10/1.0	TP-A3a-11/0.6	TP-A3a-13/0.1	TP-A3a-14/0.5
LocCode	TP-A3a-01	TP-A3a-04	TP-A3a-05	TP-A3a-07	TP-A3a-08	TP-A3a-09	TP-A3a-10	TP-A3a-11	TP-A3a-13	TP-A3a-14
Sample_Depth	1.4	0.1	1.3	0.9	0.1	0.1	1	0.6	0.1	0.5
Sampled_Date-Time	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013	12/04/2013

Chem_Group	ChemName	Units	EQL	NEPM 1999 EIL	Site Specific Criteria	NEPM 1999 HIL F										
	Pyrene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Pesticides	Chlorobenzilate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Pirimphos-ethyl	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Butyl benzyl phthalate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Diethylphthalate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Dimethyl phthalate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Di-n-butyl phthalate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Di-n-octyl phthalate	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
Solvents	Methyl Ethyl Ketone	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	2-hexanone (MBK)	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	4-Methyl-2-pentanone	mg/kg	5				5	5	5	-	5	5	-	5	5	-
	Carbon disulfide	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Isophorone	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Vinyl acetate	mg/kg	5				5	5	5	-	5	5	-	5	5	-
SVOCs	2-(acetylamino) fluorene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	3,3-Dichlorobenzidine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-(dimethylamino) azobenzene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-bromophenyl phenyl ether	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-chlorophenyl phenyl ether	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	4-Nitroquinoline-N-oxide	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Azobenzene	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	Bis(2-chloroethoxy) methane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bis(2-chloroethyl)ether	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Bis(2-chloroisopropyl) ether	mg/kg	0.5				-	-	-	-	-	-	-	-	-	-
	Carbazole	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Dibenzofuran	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Hexachloropropene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Methapyrilene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-nitrosomorpholine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-nitrosopiperidine	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	N-nitrosopyrrolidine	mg/kg	1				1	1	1	-	1	1	-	1	1	-
	Phenacetin	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
TPH	C10-C16	mg/kg	50		**260** [2]		50	50	50	50	50	50	50	50	50	50
	C16-C34	mg/kg	100		**1700** [2]		100	100	100	100	100	100	100	100	100	100
	C34-C40	mg/kg	100		**3300** [2]		100	100	100	100	100	100	100	100	100	100
	C10 - C14	mg/kg	50		**260** [2]		50	50	50	50	50	50	50	50	50	50
	C6 - C9	mg/kg	10		**240** [2]		10	10	10	10	10	10	10	10	10	10
	C15 - C28	mg/kg	100				100	100	100	100	100	100	100	100	100	100
	C29-C36	mg/kg	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
	C10 - C40 (Sum of total)	mg/kg	50				50	50	50	50	50	50	50	50	50	50
	C10 - C36 Fraction (sum)	mg/kg	50				-	-	-	-	-	-	-	-	-	-
	C6-C10	mg/kg	10		**240** [2]		10	10	10	10	10	10	10	10	10	10
VOCs	cis-1,4-Dichloro-2-butene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	Pentachloroethane	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-
	trans-1,4-Dichloro-2-butene	mg/kg	0.5				0.5	0.5	0.5	-	0.5	0.5	-	0.5	0.5	-

Comment
1. Criterion from CCME (2008a) PH or TPH in soil
2. Soil Ingestion criterion for Commencial Use CCME (2004)

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG	EM1210519	EM1210519		EM1210519	EM1210519	
Field_ID	TP-A1-4/0.5	C01/07092012	RPD	TP-A1-4/0.5	C02/07092012	RPD
Sampled_Date-Time	7/09/2012	7/09/2012		7/09/2012	7/09/2012	
Sample	Primary	Duplicate		Primary	Duplicate	

Chem_Group	ChemName	Units	EQL						
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1						
Amino Aliphatics	N-nitrosodiethylamine	mg/kg	0.5						
	N-nitrosodi-n-butylamine	mg/kg	0.5						
	N-nitrosodi-n-propylamine	mg/kg	0.5						
	N-Nitrosomethylethylamine	mg/kg	0.5						
Amino Aromatics	1-naphthylamine	mg/kg	0.5						
Anilines	2-nitroaniline	mg/kg	1 (Primary): 0.5 (Interlab)						
	3-nitroaniline	mg/kg	1						
	4-chloroaniline	mg/kg	0.5						
	4-nitroaniline	mg/kg	0.5						
	2-methyl-5-nitroaniline	mg/kg	0.5						
	Aniline	mg/kg	0.5						
BTEX	Benzene	mg/kg	0.2 (Primary): 0.1 (Interlab)						
	Ethylbenzene	mg/kg	0.5 (Primary): 0.1 (Interlab)						
	Toluene	mg/kg	0.5 (Primary): 0.1 (Interlab)						
	Xylene (m & p)	mg/kg	0.5 (Primary): 0.2 (Interlab)						
	Xylene (o)	mg/kg	0.5 (Primary): 0.1 (Interlab)						
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1,1-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1,2,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1,2-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,1-dichloropropene	mg/kg	0.5						
	1,2,3-trichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,2-dibromo-3-chloropropane	mg/kg	0.5						
	1,2-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,2-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,3-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	2,2-dichloropropane	mg/kg	0.5						
	Bromodichloromethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Bromoform	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Carbon tetrachloride	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Chlorodibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Chloroethane	mg/kg	5 (Primary): 0.05 (Interlab)						
	Chloroform	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Chloromethane	mg/kg	5 (Primary): 0.05 (Interlab)						
	cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Dibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Hexachlorobutadiene	mg/kg	0.5						
	Hexachlorocyclopentadiene	mg/kg	2.5 (Primary): 0.5 (Interlab)						
	Hexachloroethane	mg/kg	0.5						
	Trichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Tetrachloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Vinyl chloride	mg/kg	5 (Primary): 0.05 (Interlab)						
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5						
	2,4-Dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)						
	2,6-dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)						
	Nitrobenzene	mg/kg	0.5						
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/kg	0.5						
	1,2,4-trichlorobenzene	mg/kg	0.5						
	1,2-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,3-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,4-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	2-chlorotoluene	mg/kg	0.5						
	4-chlorotoluene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Bromobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Chlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Hexachlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)						
	Pentachlorobenzene	mg/kg	0.5						
Halogenated Hydrocarbons	1,2-dibromoethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Bromomethane	mg/kg	5 (Primary): 0.05 (Interlab)						
	Dichlorodifluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)						
	Iodomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Trichlorofluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)						
Halogenated Phenols	2,4,5-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)						
	2,4,6-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)						
	2,4-dichlorophenol	mg/kg	0.5						
	2,6-dichlorophenol	mg/kg	0.5						
	2-chlorophenol	mg/kg	0.5						
	Pentachlorophenol	mg/kg	1						
Herbicides	Pronamide	mg/kg	0.5						
Inorganics	Moisture	%	1	19.9	22.2	11	19.9	24.0	19
MAH	1,2,4-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	Isopropylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	n-butylbenzene	mg/kg	0.5						
	n-propylbenzene	mg/kg	0.5						
	p-isopropyltoluene	mg/kg	0.5						
	sec-butylbenzene	mg/kg	0.5						
	Styrene	mg/kg	0.5 (Primary): 0.05 (Interlab)						
	tert-butylbenzene	mg/kg	0.5						
Metals	Arsenic	mg/kg	5						
	Barium	mg/kg	10						
	Beryllium	mg/kg	1						
	Cadmium	mg/kg	1						
	Chromium (III+VI)	mg/kg	2						
	Cobalt	mg/kg	2						
	Copper	mg/kg	5						
	Lead	mg/kg	5	12.0	18.0	40	12.0	15.0	22
	Manganese	mg/kg	5						
	Mercury	mg/kg	0.1						
	Nickel	mg/kg	2						
	Vanadium	mg/kg	5						
	Zinc	mg/kg	5						
Nitroaromatics	2-Picoline	mg/kg	0.5						
	4-aminobiphenyl	mg/kg	0.5						
	Pentachloronitrobenzene	mg/kg	0.5						

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG			EM1210519	EM1210519		EM1210519	EM1210519	
Field_ID			TP-A1-4/0.5	C01/07092012	RPD	TP-A1-4/0.5	C02/07092012	RPD
Sampled_Date-Time			7/09/2012	7/09/2012		7/09/2012	7/09/2012	
Sample			Primary	Duplicate		Primary	Duplicate	
Organochlorine Pesticides	4,4-DDE	mg/kg	0.5					
	a-BHC	mg/kg	0.5					
	Aldrin	mg/kg	0.5					
	b-BHC	mg/kg	0.5					
	d-BHC	mg/kg	0.5					
	DDD	mg/kg	0.5					
	DDT	mg/kg	1 (Primary): 0.5 (Interlab)					
	Dieldrin	mg/kg	0.5					
	Endosulfan I	mg/kg	0.5					
	Endosulfan II	mg/kg	0.5					
	Endosulfan sulphate	mg/kg	0.5					
	Endrin	mg/kg	0.5					
	g-BHC (Lindane)	mg/kg	0.5					
	Heptachlor	mg/kg	0.5					
	Heptachlor epoxide	mg/kg	0.5					
Organophosphorous Pesticides	Chlorfenvinphos	mg/kg	0.5					
	Chlorpyrifos	mg/kg	0.5					
	Chlorpyrifos-methyl	mg/kg	0.5					
	Diazinon	mg/kg	0.5					
	Dichlorvos	mg/kg	0.5					
	Dimethoate	mg/kg	0.5					
	Ethion	mg/kg	0.5					
	Fenthion	mg/kg	0.5					
	Malathion	mg/kg	0.5					
	Prothiofos	mg/kg	0.5					
PAH	7,12-dimethylbenz(a)anthracene	mg/kg	0.5					
PAH/Phenols	2,4-dimethylphenol	mg/kg	0.5					
	2-chloronaphthalene	mg/kg	0.5					
	2-methylnaphthalene	mg/kg	0.5					
	2-methylphenol	mg/kg	0.5 (Primary): 0.2 (Interlab)					
	2-nitrophenol	mg/kg	0.5 (Primary): 1 (Interlab)					
	3-&4-methylphenol	mg/kg	0.5 (Primary): 0.4 (Interlab)					
	3-methylcholanthrene	mg/kg	0.5					
	4-chloro-3-methylphenol	mg/kg	0.5 (Primary): 1 (Interlab)					
	Acenaphthene	mg/kg	0.5					
	Acenaphthylene	mg/kg	0.5					
	Acetophenone	mg/kg	0.5					
	Anthracene	mg/kg	0.5					
	Benz(a)anthracene	mg/kg	0.5					
	Benzo(a) pyrene	mg/kg	0.5					
	Benzo(b)&(k)fluoranthene	mg/kg	1					
	Benzo(g,h,i)perylene	mg/kg	0.5					
	Chrysene	mg/kg	0.5					
	Dibenz(a,h)anthracene	mg/kg	0.5					
	Fluoranthene	mg/kg	0.5					
	Fluorene	mg/kg	0.5					
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5					
	Naphthalene	mg/kg	0.5					
	PAHs (Sum of total)	mg/kg	0.5					
	Phenanthrene	mg/kg	0.5					
	Phenol	mg/kg	0.5					
	Pyrene	mg/kg	0.5					
Pesticides	Chlorobenzilate	mg/kg	0.5					
	Pirimphos-ethyl	mg/kg	0.5					
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5 (Primary): 0.5 (Interlab)					
	Butyl benzyl phthalate	mg/kg	0.5					
	Diethylphthalate	mg/kg	0.5					
	Dimethyl phthalate	mg/kg	0.5					
	Di-n-butyl phthalate	mg/kg	0.5					
	Di-n-octyl phthalate	mg/kg	0.5					
Solvents	Methyl Ethyl Ketone	mg/kg	5 (Primary): 0.05 (Interlab)					
	2-hexanone (MBK)	mg/kg	5					
	4-Methyl-2-pentanone	mg/kg	5 (Primary): 0.05 (Interlab)					
	Carbon disulfide	mg/kg	0.5 (Primary): 0.05 (Interlab)					
	Isophorone	mg/kg	0.5					
	Vinyl acetate	mg/kg	5					
SVOCs	2-(acetylamino) fluorene	mg/kg	0.5					
	3,3-Dichlorobenzidine	mg/kg	0.5					
	4-(dimethylamino) azobenzene	mg/kg	0.5					
	4-bromophenyl phenyl ether	mg/kg	0.5					
	4-chlorophenyl phenyl ether	mg/kg	0.5					
	4-Nitroquinoline-N-oxide	mg/kg	0.5					
	Azobenzene	mg/kg	1					
	Bis(2-chloroethoxy) methane	mg/kg	0.5					
	Bis(2-chloroethyl)ether	mg/kg	0.5					
	Carbazole	mg/kg	0.5					
	Dibenzofuran	mg/kg	0.5					
	Hexachloropropene	mg/kg	0.5					
	Methapyrilene	mg/kg	0.5					
	N-nitrosomorpholine	mg/kg	0.5					
	N-nitrosopiperidine	mg/kg	0.5					
	N-nitrosopyrrolidine	mg/kg	1					
	Phenacetin	mg/kg	0.5					
TPH	C10-C16	mg/kg	50	50.0	50.0	0	50.0	50.0	0
	C16-C34	mg/kg	100	100.0	100.0	0	100.0	100.0	0
	C34-C40	mg/kg	100	100.0	100.0	0	100.0	100.0	0
	C10 - C14	mg/kg	50 (Primary): 20 (Interlab)	50.0	50.0	0	50.0	50.0	0
	C6 - C9	mg/kg	10 (Primary): 20 (Interlab)	10.0	10.0	0	10.0	10.0	0
	C15 - C28	mg/kg	100 (Primary): 50 (Interlab)	100.0	100.0	0	100.0	100.0	0
	C29-C36	mg/kg	100 (Primary): 50 (Interlab)	100.0	100.0	0	100.0	100.0	0
	+C10 - C36 (Sum of total)	mg/kg	50						
	C10 - C40 (Sum of total)	mg/kg	50	50.0	50.0	0	50.0	50.0	0
	C10 - C36 Fraction (sum)	mg/kg	50	50.0	50.0	0	50.0	50.0	0
	C6-C10	mg/kg	10 (Primary): 20 (Interlab)	10.0	10.0	0	10.0	10.0	0
VOCs	cis-1,4-Dichloro-2-butene	mg/kg	0.5						
	Pentachloroethane	mg/kg	0.5						
	trans-1,4-Dichloro-2-butene	mg/kg	0.5						

RPDs have only been considered where a concentration is greater than 1 times the E L.
High RPDs are in bold (Acceptable RPDs for each E L multiplier range are: 50 (1-10 x E L); 50 (10-30 x E L); 50 (30 x E L))
Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG	ES1223327	ES1223327		EM1303970	EM1303970		EM1303970	Interlab_D
Field_ID	TP-A1-8/0.5	C1	RPD	TP-A1-35/0.1	C01/110413	RPD	TP-A1-35/0.1	C02/110413
Sampled_Date-Time	26/09/2012	26/09/2012		11/04/2013 15:00	11/04/2013 15:00		11/04/2013 15:00	11/04/2013 15:00
Sample	Primary	Duplicate		Primary	Duplicate		Primary	Triplicate

Chem_Group	ChemName	Units	EQL								
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1				1.0	1.0	0	1.0	
Amino Aliphatics	N-nitrosodiethylamine	mg/kg	0.5				0.5	0.5	0	0.5	
	N-nitrosodi-n-butylamine	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	N-nitrosodi-n-propylamine	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	N-Nitrosomethylethylamine	mg/kg	0.5				0.5	0.5	0	0.5	
Amino Aromatics	1-naphthylamine	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Anilines	2-nitroaniline	mg/kg	1 (Primary): 0.5 (Interlab)				1.0	1.0	0	1.0	0.5
	3-nitroaniline	mg/kg	1				1.0	1.0	0	1.0	
	4-chloroaniline	mg/kg	0.5				0.5	0.5	0	0.5	
	4-nitroaniline	mg/kg	0.5				0.5	0.5	0	0.5	
	2-methyl-5-nitroaniline	mg/kg	0.5				0.5	0.5	0	0.5	
	Aniline	mg/kg	0.5				0.5	0.5	0	0.5	0.5
BTEX	Benzene	mg/kg	0.2 (Primary): 0.1 (Interlab)				0.2	0.2	0	0.2	0.1
	Ethylbenzene	mg/kg	0.5 (Primary): 0.1 (Interlab)				0.5	0.5	0	0.5	0.1
	Toluene	mg/kg	0.5 (Primary): 0.1 (Interlab)				0.5	0.5	0	0.5	0.1
	Xylene (m & p)	mg/kg	0.5 (Primary): 0.2 (Interlab)				0.5	0.5	0	0.5	0.2
	Xylene (o)	mg/kg	0.5 (Primary): 0.1 (Interlab)				0.5	0.5	0	0.5	0.1
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1,1-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1,2,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1,2-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,1-dichloropropene	mg/kg	0.5				0.5	0.5	0	0.5	
	1,2,3-trichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,2-dibromo-3-chloropropane	mg/kg	0.5				0.5	0.5	0	0.5	
	1,2-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,2-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,3-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	2,2-dichloropropane	mg/kg	0.5				0.5	0.5	0	0.5	
	Bromodichloromethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Bromoform	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Carbon tetrachloride	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Chlorodibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Chloroethane	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	Chloroform	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Chloromethane	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Dibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Hexachlorobutadiene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Hexachlorocyclopentadiene	mg/kg	2.5 (Primary): 0.5 (Interlab)				2.5	2.5	0	2.5	0.5
	Hexachloroethane	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Trichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Tetrachloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Vinyl chloride	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5				0.5	0.5	0	0.5	
	2,4-Dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)				1.0	1.0	0	1.0	0.5
	2,6-dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)				1.0	1.0	0	1.0	0.5
	Nitrobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	1,2,4-trichlorobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	1,2-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.1
	1,3-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,4-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	2-chlorotoluene	mg/kg	0.5				0.5	0.5	0	0.5	
	4-chlorotoluene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Bromobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Chlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Hexachlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)				1.0	1.0	0	1.0	0.5
	Pentachlorobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Halogenated Hydrocarbons	1,2-dibromoethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Bromomethane	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	Dichlorodifluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	Iodomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Trichlorofluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
Halogenated Phenols	2,4,5-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)				0.5	0.5	0	0.5	1.0
	2,4,6-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)				0.5	0.5	0	0.5	1.0
	2,4-dichlorophenol	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	2,6-dichlorophenol	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	2-chlorophenol	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Pentachlorophenol	mg/kg	1				1.0	1.0	0	1.0	1.0
Herbicides	Pronamide	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Inorganics	Moisture	%	1	37.5	32.5	14	7.0	7.2	3	7.0	
MAH	1,2,4-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Isopropylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	n-butylbenzene	mg/kg	0.5				0.5	0.5	0	0.5	
	n-propylbenzene	mg/kg	0.5				0.5	0.5	0	0.5	
	p-isopropyltoluene	mg/kg	0.5				0.5	0.5	0	0.5	
	sec-butylbenzene	mg/kg	0.5				0.5	0.5	0	0.5	
	Styrene	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	tert-butylbenzene	mg/kg	0.5				0.5	0.5	0	0.5	
Metals	Arsenic	mg/kg	5	5.0	5.0	0					
	Barium	mg/kg	10	80.0	70.0	13					
	Beryllium	mg/kg	1	1.0	1.0	0					
	Cadmium	mg/kg	1	1.0	1.0	0					
	Chromium (III+VI)	mg/kg	2	52.0	54.0	4					
	Cobalt	mg/kg	2	4.0	4.0	0					
	Copper	mg/kg	5	8.0	8.0	0					
	Lead	mg/kg	5	11.0	12.0	9					
	Manganese	mg/kg	5	12.0	11.0	9					
	Mercury	mg/kg	0.1	0.1	0.1	0					
	Nickel	mg/kg	2	8.0	9.0	12					
	Vanadium	mg/kg	5	79.0	95.0	18					
	Zinc	mg/kg	5	8.0	8.0	0					
Nitroaromatics	2-Picoline	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-aminobiphenyl	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Pentachloronitrobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG			ES1223327	ES1223327		EM1303970	EM1303970		EM1303970	Interlab_D
Field_ID			TP-A1-8/0.5	C1	RPD	TP-A1-35/0.1	C01/110413	RPD	TP-A1-35/0.1	C02/110413
Sampled_Date-Time			26/09/2012	26/09/2012		11/04/2013 15:00	11/04/2013 15:00		11/04/2013 15:00	11/04/2013 15:00
Sample			Primary	Duplicate		Primary	Duplicate		Primary	Triplicate
Organochlorine Pesticides	4,4-DDE	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	a-BHC	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Aldrin	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	b-BHC	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	d-BHC	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	DDD	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	DDT	mg/kg	1 (Primary): 0.5 (Interlab)				1.0	1.0	0	1.0	0.5
	Dieldrin	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Endosulfan I	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Endosulfan II	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Endosulfan sulphate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Endrin	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	g-BHC (Lindane)	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Heptachlor	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Heptachlor epoxide	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Organophosphorous Pesticides	Chlorfenvinphos	mg/kg	0.5				0.5	0.5	0	0.5	
	Chlorpyrifos	mg/kg	0.5				0.5	0.5	0	0.5	
	Chlorpyrifos-methyl	mg/kg	0.5				0.5	0.5	0	0.5	
	Diazinon	mg/kg	0.5				0.5	0.5	0	0.5	
	Dichlorvos	mg/kg	0.5				0.5	0.5	0	0.5	
	Dimethoate	mg/kg	0.5				0.5	0.5	0	0.5	
	Ethion	mg/kg	0.5				0.5	0.5	0	0.5	
	Fenthion	mg/kg	0.5				0.5	0.5	0	0.5	
	Malathion	mg/kg	0.5				0.5	0.5	0	0.5	
	Prothiofos	mg/kg	0.5				0.5	0.5	0	0.5	
PAH	7,12-dimethylbenz(a)anthracene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
PAH/Phenols	2,4-dimethylphenol	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	2-chloronaphthalene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	2-methylnaphthalene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	2-methylphenol	mg/kg	0.5 (Primary): 0.2 (Interlab)				0.5	0.5	0	0.5	0.2
	2-nitrophenol	mg/kg	0.5 (Primary): 1 (Interlab)				0.5	0.5	0	0.5	1.0
	3-&4-methylphenol	mg/kg	0.5 (Primary): 0.4 (Interlab)				0.5	0.5	0	0.5	0.4
	3-methylcholanthrene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-chloro-3-methylphenol	mg/kg	0.5 (Primary): 1 (Interlab)				0.5	0.5	0	0.5	1.0
	Acenaphthene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Acenaphthylene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Acetophenone	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Anthracene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Benz(a)anthracene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Benzo(a) pyrene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Benzo(b)&(k)fluoranthene	mg/kg	1				1.0	1.0	0	1.0	
	Benzo(g,h,i)perylene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Chrysene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Dibenz(a,h)anthracene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Fluoranthene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Fluorene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Naphthalene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	PAHs (Sum of total)	mg/kg	0.5				0.5	0.5	0	0.5	
	Phenanthrene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Phenol	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Pyrene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Pesticides	Chlorobenzilate	mg/kg	0.5				0.5	0.5	0	0.5	
	Pirimphos-ethyl	mg/kg	0.5				0.5	0.5	0	0.5	
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5 (Primary): 0.5 (Interlab)				5.0	5.0	0	5.0	0.6
	Butyl benzyl phthalate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Diethylphthalate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Dimethyl phthalate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Di-n-butyl phthalate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Di-n-octyl phthalate	mg/kg	0.5				0.5	0.5	0	0.5	0.5
Solvents	Methyl Ethyl Ketone	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	2-hexanone (MBK)	mg/kg	5				5.0	5.0	0	5.0	
	4-Methyl-2-pentanone	mg/kg	5 (Primary): 0.05 (Interlab)				5.0	5.0	0	5.0	0.05
	Carbon disulfide	mg/kg	0.5 (Primary): 0.05 (Interlab)				0.5	0.5	0	0.5	0.05
	Isophorone	mg/kg	0.5				0.5	0.5	0	0.5	
	Vinyl acetate	mg/kg	5				5.0	5.0	0	5.0	
SVOCs	2-(acetylamino) fluorene	mg/kg	0.5				0.5	0.5	0	0.5	
	3,3-Dichlorobenzidine	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-(dimethylamino) azobenzene	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-bromophenyl phenyl ether	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-chlorophenyl phenyl ether	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	4-Nitroquinoline-N-oxide	mg/kg	0.5				0.5	0.5	0	0.5	
	Azobenzene	mg/kg	1				1.0	1.0	0	1.0	
	Bis(2-chloroethoxy) methane	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Bis(2-chloroethyl)ether	mg/kg	0.5				0.5	0.5	0	0.5	
	Carbazole	mg/kg	0.5				0.5	0.5	0	0.5	
	Dibenzofuran	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	Hexachloropropene	mg/kg	0.5				0.5	0.5	0	0.5	
	Methapyrilene	mg/kg	0.5				0.5	0.5	0	0.5	
	N-nitrosomorpholine	mg/kg	0.5				0.5	0.5	0	0.5	
	N-nitrosopiperidine	mg/kg	0.5				0.5	0.5	0	0.5	0.5
	N-nitrosopyrrolidine	mg/kg	1				1.0	1.0	0	1.0	
	Phenacetin	mg/kg	0.5				0.5	0.5	0	0.5	
TPH	C10-C16	mg/kg	50	50.0	50.0	0	50.0	50.0	0	50.0	50.0
	C16-C34	mg/kg	100	100.0	100.0	0	100.0	100.0	0	100.0	100.0
	C34-C40	mg/kg	100	100.0	100.0	0	100.0	100.0	0	100.0	100.0
	C10 - C14	mg/kg	50 (Primary): 20 (Interlab)	50.0	50.0	0	50.0	50.0	0	50.0	20.0
	C6 - C9	mg/kg	10 (Primary): 20 (Interlab)	10.0	10.0	0	10.0	10.0	0	10.0	20.0
	C15 - C28	mg/kg	100 (Primary): 50 (Interlab)	100.0	100.0	0	100.0	100.0	0	100.0	50.0
	C29-C36	mg/kg	100 (Primary): 50 (Interlab)	100.0	100.0	0	100.0	100.0	0	100.0	50.0
	+C10 - C36 (Sum of total)	mg/kg	50				50.0	50.0	0	50.0	50.0
	C10 - C40 (Sum of total)	mg/kg	50	50.0	50.0	0	50.0	50.0	0	50.0	
	C10 - C36 Fraction (sum)	mg/kg	50	50.0	50.0	0					
	C6-C10	mg/kg	10 (Primary): 20 (Interlab)	10.0	10.0	0	10.0	10.0	0	10.0	20.0
VOCs	cis-1,4-Dichloro-2-butene	mg/kg	0.5				0.5	0.5	0	0.5	
	Pentachloroethane	mg/kg	0.5				0.5	0.5	0	0.5	
	trans-1,4-Dichloro-2-butene	mg/kg	0.5				0.5	0.5	0	0.5	

RPDs have only been considered where a concentration is greater than 1 times the E L.
High RPDs are in bold (Acceptable RPDs for each E L multiplier range are: 50 (1-10 x E L); 50 (10-30 x E L); 50
Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in th

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG	
Field_ID	RPD
Sampled_Date-Time	
Sample	

Chem_Group	ChemName	Units	EQL	
	N-Nitrosodiphenyl & Diphenylamine	mg/kg	1	
Amino Aliphatics	N-nitrosodiethylamine	mg/kg	0.5	
	N-nitrosodi-n-butylamine	mg/kg	0.5	0
	N-nitrosodi-n-propylamine	mg/kg	0.5	0
	N-Nitrosomethylethylamine	mg/kg	0.5	
Amino Aromatics	1-naphthylamine	mg/kg	0.5	0
Anilines	2-nitroaniline	mg/kg	1 (Primary): 0.5 (Interlab)	0
	3-nitroaniline	mg/kg	1	
	4-chloroaniline	mg/kg	0.5	
	4-nitroaniline	mg/kg	0.5	
	2-methyl-5-nitroaniline	mg/kg	0.5	
	Aniline	mg/kg	0.5	0
BTEX	Benzene	mg/kg	0.2 (Primary): 0.1 (Interlab)	0
	Ethylbenzene	mg/kg	0.5 (Primary): 0.1 (Interlab)	0
	Toluene	mg/kg	0.5 (Primary): 0.1 (Interlab)	0
	Xylene (m & p)	mg/kg	0.5 (Primary): 0.2 (Interlab)	0
	Xylene (o)	mg/kg	0.5 (Primary): 0.1 (Interlab)	0
Chlorinated Hydrocarbons	1,1,1,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1,1-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1,2,2-tetrachloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1,2-trichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,1-dichloropropene	mg/kg	0.5	
	1,2,3-trichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,2-dibromo-3-chloropropane	mg/kg	0.5	
	1,2-dichloroethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,2-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,3-dichloropropane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	2,2-dichloropropane	mg/kg	0.5	
	Bromodichloromethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Bromoform	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Carbon tetrachloride	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Chlorodibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Chloroethane	mg/kg	5 (Primary): 0.05 (Interlab)	0
	Chloroform	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Chloromethane	mg/kg	5 (Primary): 0.05 (Interlab)	0
	cis-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	cis-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Dibromomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Hexachlorobutadiene	mg/kg	0.5	0
	Hexachlorocyclopentadiene	mg/kg	2.5 (Primary): 0.5 (Interlab)	0
	Hexachloroethane	mg/kg	0.5	0
	Trichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Tetrachloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	trans-1,2-dichloroethene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	trans-1,3-dichloropropene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Vinyl chloride	mg/kg	5 (Primary): 0.05 (Interlab)	0
Explosives	1,3,5-Trinitrobenzene	mg/kg	0.5	
	2,4-Dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)	0
	2,6-dinitrotoluene	mg/kg	1 (Primary): 0.5 (Interlab)	0
	Nitrobenzene	mg/kg	0.5	0
Halogenated Benzenes	1,2,3-trichlorobenzene	mg/kg	0.5	0
	1,2,4-trichlorobenzene	mg/kg	0.5	0
	1,2-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,3-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,4-dichlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	2-chlorotoluene	mg/kg	0.5	
	4-chlorotoluene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Bromobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Chlorobenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Hexachlorobenzene	mg/kg	1 (Primary): 0.5 (Interlab)	0
	Pentachlorobenzene	mg/kg	0.5	0
Halogenated Hydrocarbons	1,2-dibromoethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Bromomethane	mg/kg	5 (Primary): 0.05 (Interlab)	0
	Dichlorodifluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)	0
	Iodomethane	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Trichlorofluoromethane	mg/kg	5 (Primary): 0.05 (Interlab)	0
Halogenated Phenols	2,4,5-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)	0
	2,4,6-trichlorophenol	mg/kg	0.5 (Primary): 1 (Interlab)	0
	2,4-dichlorophenol	mg/kg	0.5	0
	2,6-dichlorophenol	mg/kg	0.5	0
	2-chlorophenol	mg/kg	0.5	0
	Pentachlorophenol	mg/kg	1	0
Herbicides	Pronamide	mg/kg	0.5	0
Inorganics	Moisture	%	1	
MAH	1,2,4-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	1,3,5-trimethylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Isopropylbenzene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	n-butylbenzene	mg/kg	0.5	
	n-propylbenzene	mg/kg	0.5	
	p-isopropyltoluene	mg/kg	0.5	
	sec-butylbenzene	mg/kg	0.5	
	Styrene	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	tert-butylbenzene	mg/kg	0.5	
Metals	Arsenic	mg/kg	5	
	Barium	mg/kg	10	
	Beryllium	mg/kg	1	
	Cadmium	mg/kg	1	
	Chromium (III+VI)	mg/kg	2	
	Cobalt	mg/kg	2	
	Copper	mg/kg	5	
	Lead	mg/kg	5	
	Manganese	mg/kg	5	
	Mercury	mg/kg	0.1	
	Nickel	mg/kg	2	
	Vanadium	mg/kg	5	
	Zinc	mg/kg	5	
Nitroaromatics	2-Picoline	mg/kg	0.5	0
	4-aminobiphenyl	mg/kg	0.5	0
	Pentachloronitrobenzene	mg/kg	0.5	0

Field Duplicates (SOIL)
Filter: SDG in(EM1303970 , ES1223327 , EM1210519)

SDG	
Field_ID	RPD
Sampled_Date-Time	
Sample	

Organochlorine Pesticides	4,4-DDE	mg/kg	0.5	0
	a-BHC	mg/kg	0.5	0
	Aldrin	mg/kg	0.5	0
	b-BHC	mg/kg	0.5	0
	d-BHC	mg/kg	0.5	0
	DDD	mg/kg	0.5	0
	DDT	mg/kg	1 (Primary): 0.5 (Interlab)	0
	Dieldrin	mg/kg	0.5	0
	Endosulfan I	mg/kg	0.5	0
	Endosulfan II	mg/kg	0.5	0
	Endosulfan sulphate	mg/kg	0.5	0
	Endrin	mg/kg	0.5	0
	g-BHC (Lindane)	mg/kg	0.5	0
	Heptachlor	mg/kg	0.5	0
	Heptachlor epoxide	mg/kg	0.5	0
Organophosphorous Pesticides	Chlorfenvinphos	mg/kg	0.5	
	Chlorpyrifos	mg/kg	0.5	
	Chlorpyrifos-methyl	mg/kg	0.5	
	Diazinon	mg/kg	0.5	
	Dichlorvos	mg/kg	0.5	
	Dimethoate	mg/kg	0.5	
	Ethion	mg/kg	0.5	
	Fenthion	mg/kg	0.5	
	Malathion	mg/kg	0.5	
	Prothiofos	mg/kg	0.5	
PAH	7,12-dimethylbenz(a)anthracene	mg/kg	0.5	0
PAH/Phenols	2,4-dimethylphenol	mg/kg	0.5	0
	2-chloronaphthalene	mg/kg	0.5	0
	2-methylnaphthalene	mg/kg	0.5	0
	2-methylphenol	mg/kg	0.5 (Primary): 0.2 (Interlab)	0
	2-nitrophenol	mg/kg	0.5 (Primary): 1 (Interlab)	0
	3-&4-methylphenol	mg/kg	0.5 (Primary): 0.4 (Interlab)	0
	3-methylcholanthrene	mg/kg	0.5	0
	4-chloro-3-methylphenol	mg/kg	0.5 (Primary): 1 (Interlab)	0
	Acenaphthene	mg/kg	0.5	0
	Acenaphthylene	mg/kg	0.5	0
	Acetophenone	mg/kg	0.5	0
	Anthracene	mg/kg	0.5	0
	Benz(a)anthracene	mg/kg	0.5	0
	Benzo(a) pyrene	mg/kg	0.5	0
	Benzo(b)&(k)fluoranthene	mg/kg	1	
	Benzo(g,h,i)perylene	mg/kg	0.5	0
	Chrysene	mg/kg	0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	0
	Fluoranthene	mg/kg	0.5	0
	Fluorene	mg/kg	0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	0
	Naphthalene	mg/kg	0.5	0
	PAHs (Sum of total)	mg/kg	0.5	
	Phenanthrene	mg/kg	0.5	0
	Phenol	mg/kg	0.5	0
	Pyrene	mg/kg	0.5	0
Pesticides	Chlorobenzilate	mg/kg	0.5	
	Pirimphos-ethyl	mg/kg	0.5	
Phthalates	Bis(2-ethylhexyl) phthalate	mg/kg	5 (Primary): 0.5 (Interlab)	0
	Butyl benzyl phthalate	mg/kg	0.5	0
	Diethylphthalate	mg/kg	0.5	0
	Dimethyl phthalate	mg/kg	0.5	0
	Di-n-butyl phthalate	mg/kg	0.5	0
	Di-n-octyl phthalate	mg/kg	0.5	0
Solvents	Methyl Ethyl Ketone	mg/kg	5 (Primary): 0.05 (Interlab)	0
	2-hexanone (MBK)	mg/kg	5	
	4-Methyl-2-pentanone	mg/kg	5 (Primary): 0.05 (Interlab)	0
	Carbon disulfide	mg/kg	0.5 (Primary): 0.05 (Interlab)	0
	Isophorone	mg/kg	0.5	
	Vinyl acetate	mg/kg	5	
SVOCs	2-(acetylamino) fluorene	mg/kg	0.5	
	3,3-Dichlorobenzidine	mg/kg	0.5	0
	4-(dimethylamino) azobenzene	mg/kg	0.5	0
	4-bromophenyl phenyl ether	mg/kg	0.5	0
	4-chlorophenyl phenyl ether	mg/kg	0.5	0
	4-Nitroquinoline-N-oxide	mg/kg	0.5	
	Azobenzene	mg/kg	1	
	Bis(2-chloroethoxy) methane	mg/kg	0.5	0
	Bis(2-chloroethyl)ether	mg/kg	0.5	
	Carbazole	mg/kg	0.5	
	Dibenzofuran	mg/kg	0.5	0
	Hexachloropropene	mg/kg	0.5	
	Methapyrilene	mg/kg	0.5	
	N-nitrosomorpholine	mg/kg	0.5	
	N-nitrosopiperidine	mg/kg	0.5	0
	N-nitrosopyrrolidine	mg/kg	1	
	Phenacetin	mg/kg	0.5	
TPH	C10-C16	mg/kg	50	0
	C16-C34	mg/kg	100	0
	C34-C40	mg/kg	100	0
	C10 - C14	mg/kg	50 (Primary): 20 (Interlab)	0
	C6 - C9	mg/kg	10 (Primary): 20 (Interlab)	0
	C15 - C28	mg/kg	100 (Primary): 50 (Interlab)	0
	C29-C36	mg/kg	100 (Primary): 50 (Interlab)	0
	+C10 - C36 (Sum of total)	mg/kg	50	0
	C10 - C40 (Sum of total)	mg/kg	50	
	C10 - C36 Fraction (sum)	mg/kg	50	
	C6-C10	mg/kg	10 (Primary): 20 (Interlab)	0
VOCs	cis-1,4-Dichloro-2-butene	mg/kg	0.5	
	Pentachloroethane	mg/kg	0.5	
	trans-1,4-Dichloro-2-butene	mg/kg	0.5	

RPDs have only been considered where a concentration is greater than 1 times the E L.
High RPDs are in bold (Acceptable RPDs for each E L multiplier range are: 50 (1-10 x E L); 50 (10-30 x E L); 50
Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in th

Appendix C
61 Pages

Soil Bore Logs

TP-A1-1, TP-A1-3, TP-A1-4, TP-A1-5, TP-A1-6, TP-A1-8, TP-A1-11, TP-A1-13, TP-A1-14, TP-A1-15, TP-A1-16, TP-A1-17, TP-A1-18, TP-A1-19, TP-A1-20, TP-A1-21, TP-A1-22, TP-A1-23, TP-A1-24, TP-A1-25, TP-A1-26, TP-A1-27, TP-A1-28, TP-A1-29, TP-A1-30, TP-A1-31, TP-A1-32, TP-A1-33, TP-A1-34, TP-A1-35, TP-A1-36, TP-A1-37, TP-A2-1, BH-A2-2, BH-A2-3, BH-A2-4, BH-A2-5, BH-A2-6, BH-A2-7, TP-A3-1, TP-A3-5, TP-A3-7,TP-A3-8, TP-A3a-1, TP-A3a-2, TP-A3a-3, TP-A3a-4, TP-A3a-5, TP-A3a-6, TP-A3a-7, TP-A3a-8, TP-A3a-9, TP-A3a-10, TP-A3a-11, TP-A3a-12, TP-A3a-13, TP-A3a-14, TP-A3a-15, TP-A3a-16

Cardno Lane Piper UCS

Testpit Record: **TP-A1-1**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, grey brown, firm slightly moist with traces of sand, root matter and gravel		0.0			
0.5	Silty CLAY (CI) medium plasticity, yellow orange brown, very stiff, slightly moist			TP-A1-1/0.5	V=0 O=0 PID=2.3	
			1.0	TP-A1-1/1.0	V=0 O=0 PID=1.0	
				TP-A1-1/1.5	V=0 O=0 PID=0	
	End of TP-A1-1 Termination at 1.8m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Borehole Record: **BH-A1-2**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Drilled:**	25th October 2012
				Drill Rig:	Hand Auger
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Drilling Method:**	
		Top of Casing:	NA		
Job No.:	212163.3	**Inclination:**	Vertical	**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL SIlty CLAY (CL) low plasticity, grey brown, firm, slightly moist with traces of sand, root matter and gravel		0.0	BH-A2-2/0.1	V=0	
	End of BH-A1-2 at 0.6m.		1.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro BH Log 11/09

Notes:

Groundwater Observations:
None encountered

Testpit Record: **TP-A1-3**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, grey brown, soft, dry with occasional asphalt, gravel and rootmatter		0.0	TP-A1-3/0.9	V=0 O=0 PID=0.9	
0.8	FILL Silty CLAY (CH) high plasticity, orange brown, firm to stiff, slightly moist with occasional organic matter, gravel and asphalt			TP-A1-3/0.8	V=0 O=0 PID=0	
	End of TP-A1-3 Termination at 0.85m		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
Perched water at 0.05m

Testpit Record: **TP-A1-4**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, grey brown, firm, slightly moist with occasional root matter and gravels		0.0			
0.4	Silty CLAY (CI) medium plasticity, yellow brown, very stiff, slightly moist			TP-A1-4/0.5	V=0 O=0 PID=2.3	
			1.0	TP-A1-4/1.0	V=0 O=0 PID=1.0	
				TP-A1-4/1.5	V=0 O=0 PID=0	
	End of TP-A1-4 Termination at 1.7m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-5**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, brown, firm, moist with occasional root matter, gravel and traces of sand		0.0			
0.4	Silty CLAY (CH) high plasticity, brown, stiff, moist			TP-A1-5/0.5	V=0 O=0 PID=0	
			1.0	TP-A1-5/1.0	V=0 O=0 PID=1.0	
				TP-A1-5/1.5	V=0 O=0 PID=0	
	End of TP-A1-5 Termination at 1.6m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-6**

Project: Buried Drum Assessment	**Position:** Area 1	**Date Excavated:**	7th September 2012
Location: 4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**	**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.: 212163.3		**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, brown, firm, moist with occasional root matter, gravel and traces of sand		0.0			
0.2	Silty CLAY (CH) high plasticity, brown, stiff, moist			TP-A1-6/0.5	V=0 O=0 PID=1.0	
			1.0	TP-A1-6/1.0	V=0 O=0 PID=2.3	
	End of TP-A1-6 Termination at 1.5m			TP-A1-6/1.5	V=0 O=0 PID=1.0	
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-8**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Moderate metal detector signal
0.1	FILL Sandy Gravelly CLAY (CI) medium plasticity, firm, moist, occasional gravel					
0.3	Silty CLAY (CH) High plasticity, grey orange mottling, stiff, moist					
	increase light brown clay			TP-A1-8/0.5 QC1 QC2	V=0 O=0 PID= 0.2	
				TP-A1-8/0.8	V=0 O=0 PID= 0.1	No metal detector signal
	End of TP-A1-8. Termination at 0.9m		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-11**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-11. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-12**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, slightly moist with some ashphalt, gravel and traced of sand		0.0	TP-A1-12/0.5	V=0 O=0 PID= 0	
			1.0	TP-A1-12/1.0	V=0 O=0 PID= 1.0	
	End of TP-A1-12. Termination at 1.7m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None encountered

Testpit Record: **TP-A1-13**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Weak metal detector signal
	End of TP-A3-1. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-14**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-14. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-15**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-15. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-16**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-16. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-17**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Moderate metal detector signal
0.1	FILL Gravelly Sandy CLAY (CL) low plasticity, brown grey, soft, wet					
0.4	Sandy CLAY (CI) medium plasticity, brown orange grey mottling, firm, moist			TP-A1-17/0.5	PID= 0.2	
	End of TP-A1-17. Termination at 0.6m due to water ingress		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
Perched encountered at 0.3m

Testpit Record: **TP-A1-18**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Moderate metal detector signal
0.1	Sandy CLAY (CI) medium plasticity, brown orange, moist, firm			TP-A1-18/0.4	V=0 O=0 PID= 0.2	
	End of TP-A1-18. Termination at 0.5m		1.0 2.0			No metal detector signal

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-19**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-19. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-20**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Low meteal detection
0.15	Silty CLAY (CH) high plasticity, grey orange mottling, firm, wet					
	End of TP-A1-20. Termination at 0.4m		1.0			No metal detector signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-21**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Weak metal detector signal
	End of TP-A1-21. Termination at 0.15m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-22**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			High metal detector signal
0.1	FILL Sandy GRAVEL (GP) Crushed rock, black grey, loose					
0.2	CLAY (CI) medium plasticity, grey orange mottling, firm-stiff, dry			TP-A1-22/0.5	V=0 O=0 PID= 0.1	
			1.0			
	End of TP-A1-22. Termination at 1.1m - natural			TP-A1-22/1.1	V=0 O=0 PID= 0.1	No metal detector signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-23**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Low metel detection
0.1	Silty CLAY (CH) high plasticity, grey brown orange mottling					
	End of TP-A1-23. Termination at 0.3m		1.0			No metal detector signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-24**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			
0.1	FILL Sandy gravelly CLAY (CI) medium plasticity grey brown, stiff, wet, occasional gravel and quartz (natural)					
	becoming clay, brown			TP-A1-24/0.4	V=0 O=0 PID= 0.4	
0.6	FILL Sandy CLAY (CI) medium plasticity, brown orange mottling, firm, moist			TP-A1-24/0.8	V=0 O=0 PID= 0.2	
			1.0			
	End of TP-A1-24. Termination at 1.4m - steel strap at 0.8					
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-25**

Project: Buried Drum Assessment	**Position:** Area 1	**Date Excavated:**	25th September 2012
Location: 4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**	**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.: 212163.3		**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			
0.1	FILL Gravelly SAND (SP) fine to medium grained, grey orange mottling, medium dense, moist.			TP-A1-25/0.4	V=0 O=0 PID= 0.4	
0.6	CLAY (CI) medium plasticity, grey orange mottling, stiff, moist		1.0	TP-A1-25/1.1	V=0 O=0 PID= 0.3	
	End of TP-A1-25. Termination on natural at 1.3m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-26**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, slightly moist with occasional asphalt, gravel and traces of sand		0.0	TP-A1-26/0.5	V=0 O=0 PID=0	
			1.0	TP-A1-26/1.0	V=0 O=0 PID=1.0	
				TP-A1-26/1.5	V=0 O=0 PID=0	
	End of TP-A1-26 Termination at 1.7m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None encountered

Testpit Record: **TP-A1-27**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, slightly moist with occasional asphalt, gravel, glass and traces of sand		0.0	TP-A1-27/0.5	V=0 O=0 PID=4.5	
			1.0	TP-A1-27/1.0	V=0 O=0 PID=0	
				TP-A1-27/1.5	V=0 O=0 PID=0	
	End of TP-A1-27 Termination at 1.7m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None encountered

Testpit Record: **TP-A1-28**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT, (ML) low plasticity, grey brown, stiff, dry, with occasional gravel, rootmatter and traces of sand		0.0	TP-A1-28/0.1	V=0 O=0 PID=0	
0.2	Silty CLAY (CI) medium plasticity, mottled orangegrey brown, very stiff, slightly moist			TP-A1-28/0.5	V=0 O=0 PID=0	
				TP-A1-28/0.9	V=0 O=0 PID=0	
	End of TP-A1-28. Termination at 1.0m due to refusal		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-29**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Gravelly SILT (ML) low plasticity, grey brown, hard, dry, with frequent cobbles (10-20cm), gravel, rootmatter and traces of sand		0.0	TP-A1-29/0.1	V=0 O=0 PID=0	
0.4	Silty CLAY (CI) medium plasticity, mottled orange grey brown, hard, slightly moist			TP-A1-29/0.5	V=0 O=0 PID=0	
	End of TP-A1-29. Termination at 0.6m due to refusal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-30**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Gravelly SILT (ML) low plasticity, grey brown, stiff, dry, with frequent cobbles (10-15cm), gravel, rootmatter and traces of sand		0.0	TP-A1-30/0.1	V=0 O=0 PID=0	
0.3	FILL Silty CLAY (CL) low plasticity, mottled orange grey brown, hard, dry, with frequent gravel, sand and rootmatter			TP-A1-30/0.4	V=0 O=0 PID=0	
				TP-A1-30/0.6	V=0 O=0 PID=0	
	End of TP-A1-30. Termination at 0.95m due to refusal		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-31**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT, (ML) low plasticity, grey brown, stiff, dry, with traces of gravel		0.0	TP-A1-31/0.1	V=0 O=0 PID=0	
0.3	Silty CLAY (CI) medium plasticity, mottled black orange brown, hard, slightly moist, with occasional highly weathered rock			TP-A1-31/0.5	V=0 O=0 PID=0	
	End of TP-A1-31. Termination at 0.6m due to refusal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-32**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces of gravel		0.0	TP-A1-32/0.1	V=0 O=0 PID=0	
0.4	Silty CLAY (CI) medium plasticity, mottled black orange brown, hard, slightly moist			TP-A1-32/0.5	V=0 O=0 PID=0	
	End of TP-A1-32. Termination at 0.7m due to refusal		1.0	TP-A1-32/0.65	V=0 O=0 PID=0	
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-33**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL clayey SILT (Ml) low plasticity, grey brown, stiff, dry, with traces of gravel and sand		0.0	TP-A1-33/0.1	V=0 O=0 PID=0	
0.3	Silty CLAY (Cl) medium plasticity, orange brown, hard, slightly moist Becoming very hard at 0.5m			TP-A1-33/0.5	V=0 O=0 PID=0	
	End of TP-A1-33. Termination at 0.6m due to refusal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-34**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces of gravel and sand		0.0	TP-A1-34/0.1	V=0 O=0 PID=0	
0.4	Silty CLAY (CI) medium plasticity, mottled orange grey brown, hard, slightly moist			TP-A1-34/0.5	V=0 O=0 PID=0	
				TP-A1-34/0.7	V=0 O=0 PID=0	
	End of TP-A1-34. Termination at 0.75m due to refusal		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-35**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces of gravel, rootmatter and sand		0.0	TP-A1-35/0.1	V=0 O=0 PID=0	QC01/110413 QC02/110413
0.3	Silty CLAY (CI) medium plasticity, mottled orange grey brown, hard, slightly moist			TP-A1-35/0.5	V=0 O=0 PID=0	
	End of TP-A1-35. Termination at 0.55m due to refusal		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-36**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces of gravel and sand		0.0	TP-A1-36/0.1	V=0 O=0 PID=0	QC03/110413 QC04/110413
0.25	Silty CLAY (CI) medium plasticity, mottled orange grey brown, hard, slightly moist			TP-A1-36/0.5	V=0 O=0 PID=0	
	Becoming white grey at 0.6m Becoming orange brown at 0.65			TP-A1-36/0.7	V=0 O=0 PID=0	
	End of TP-A1-36. Termination at 0.75m due to refusal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A1-37**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	11th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 Excavator SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces of gravel and rootmatter		0.0	TP-A1-37/0.1	V=0 O=0 PID=0	
0.35	Silty CLAY (CI) medium plasticity, mottled black grey hard, slightly moist			TP-A1-37/0.5	V=0 O=0 PID=0	
	Becoming orange brown at 0.7m			TP-A1-37/0.9	V=0 O=0 PID=0	
	End of TP-A1-28. Termination at 1.0m due to refusal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A2-1**

Project:	Buried Drum Assessment	**Position:**	Area 1	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay - rootlets		0.0			Strong metal detector signal
0.15	FILL SAND (SP) fine to medium grained, light brown yellow, medium dense, slightly moist					
0.25	FILL Gravelly SAND (SW), medium grained, grey, medium dense, slightly moist					
	End of TP-A2-1. Termination at 0.3m - pipe trench		1.0			
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A2-2**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Excavated:**	26th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Strong metal detector signal
0.2	FILL SAND (SP) fine to medium grained, light brown, medium dense, slightly moist					
0.3	Sandy CLAY (CI) medium plasticity, brown grey, soft, slightly moist			TP-A2-2/0.5 QC3 QC4	V=0 O=0 PID= 0.4	No metal detector signal
			1.0	TP-A2-2/1.0	V=0 O=0 PID= 0.2	
	End of TP-A2-2. Termination on natural at 1.3m					
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A2-3**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Excavated:**	7th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	MCD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Clayey SILT (MH) high plasticity, grey brown, firm, slightly moist, with some rootmatter		0.0	TP-A2-3/0.5	V=0 O=0 PID=0.5	
	becoming orange white brown at 0.9m		1.0	TP-A2-3/1.0	V=0 O=0 PID=0.2	
1.3	Silty CLAY (CH) high plasticity, yellow brown, very stiff, slightly moist			TP-A2-3/1.5	V=0 O=0 PID=0	
	End of TP-A2-3 Termination at 1.7m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None encountered

Borehole Record: **BH-A2-4**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Drilled:**	6th September 2012
				Drill Rig:	Vacmaster System 4000
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Drilling Method:**	Non-destructive Digging Water Knife
		Top of Casing:	NA		
Job No.:	212163.3	**Inclination:**	Vertical	**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (ML) low plasticity, grey brown, firm, moist with occasional gravel and root matter. Some perched water observed.		0.0			
	Storm water main at 0.4m			BH-A2-4/0.5	V=0 O=0 PID=0	
	Water main pipe at 0.7m					
	End of BH-A2-4 at 0.8m due to water main pipe		1.0			

Key: **Notes:**

For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Groundwater Observations: Perched Water

Borehole Record: **BH-A2-5**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Drilled:**	6th September 2012
				Drill Rig:	Vacmaster System 4000
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Drilling Method:**	Non-destructive Digging Water Knife
		Top of Casing:	NA		
Job No.:	212163.3	**Inclination:**	Vertical	**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, firm, moist with occasional gravel and root matter. Some perched water observed at 0.05-0.2m bgs.		0.0			
0.4	FILL Silty CLAY (CH) high plasticity, mottled grey brown, stiff, moist with occasional gravel Blue black pipe at 0.5m		1.0	BH-A2-5/0.5	V=0 O=0 PID=0	
	End of BH-A2-5 at 1.6m					

Key: **Notes:**

For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Groundwater Observations: Perched Groundwater

Borehole Record: **BH-A2-6**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Drilled:**	5th September 2012
				Drill Rig:	Vacmaster System 4000
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Drilling Method:**	Non-destructive Digging Water Knife
		Top of Casing:	NA		
Job No.:	212163.3	**Inclination:**	Vertical	**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, grey brown, firm, moist with occasional gravel and root matter		0.0			
0.35	FILL Silty CLAY (CH), high plasticity, grey brown, stiff, moist			BH-A2-6/0.5	V=0 O=0 PID=0	
			1.0			
	End of BH-A2-6 at 1.8m					

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro BH Log 11/09

Notes:

Groundwater Observations:
None encountered

Borehole Record: **BH-A2-7**

Project:	Buried Drum Assessment	**Position:**	Area 2	**Date Drilled:**	5th September 2012
				Drill Rig:	Vacmaster System 4000
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Drilling Method:**	Non-destructive Digging Water Knife
		Top of Casing:	NA		
Job No.:	212163.3	**Inclination:**	Vertical	**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	FILL Clayey SILT (MH) high plasticity, brown, firm, moist		0.0			
0.3	Silty CLAY (CH) high plasticity, grey brown, firm, moist			BH-A2-7/0.5	V=0 O=0 PID=0	
			1.0			
	End of BH-A2-7 at 1.7m due to hard object, possibly storm water pipe					

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro BH Log 11/09

Notes:

Groundwater Observations:
None encountered

Testpit Record: **TP-A3-1**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Moderate metal detector signal
0.15	Silty CLAY (CI) medium plasticity, dark brown, stiff, moist					
0.3	Silty CLAY (CI) medium plasticity, brown red, stiff, moist			TP-A3-1/0.5	V=0 O=0 PID= 0	
			1.0	TP-A3-1/1.0	V=0 O=0 PID= 0.1	No metal detector signal
	End of TP-A3-1. Termination at 1.2m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Detected metal bins in soil (excavated) possible bottle caps

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3-5**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Strong metal detector signal
0.1	FILL Silty CLAY (CI) medium plasticity, dark brown, moist, soft, occasional gravels					
0.4	FILL Sandy GRAVEL (GW) fine to medium grained, grey, moist, wet, loose			TP-A3-5/0.5	V=0 O=0 PID= 0	
	increase in clay at 0.8m					
0.9	Silty CLAY (CL) low plasticity, grey, stiff, moist, with occasional gravel					
1.0	Silty CLAY (CI) medium plasticity, grey orange mottling, stiff, hard		1.0	TP-A3-5/1.0	V=0 O=0 PID= 0	
	End of TP-A3-5. Termination at 1.5m			TP-A3-5/1.5	V=0 O=0 PID= 0	No metal detector signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Metal detector interfere with crush rock layer

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3-7**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	25th September 2012
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg
Job No.:	212163.3			**Logged/Checked:**	SD / JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Weak metal detector signal
0.1	FILL Silty CLAY (CI) medium plasticity, dark brown, stiff, slightly moist with occasional gravel					
0.3	FILL Sandy GRAVEL (GW) fine to medium grained, grey brown, medium dense, slightly moist					
	End of TP-A3-7. Termination at 0.4m		1.0			No metal detector signal signal
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3-8**

Project: Buried Drum Assessment	**Position:** Area 3	**Date Excavated:** 25th September 2012	
Location: 4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**	**Equipment:** KUBOTA U17-3 1.7T EXCAVATOR SWL 122kg	
Job No.: 212163.3		**Logged/Checked:** SD / JZL	

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0.0	Topsoil - loamy clay		0.0			Moderate metal detector signal
0.15	Silty CLAY (CI) medium plasticity, dark brown, stiff, moist becoming brown red at 0.3m			TP-A3-8/0.5	V=0 O=0 PID= 0	
			1.0	TP-A3-8/1.0	V=0 O=0 PID= 0.1	No metal detector signal
	End of TP-A3-8. Termination at 1.2m		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Detected metal bins in soil (excavated) possible bottle caps

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-01**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT, (ML) low plasticity, grey brown, stiff, dry, with frequent rootmatter and traces of sand		0.0	TP-A3a-01/0.1	V=0 O=0 PID=0	No metal detector signal
0.3	Silty CLAY (CH) high plasticity, mottled orange grey brown, hard, slightly moist			TP-A3a-01/0.5	V=0 O=0 PID=0	
	Becoming orange brown at 0.6m		1.0	TP-A3a-01/1.0	V=0 O=0 PID=0	
				TP-A3a-01/1.4	V=0 O=0 PID=0	
	End of TP-A3a-01. Termination at 1.45m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-02**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey yellow brown, stiff, slightly moist, with frequent root matter and traces of sand		0.0	TP-A3a-02/0.1	V=0 O=0 PID=0	No metal detector signal
0.2	Silty CLAY (CH) high plasticity, yellow brown, hard, slightly moist			TP-A3a-02/0.4	V=0 O=0 PID=0	
	Becoming orange yellow brown at 0.6m		1.0	TP-A3a-02/1.0	V=0 O=0 PID=0	
	End of TP-A3a-02. Termination at 1.35m due to refusal on Basalt			TP-A3a-02/1.5	V=0 O=0 PID=0	
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-03**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with frequent rootmatter and traces if gravel		0.0	TP-A3a-03/0.1	V=0 O=0 PID=0	No metal detector signal
0.3	Silty CLAY (CH) high plasticity, mottled orangd grey brown, hard, slightly moist			TP-A3a-03/0.5	V=0 O=0 PID=0	
	Becoming orange brown at 1.0m		1.0	TP-A3a-03/01.0	V=0 O=0 PID=0	
				TP-A3a-03/1.2	V=0 O=0 PID=0	
	End of TP-A3a-03. Termination at 1.3m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-04**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, brown, stiff, dry, with traces of gravel and frequent rootmatter		0.0	TP-A3a-04/0.1	V=0 O=0 PID=0	Strong metal detector signal
0.4	Silty CLAY (CI) medium plasticity, yellow orange brown, hard, slightly moist			TP-A3a-04/0.5	V=0 O=0 PID=0	No metal detector signal
			1.0	TP-A3a-04/1.0	V=0 O=0 PID=0	
				TP-A3a-04/1.3	V=0 O=0 PID=0	
	End of TP-A3a-04. Termination at 1.4m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-05**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, brown, stiff, dry, with occasional gravel		0.0	TP-A3a-05/0.1	V=0 O=0 PID=0	Weak metal detector signal
0.4	Silty CLAY (CI) medium plasticity, mottled orange brown, hard, slightly moist			TP-A3a-05/0.5	V=0 O=0 PID=0	No metal detector signal
				TP-A3a-05/0.9	V=0 O=0 PID=0	
			1.0	TP-A3a-05/1.3	V=0 O=0 PID=0	
	End of TP-A3a-05. Termination at 1.4m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-06**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with frequent rootmatter		0.0	TP-A3a-06/0.1	V=0 O=0 PID=0	No metal detector signal QC07/120413 QC08/120413
0.2	SIlty CLAY (CH) high plasticity, orange grey brown, hard, slightly moist			TP-A3a-06/0.5	V=0 O=0 PID=0	
			1.0	TP-A3a-06/1.0	V=0 O=0 PID=0	
	End of TP-A3a-06. Termination at 1.2m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-07**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with occasional gravel and rootmatter		0.0	TP-A3a-07/0.1	V=0 O=0 PID=0	No metal detector signal
0.3	Silty CLAY (CH) high plasticity, mottled orange brown, hard, slightly moist			TP-A3a-07/0.5	V=0 O=0 PID=0	
				TP-A3a-07/0.9	V=0 O=0 PID=0	
			1.0			
	Becoming mottled black orange brown at 1.2m			TP-A3a-07/1.4	V=0 O=0 PID=0	
	End of TP-A3a-07. Termination at 1.5m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-08**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry with frequent rootmatter		0.0	TP-A3a-08/0.1	V=0 O=0 PID=0	Strong metal detector signal
0.3	Silty CLAY (CH) high plasticity, orange brown, hard, slightly moist			TP-A3a-08/0.5	V=0 O=0 PID=0	No metal detector signal
				TP-A3a-08/0.9	V=0 O=0 PID=0	
			1.0			
	End of TP-A3a-08. Termination at 1.2m due to refusal on Basalt					
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Piece of metal at 0-0.13

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-09**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with occasionaly gravel and frequent root matter		0.0	TP-A3a-09/0.1	V=0 O=0 PID=0	Strong metal detector signal
0.3	Silty CLAY (CH) high plasticity, mottled orange grey brown, hard, slightly moist Becoming orange brown at 0.6m			TP-A3a-09/0.6	V=0 O=0 PID=0	No metal detector signal
	End of TP-A3a-09. Termination at 0.7m due to practical refusal and loss of metal detector signal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Metal Can at 0.2m

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-10**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with frequent gravel and rootmatter		0.0	TP-A3a-10/0.1	V=0 O=0 PID=0	QC05/120413 QC06/120413 No metal detector signal
0.2	Silty CLAY (CI) medium plasticity, mottled orange grey brown, hard, slightly moist			TP-A3a-10/0.3	V=0 O=0 PID=0	
	Becoming orange brown at 0.5m		1.0	TP-A3a-10/1.0	V=0 O=0 PID=0	
	Becoming mottled black orange brown at 1.1m			TP-A3a-10/1.2	V=0 O=0 PID=0	
	End of TP-A3a-10. Termination at 1.3m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-11**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with occasionaly gravel and frequent root matter		0.0	TP-A3a-11/0.1	V=0 O=0 PID=0	No metal detector signal
0.35	Silty Clay (CI) medium plasticity, orange grey brown, hard, slightly moist			TP-A3a-11/0.6	V=0 O=0 PID=0	
	Becoming mottled black orange brown at 1.0m		1.0	TP-A3a-11/1.0	V=0 O=0 PID=0	
				TP-A3a-11/1.2	V=0 O=0 PID=0	
	End of TP-A3a-11. Termination at 1.3m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-12**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with occasionaly gravel and frequent root matter		0.0	TP-A3a-12/0.1	V=0 O=0 PID=0	No metal detector signal
0.3	Silty CLAY (CI) medium plasticity, orange grey brown, hard slightly moist			TP-A3a-12/0.5	V=0 O=0 PID=0	
			1.0	TP-A3a-12/1.3	V=0 O=0 PID=0	
	End of TP-A3a-12. Termination at 1.4m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-13**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with traces gravel and occasional root matter		0.0	TP-A3a-13/0.1	V=0 O=0 PID=0	Strong metal detector signal
0.55	Silty CLAY (CH) high plasticity, mottled orange grey brown, hard, slightly moist			TP-A3a-13/0.6	V=0 O=0 PID=0	Weak metal detector signal
			1.0	TP-A3a-13/1.0	V=0 O=0 PID=0	No metal detector signal
	End of TP-A3a-13. Termination at 1.1m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Piece of metal at 0.4m

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-14**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, grey brown, stiff, dry, with occasional root matter		0.0	TP-A3a-14/0.1	V=0 O=0 PID=0	Weak metal detector signal
0.45	Silty CLAY (CI) medium plasticity, mottled orange brown, hard slightly moist			TP-A3a-14/0.5	V=0 O=0 PID=0	No metal detector signal
	End of TP-A3a-14. Termination at 0.9m due to practical refusal and loss of metal detector signal		1.0 2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-15**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, orange grey brown, stiff, dry, with frequent root matter		0.0	TP-A3a-15/0.1	V=0 O=0 PID=0	Weak metal detector signal
0.3	Silty CLAY (CH) high plasticity, mottled orange grey brown, hard, slightly moist					No metal detector signal
				TP-A3a-15/0.5	V=0 O=0 PID=0	
	Becoming orange brown at 0.6m		1.0	TP-A3a-15/1.0	V=0 O=0 PID=0	
	End of TP-A3a-15. Termination at 1.3m due to refusal on Basalt		2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:
Three metal stakes around tree

Groundwater Observations:
None Encountered

Testpit Record: **TP-A3a-16**

Project:	Buried Drum Assessment	**Position:**	Area 3	**Date Excavated:**	12th April 2013
Location:	4549 Geelong-Ballan Rd, Fiskville	**Surface Level:**		**Equipment:**	YUCHAI YC15-7 EXCAVATOR SWL 100kg
Job No.:	212163.3			**Logged/Checked:**	MCD/ JZL

Depth (m bgl)	Description of Strata	Graphic Log	Depth (m bgl)	Samples	PID (ppm) / Contam Ranking	Remarks
0	FILL Clayey SILT (ML) low plasticity, orange grey brown, stiff, dry, with frequent root matter		0.0	TP-A3a-16/0.1	V=0 O=0 PID=0	No metal detector signal
0.4	Silty CLAY (CH) High plasticity, orange brown, hard, slightly moist			TP-A3a-16/0.4	V=0 O=0 PID=0	
				TP-A3a-16/0.9	V=0 O=0 PID=0	
			1.0			
				TP-A3a-16/1.4	V=0 O=0 PID=0	
	End of TP-A3a-16. Termination at 1.5m due to refusal on Basalt					
			2.0			

Key:
For explanation of abbreviations and symbols, refer to Cardno Lane Piper UCS or Rock Notes

Enviro TP Log 11/09

Notes:

Groundwater Observations:
None Encountered

Appendix D
22 Pages

Plates/Photographs

Buried Drums Testpit and Borehole photos
Geelong-Ballan Fiskville Training Grounds, Vic

PLATE 1 Area 1 Testpit 1

PLATE 2 Area 1 Testpit 3

PLATE 3 Area 1 Testpit 4

PLATE 4 Area 1 Testpit 5

PLATE 5 Area 1 Testpit 6

PLATE 6 Area 1 Testpit 8

PLATE 7 Area 1 Testpit 17

PLATE 8 Area 1 Testpit 18

PLATE 9 Area 1 Testpit 20

PLATE 10 Area 1 Testpit 22

PLATE 11 Area 1 Testpit 24