24 February 2015

WANDANA HEIGHTS, VICTORIA

PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT

Submitted to:
Villawood Properties
Level 1, 6 Riverside Quay
Southbank VIC 3006

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Distribution:

Villawood Properties- electronic copy
Barwon Water - electronic copy
Golder Associates - electronic copy

REPORT

Golder Associates

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1.0 INTRODUCTION

Villawood Properties (Villawood) and Barwon Water engaged Golder Associates Pty Ltd (Golder) to undertake a Preliminary Environmental Site Assessment (PESA) of a proposed development located in Wandana Heights, Victoria (the site), consisting of:

- 335 Barrabool Road, Wandana Heights (Villawood);
- 41-63 Cityview Drive, Wandana Heights (Villawood);
- 65 Cityview Drive, Wandana Heights (Barwon Water); and
- 67 Cityview Drive, Wandana Heights (Villawood).

The site location is presented in Figure 1.

Villawood and Barwon Water are working collaboratively to redevelop the site for low density residential use. The portions of the site which are to be developed by Villawood and Barwon Water respectively are shown on Figure 1.

1.1 Objective

The objective of the PESA was to assess the potential for contamination risk at the site to support a submission to council for the rezoning of the site.

1.2 Scope of Works

The PESA comprised the following activities:

- Desktop review of information on past and current activities at the site;
- Site walkover and preliminary soil sampling; and
- Collation of information and reporting.

No investigation of potential planning, cultural heritage or flora and fauna issues was carried out as part of this assessment.

2.0 SITE DETAILS

Table 1: Summary of Site Details

Item	Description	
Address	335 Barrabool Road Wandana Heights 41-63 Cityview Drive Wandana Heights 65 Cityview Drive Wandana Heights 67 Cityview Drive Wandana Heights	
Location	The site is situated approximately 5.4 km to the south-west of Geelong CBD.	
Title details	335 Barrabool Road, Wandana Heights	Lot 1 on title plan PS608915K Certificate of Title Volume 02865 Folio 825 (Parent Title Volume 02785 Folio 914)
	41-63 Cityview Drive, Wandana Heights	Lot C on title plan LP218593U Certificate of Title Volume 10035 Folio 483 (Parent Title Volume 08756 Folio 019 to Volume 08756 Folio 020)
	65 Cityview Drive, Wandana Heights	Lot 1 on title plan TP119205G Certificate of Title volume 09845 Folio 841 (Parent Title Volume 08756 Folio 020)
	67 Cityview Drive, Wandana Heights	Lot 2 on title plan PS608915K Certificate of Title volume 10039 Folio 350 (Parent Title Volume 10035 Folio 477 & Volume 10035 Folio 481)
Registered Proprietor	335 Barrabool Road, Wandana Heights	Sole Proprietor John William Baden Lamb Of "Moncrieff West" Mill Rd Mount Moriac N126270h 09/11/1987
	41-63 Cityview Drive, Wandana Heights	Sole Proprietor Samsar Pty Ltd Of 531 Moorabool St. Geelong 3220 X490803h 23/05/2001
	65 Cityview Drive, Wandana Heights	Sole Proprietor Geelong And District Water Board Of 61-67 Ryrie Street Geelong N693847n 07/09/1988
	67 Cityview Drive, Wandana Heights	Sole Proprietor Samsar Pty Ltd Of 531 Moorabool St. Geelong 3220 X490802l 23/05/2001
Site Area	335 Barrabool Road – approximately 10.37 ha 41-63 Cityview Drive – 5.98 ha 65 Cityview Drive – approximately 3.08 ha 67 Cityview Drive – approximately 3.99 ha Total site area = approximately 23.42 ha	
Council	City of Greater Geelong	
Zoning	335 Barrabool Road, 41-63 Cityview Drive and 67 Cityview Drive – Farming (FZ) 65 Cityview Drive – Public Use Service and Utility (PUZ1) Planning Scheme property reports are provided in Appendix A.	
Overlays	There are no overlays affecting the site.	
General Site Description & Current Land Use	The site is predominantly vacant open land with grass cover. There is a property including a residence and a few sheds on the northern boundary adjacent to Barrabool Road. A large water storage tank is present on the Barwon Water site with a pumping station and some telecommunication towers. An electricity transmission line also runs across the site from the north western corner through past the center of 67 Cityview Drive.	
Surrounding Land use	The west of the site is bounded by Geelong Ring Road and the north by Barrabool Road. The land to the east and south of the site consists of residential properties. Along the eastern boundary of the site is the existing Drewan Park.	
Proposed Land Use	Low density residential.	

The Planning Scheme reports and Certificate of Titles indicate that the 335 Barrabool Road property and 67 Cityview Drive property also have land associated with these two properties on the western side of the Geelong Ring Road. These two land parcels on the western side of the Geelong Ring Road have not been considered during the PESA, as indicated by the site boundary on Figure 1.

3.0 SITE SETTING

Table 2: Environmental Site Data

Summary Information	Details
Topography	The site is located at the top of a hill with the highest point near the centre of the site and the Barwon Water storage area.
Nearby Surface Water Bodies	The nearest water body is the Barwon River located approximately 1.75 km to the north of the site and approximately 2.5 km to the east of the site at its closest points. Other nearby water bodies include a lake at South Valley Park located approximately 2 km to the south-east of the site and Corio Bay approximately 6.5 km to the north-east of the site.
Surface Water Segment	The State Environment Protection Policy (SEPP) Waters of Victoria (WoV)[1] indicates the site is located within the Cleared Hills and Coastal Plains Segment.
Regional Geology	The 1:63,360 series "Geelong" Geological Mapsheet[2], indicates that the site is underlain by the Barrarbool Sandstones Formation. The formation comprises of arkose, coarse feldspathic sandstone, shale and mudstone-containing plant fossils conglomerate.
Regional Hydrogeology	Groundwater beneath the majority of the site is likely to be encountered at depths of between 20-50 m below ground level (m bgl)[3]. Groundwater in the southern corner of the site is likely to be shallower and encountered at depths of between 10-20 m below ground level (m bgl) [3].
Groundwater Segment	Groundwater salinity beneath the site is likely to comprise total dissolved solids concentrations of between 1,000 mg/L and 3,500 mg/L (m bgl) [3]. Based on this expected salinity, the groundwater is classified as Segment B under the SEPP "Groundwaters of Victoria".
Regional Groundwater Use	A search of the Department of Environment and Primary Industries Groundwater Management System (GMS)[4] database was undertaken to identify the location and use of groundwater wells in the region of the site. No groundwater bores were reported within 500 m of the site.
Inferred Groundwater Flow	Groundwater flow beneath the site is expected to be towards the Barwon River, generally to the north and north east. The regional groundwater flow direction expected to be in a north easterly direction towards Corio Bay.

4.0 HISTORICAL REVIEW

A review of the following information sources was undertaken to investigate past uses of the site:

- Historical aerial photographs;
- Certificate of title information;
- Historical street maps;
- Interviews with current site owners;
- Environment Protection Authority (EPA) Victoria Priority Sites Register; and
- Surrounding land uses including a review of the EPA Victoria library of completed Environmental Audit reports.

Details of the review of each information source are presented in the sections below.

4.1 Aerial Photograph Review

A review of aerial photographs was undertaken for the period from 1951 to 2014. The aerial photographs reviewed are presented in Appendix B. A summary of the observations made during the aerial photograph review are presented in Table 3.

Table 3: Summary of Aerial Photograph Review

Date	Observations within the Investigation Area	Surrounding Area Observations
1951	The site has largely been cleared with only a few trees visible and what appears as sheds/buildings in the middle of the northern portion of the site. A shed/building appears to be located in the Barwon Water portion of the site.	The cleared area surrounding the site appears to be used for farming and agricultural purposes with sheds/buildings noted predominantly to the east. Scattered trees and dams are noted.
1962	The site appears unchanged.	No observed change.
1970	The site appears to have been developed into paddocks.	Surrounding land to the north, west and south remains unchanged. A few more paths/roads and buildings/sheds appear to the east of the site.
1978	The shed/building previously observed in the Barwon Water portion is not visible. The remainder of the site appears unchanged.	It appears a small area of residential buildings has been added to a pocket of land in the north-east of the site that was previously vacant land.
1984 (2 images)	Visible lines observed on the eastern half of the site suggests crop harvesting activities.	No observed change.
1990	A water storage tank is visible on the Barwon Water portion.	Residential development east of the site.
2010	The north-western corner of the site appears to be in use as a laydown area for the construction of the Geelong ring road.	No observed change.

Date	Observations within the Investigation Area	Surrounding Area Observations
2014	The road construction laydown area is no longer visible in the north-western corner of the site.	Residential development has been completed to the east and south-east of the site. Some residential houses have been built to the north east of the site across Barrabool Road. Land to the west site remains vacant and largely unchanged.

4.2 Historical Street Maps

A review of historical Melway street directory maps from 1966 and 1978 was undertaken. The review did not identify specific historical information regarding the site or its surrounds.

4.3 EPA Victoria Priority Sites Register

Priority Sites are sites where EPA Victoria has issued a Clean-up Notice pursuant to Section 62A or a Pollution Abatement Notice pursuant to Section 31A or 31B (relevant to land and/or groundwater) of the Victorian *Environment Protection Act* 1970. Typically, these are sites where pollution of land and/or groundwater presents an unacceptable risk to human health or to the environment.

EPA Victoria maintains the Priority Sites Register and the register is available to the public. It is important to note that the Priority Sites Register is not a listing of all contaminated sites in Victoria, nor is it a list of all contaminated sites of which EPA has knowledge.

A search of the EPA Victoria Priority Sites Register (refer to Appendix D) indicated that the site is not listed on the Priority Sites Register and is not in the vicinity of a site which is listed on the Priority Sites Register.

4.4 EPA Victoria Environmental Audit Reports

The Environmental Audit System was established in Victoria by EPA Victoria as a means by which planning authorities, site owners, purchasers and others are provided with assurance regarding the condition of the property and its suitability for use, frequently in the context of site redevelopment.

Each Audit undertaken under Section 53X of the Victorian *Environment Protection Act* 1970 will have a Certificate or Statement attached, and a list of these Audits is publicly available. It is important to note that the list of audits is not a register of contaminated or clean sites but rather is a list of properties that have been found to be suitable (in some cases subject to certain conditions) for the proposed land use.

A search of the EPA Victoria public library[5] for completed Environmental Audit reports was undertaken and indicated that there have been no completed Audits within 1 km of the site.

4.5 Interviews

Golder interviewed the three current owners of the parcels which form the site on 5 February 2015. The key findings from the interviews have been summarised below.

John Lamb, owner of 335 Barrabool Rd

The Lamb family have owned their property since 1928 and have used it for cattle and sheep grazing and some cropping. They have a residence and associated sheds located along the northern boundary of the site near Barrabool road. No underground storage tanks, sheep dips, asbestos or importation of fill were reported to have been present or occurred. The north-western portion of the site was used by the construction crew of the Geelong Ring Road between approximately 2007-2010 for storage and offices.

Barry Fagg, owner of 41-63 and 67 Cityview Drive

The Fagg family have owned their properties since approximately the 1960s. Over this time, their properties have been used for cropping and grazing. No infrastructure is present on their properties with the exception of some fencing, the electrical transmission towers and a possible groundwater well and a water tank.

Tony Belcher, Stategic Projects Co-ordinator from Barwon Water, 65 Cityview Drive,

Barwon Water (previously the Geelong and District Water Board) have owned their property since 1988 when they purchased it from McQuat and Singleton Pty Ltd, who it was thought historically used the property for farming and grazing. A steel 6ML water storage tank was constructed in 1989 and a pumping station and telecommunication towers and sheds have since been constructed. No other chemical use, underground storage tanks, fuels, spill incidents, asbestos or importation of fill was reported to have been present or occurred.

4.6 Certificates of Title

Current certificates of title are presented in Appendix C. Villawood indicated that their portion of the site had been historically used for farming practices and the Barwon Water site for water storage. This aligns with the observations from the site history review. Searches for historical certificates of title were not requested.

4.7 Summary of Historical Review

The findings of the historical review indicated that the site has been used predominantly for farming and agricultural purposes along with the residence and sheds located along the northern boundary on Barrabool Road. The Barwon Water site was developed for water storage in 1989 along with a pumping stations and telecommunication towers and huts. The north-western portion of the site was used by the construction crew of the Geelong Ring Road between approximately 2007-2010 for storage and offices.

5.0 SITE WALKOVER

Golder undertook a site walkover on 4 February 2015. The site layout recorded during the site visit is summarised in Table 4. Figure 1 is annotated with areas of interest observed on the site.

Table 4: Site Walkover Observations

Summary Information	Details
Surrounding Land Use	North: Vacant, currently being developed for residential use
	South: Geelong Ring Road and residential and agricultural land use
	East: Residential and open space use (Drewan Park)
	West: Geelong Ring Road and agricultural land use
Site Surface (hardstand, gravel, etc.)	The majority of the site surface was covered predominantly by grass with some gravels around the Barwon Water Storage Tank.
Site Description and Infrastructure	A residence and associated sheds is located along the northern boundary on Barrabool Road. The Barwon Water site has one Water Storage Tank, a pumping station along with telecommunication towers and huts. An electricity transmission line also runs across the site from the north-western corner through past the center of 67 Cityview Drive. The remainder of the site is vacant with grass coverage, some fencing and some sheep.
Evidence of Staining	No areas of staining were observed.
Vegetation Condition	The majority of site vegetation was in good (non-stressed) condition.
Groundwater Bores	A possible groundwater bore and associated water tank was observed on the northern boundary of 67 Cityview Drive, apparent for agricultural and stock watering purposes.
Waste	No evidence of buried waste was observed during the site walkover or during the intrusive soil investigation. A small surface stockpile of green waste and wood was observed on 335 Barrabool Rd.

6.0 POTENTIAL CONTAMINATION RISK

The desktop site history review and site walkover assessed the potential for past and current activities on the site to have resulted in contamination. The following table presents a summary of potential sources of contamination, details on potential contaminants that may be associated with these areas and provides a relative priority ranking for investigation of each item with respect to contamination at the site. It should be noted the priority ranking is not intended to infer severity or extent of impact; rather, it is the intention to indicate the potential for the contamination issue to exist at the site.

Table 5: Summary of Potential Sources, Contaminants and Risk Ranking

Potential Sources	Description	Potential Contaminants	Qualitative Contamination Risk Ranking	
			Soil	Groundwater
Agricultural Land Use	Residual contamination of the surface soils underlying the paddocks from pesticide application is possible, although in more recent years, pesticides used in accordance with manufacturers' directions are considered unlikely to have resulted in high levels of residual soil contamination as modern agricultural chemicals are generally not persistent in the environment. Potential for scatter, burial and/or burning of general farm wastes. Potential for general spills of chemicals	Broad range of potential contaminants, including metals, OCP, OPP	**Low to Medium**	**Low**
Farming Machinery and Sheds	The storage and use of fuels is possible in and around the sheds and machinery storage south of the residence along Barrabool Rd.	Metals, OCP, OPP, TRH, PAH	**Low to Medium**	**Low**
Road Construction Laydown Area	The north-western corner was used as a road construction laydown area and therefore the potential for fuels and asphalt (PAHs) is possible.	Metals, TRH, PAH	**Low to Medium**	**Low**

Notes:

OCP organochlorine pesticides
OPP organophosphate pesticides
TRH total recoverable hydrocarbons
PAH polycyclic aromatic hydrocarbons
MAH monocyclic aromatic hydrocarbons

7.0 PRELIMINARY SOIL ASSESSMENT

7.1 Scope

A preliminary soil assessment was undertaken of near surface soils at the Villawood portion of the site to further assess the risk of contamination targeting potential source areas as identified in Table 5. No intrusive soil investigation was conducted on the Barwon Water portion of the site. As part of the targeted program, 21 surface and sub-surface soil samples were collected. Of the 21 samples collected 10 were analysed from a total of eight discrete locations.

Eight soil sampling locations across an area of approximately 23.4 ha is less than the recommended sampling density for site characterisation using a square grid set out in Australian Standard AS4482.1-2005 *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*[6], (the Australian Standard recommends 55 sampling points for a site of 5 ha and does not provide specific guidance for sites larger than 5 ha). However, given the expected low risk of contamination identified based on the site history, the preliminary targeted sampling program is considered to be appropriate to provide an indication of site contamination risk.

7.2 Field Work and Analysis

Eight soil sampling locations were chosen across different areas of the site to investigate the potential presence of shallow soil contamination at the site (Figure 1). At each sampling location, surface and sub-surface samples were collected using a hand auger to a maximum depth of 0.5 m below ground level.

The laboratory analytical schedule included all or part of the following parameters:

- pH;
- Sulphate (as SO_4);
- Metals (arsenic, beryllium, boron, cadmium, chromium (hexavalent), cobalt, copper, lead, manganese, mercury, nickel, selenium and zinc);
- Total recoverable hydrocarbons (TRH);
- Polycyclic aromatic hydrocarbons (PAH);
- Organochlorine pesticides (OCP); and
- Organophosphorus pesticides (OPP).

One sample was also analysed for electrical conductivity (EC), total organic carbon, iron and moisture.

7.3 Adopted Soil Investigation Levels

Indicators and objectives for protection of beneficial uses of land are set out in the State Environment Protection Policy (Prevention and Management of Contamination of Land) (Land SEPP).

The Land SEPP outlines Land Use Categories and specifies beneficial uses which are be protected for land use categories. Table 6 below summarises the adopted land use categories and the relevant beneficial uses for low density residential use.

Table 6: Protected Beneficial Uses of Land

Beneficial Use To Be Protected	Land Use
	Sensitive Use – Low Density Residential
Maintenance of Ecosystems:	
Natural Ecosystems	×
Modified Ecosystems	✓
Highly Modified Ecosystems	✓
Human Health	✓
Buildings and Structures	✓
Aesthetics	✓
Production of food, flora and fibre	✓

The Land SEPP outlines indicators and objectives for concentrations of contaminants, based on the relevant beneficial uses. Predominantly based on the National Environment Protection Measure (Assessment of site Contamination) Amendment 2013 (NEPM)[7], the adopted soil investigation levels for the protection of beneficial uses are outlined in Appendix F. Analytical results have been summarised in Table F1 in Appendix F.

7.4 Soil Sampling

Soil sampling was undertaken in accordance with Golder's standard sampling protocols. Primary samples were inspected and ranked for the presence of visual or olfactory evidence of contamination.

Samples recovered were screened for the presence of detectable volatile compounds with a photo-ionisation detector (PID). The PID was fitted with a 10.6 eV lamp and was calibrated with isobutylene gas before use. Logs of soil sampling locations provide soil descriptions and visual and olfactory assessment of samples and PID readings are presented in Appendix E. Figure 1 presents a plan of the sample locations.

The following quality assurance (QA) procedures were also conducted during the field investigation:

- Tracking of sample movements using Chain of Custody (CoC) documentation;
- Collection and analysis of quality control samples including: one primary duplicate and one secondary duplicate.
- Use of NATA registered laboratories for chemical analyses; and
- Performance of internal laboratory control tests.

Golder considers the QA procedures to have been successful in assuring reliability of the analytical data presented in this assessment. A review of the quality assurance/quality control (QAQC) program is provided in Appendix H.

Soil samples were collected in jars which were capped with Teflon lined lids supplied by the laboratory. The jars were labelled immediately and stored in a chilled cool-box. The samples were then dispatched to the laboratory accompanied by CoC documentation. Sampling equipment was washed between sampling locations to minimise the possibility of cross-contamination.

Primary samples were submitted to the nominated primary laboratory, Eurofins and the secondary sample was sent to ALS, both of which are registered by the National Association of Testing Authorities (NATA) for the analyses performed. Laboratory analytical certificates are provided in Appendix G.

7.5 Sub-Surface Ground Conditions

Soil samples collected appeared to be generally either silty topsoil or natural silty clay. No elevated PID readings were observed during the field screening of soil samples. No observations of visual or olfactory

evidence of contamination were found with the exception of trace glass fragments, sheep droppings, waste wool fragments and waste timber noted at the surface near location BH4. Soil sample descriptions are presented in Appendix E.

7.6 Discussion of Soil Results

This section compares the soil results (including field observations and laboratory analytical results) against adopted assessment criteria as outlined in Section 7.2 and further discussed in Appendix F.

Consideration of Human Health – Low Density Residential Setting

All soil samples submitted for laboratory analysis reported chemical concentrations below the adopted screening criteria for low density residential land use (NEPM HIL A criteria and NEPM HSL A/B).

It is noted that detectable concentrations of DDE and TRH (>C16 - C34 Fraction F3), were reported for which no specific criteria are provided within NEPM (2013) for consideration of human health.

One of the eight samples tested reported a DDE concentration of 0.06 mg/kg. NEPM (2013) does not provide criteria specifically for DDE however; it provides criterion of 240 mg/kg for the sum of DDT, DDE and DDD. As both DDT and DDD were reported below the limit of reporting for this sample, the DDE results is considered to be acceptable with respect to the adopted criterion for the sum of DDT, DDE and DDD.

Concentrations of TRH (>C16 - C34 Fraction F3) were reported ranging from 110-170 mg/kg. For petroleum mixtures consisting of typical Australian diesel/petrol fuels CRC CARE (2011)[8] provides a direct contact soil criterion of 4,500 mg/kg for a low density residential setting for TRH >C16 - C34 Fraction F3. For non-typical petroleum mixtures CCME (2008)[9] provides a criterion of 300 mg/kg (coarse-grained soil) for TRH (>C16 - C34 Fraction F3) for parkland/residential land use. Given that the reported TRH >C16 - C34 Fraction F3 concentrations were below both the CRC Care (2011) and CCME (2008) criteria, these results are not considered to indicate a risk to human health for the proposed land use.

In summary, the reported condition of site soils is not considered to present an unacceptable risk to the beneficial use of human health in a low density residential setting.

Consideration of Ecosystems – Urban Residential Setting

Laboratory analytical results were reported below the adopted assessment criteria adopted for the maintenance of highly modified ecosystems with the exception of one zinc result from location BH4. The zinc result reported a concentration of 440 mg/kg whereas the derived NEPM EIL was 220 mg/kg.

In general, the reported condition of site soils is considered to present a low risk to flora and fauna in a low density residential setting, however the reported level of zinc may indicate a low to moderate risk. Given that the site represents a highly disturbed ecosystem, the reported condition of site soils is considered unlikely to represent an unacceptable ecological risk.

Consideration of Buildings and Structures

Laboratory analytical results reported concentrations of sulphate (as S) in soil of up to 62 mg/kg and pH in a range between 5 and 6 pH units. These results generally classify as non-aggressive for exposure for concrete piles with the exception of BH2 and BH7 which would classify as mild exposure for concrete piles (driven by low pH).

Consideration of Aesthetics

During the site walkover and limited soil assessment, aesthetic impacts were observed at the surface near location BH4. The impacts comprised glass fragments, sheep droppings, wool and timber near the adjacent sheds. The potential for these impacts to represent an unacceptable aesthetic risk is generally low. To mitigate the potential for these impacts to represent an aesthetic risk, we recommend that surface debris in this area should be removed prior to redevelopment.

8.0 CONSIDERATION OF STATUTORY PLANNING PROCESSES

The *Planning and Environment Act* 1987 requires the Responsible Authority, before deciding on a planning permit application, to consider "*any significant effects which the responsible authority considers the use or development may have on the environment or which the responsible authority considers the environment may have on the use or development"* (Section 60). The permit may be a permit for works, use or subdivision.

We have made reference to the following Department of Sustainability and Environment (DSE) document in relation to planning and process:

- DSE General Practice Note on *"Potentially Contaminated Land"*, dated June 2005[10].

The document was prepared to assist planning authorities and others in identifying potentially contaminated land and determining the appropriate level of assessment required for permit purposes.

8.1 Identifying Potentially Contaminated Land

The DSE Practice Note indicates ways in which land can be identified as being potentially contaminated. This includes a list of generic land uses considered to have low, medium and high potential, as well as indicators such as site history or the presence of an Environmental Audit Overlay (EAO) at the site. Table 1 in the DSE Practice Note lists land uses that are considered to pose a high risk for potential contamination.

8.2 Determining Land Use Sensitivity and Level of Assessment

The DSE Practice Note also provides a framework for identifying potential risk, sensitivity of land use and in turn what the associated planning response should be including whether a Statutory Environmental Audit or environmental site assessment is required. The matrix presented in the Practice Note is shown below as Table 7.

Table 7: DSE Practice Note Assessment Matrix

Proposed Land Use	**Potential For Contamination**		
	High	***Medium***	***Low***
Sensitive Uses			
Child care centre, Pre-school or Primary school	A	B	C
Dwellings, residential buildings etc.	A	B	C
Other Uses			
Open Space	B	C	C
Agriculture	B	C	C
Retail or office	B	C	C
Industry or warehouse	B	C	C

There are three possible outcomes as follows:

i) Require an environmental audit.

ii) Require a site assessment from a suitably qualified environmental professional if insufficient information is available to determine if an audit is appropriate. If advised that an audit is not required, default to (c).

iii) General duty under Section 12(2)(b) and Section 60(1)(a)(iii) of the Planning and Environment Act 1987.

We note that the proposed residential development of the site would be considered sensitive use by a planning authority.

8.3 Assessment of Land under Table 6 of the DSE Practice Note

The PESA has indicated a low to medium risk of potential contamination driven by the site's history of general agricultural use, associated farming machinery and sheds and the presence of a former road construction laydown area in the north-western portion of the site.

The site walkover and the limited intrusive soil investigation further assessed the risk of contamination to soil associated with the historical use of the site. Section 7.6 outlines that concentrations of contaminants in soil do not exceed adopted assessment criteria for the applicable beneficial uses outlined in the SEPP, with the exception of one zinc result above the adopted ecological criterion, which was considered unlikely to represent an unacceptable ecological risk.

It is Golder's opinion that the former uses of the site do not present an unacceptable contamination risk to the proposed redevelopment of the site for uses including sensitive use (low density residential). Furthermore, Golder considers that an Environmental Audit of the site is not required.

9.0 CONCLUSIONS

Golder has undertaken a Preliminary Environmental Site Assessment (whole site) and a targeted soil investigation (Villawood portion of the site) at the site consisting of 335 Barrabool Road, 41-63 Cityview Drive, 65 and 67 Cityview Drive, Wandana Heights, Geelong (refer to Figure 1). The assessment was undertaken to assist Villawood and Barwon Water in their rezoning application to the City of Greater Geelong.

Golder has undertaken a desktop review of environmental contamination risks supported by a field inspection and intrusive soil assessment on 4 February 2015. Based on the PESA findings, the potential for contamination at the site is considered to be low to moderate.

The PESA has indicated a low to medium risk of potential contamination driven by the site's history of general agricultural use, associated farming machinery and sheds and the presence of a former road construction laydown area in the north-western portion of the site.

It is Golder's opinion that the former uses of the site do not present an unacceptable contamination risk to the proposed redevelopment of the site for uses including sensitive use (low density residential). Furthermore, Golder considers that an Environmental Audit of the site is not required.

The observed and reported condition of site soils:

- is not considered to present an unacceptable risk to the beneficial use of human health in a low density residential setting.
- is considered to present a low risk to flora and fauna in a low density residential setting, however the reported level of zinc may indicate a low to moderate risk. Given that the site represents a highly disturbed ecosystem, the reported condition of site soils is considered unlikely to represent an unacceptable ecological risk.
- generally classify as non-aggressive for exposure for concrete piles with the exception of BH2 and BH7 which would classify as mild exposure for concrete piles (driven by low pH).
- does not present an unacceptable aesthetic risk with the exception glass fragments, sheep droppings, waste wool and timber near at the surface near location BH4.

10.0 RECOMMENDATIONS

Based on the conclusions of the PESA, we make the following recommendations:

- The potential aesthetic impacts at location should be mitigated via the removal surface debris in this area prior to redevelopment.
- A general soil management protocol should be adopted during the development of the site in order to manage residual uncertainty regarding the potential for contamination at the site. The protocol would require:
  - Should any stained or odourous soils or soils containing waste be identified, these soils should be assessed by an Environmental Consultant;
  - Any material suspected of being an asbestos containing material (ACM) should be assessed by a suitably qualified practitioner. Any confirmed asbestos containing material should be handled and disposed of by a suitably qualified and licenced asbestos contractor;
  - Any soil brought to site as fill are confirmed as meeting the EPA requirements for Fill Material; and
  - Any soil taken off-site meets the EPA requirements for the off-site disposal of soils.

11.0 REFERENCES

[1] State Government of Victoria, 2003, *State Environmental Protection Policy (Waters of Victoria)*

[2] Geological Survey of Victoria, 1997*, Melbourne Geological Map Series 1:63 360*

[3] State Government of Victoria, 1997, *State Environmental Protection Policy (Groundwaters of Victoria)*

[4] Department of Environment and Primary Industries, *GMS Database,* accessed 19 February 2015, http://data.water.vic.gov.au/monitoring.htm

[5] Environment Protection Authority Victoria 2014, *List of Issued Certificates and Statements of Environmental Audit,* www.epa.vic.gov.au/envaudit/environmental_audits.asp

[6] Australian Standard AS4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds

[7] National Environment Protection Council, April 2013. *National Environment Protection (Assessment of Site Contamination) Measure*.

[8] CRC CARE 2011. CRC for Contamination Assessment and Remediation of the Environment. Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater. Part 1 Technical Development Document

[9] CCME 2008. Canadian Council of Ministers of the Environment, Canada Wide Standards for Petroleum Hydrocarbons (PHC) in Soil. Dated January 2008.

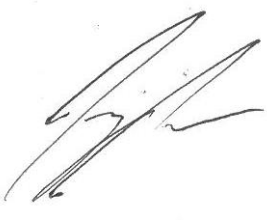
[10] DSE, 2005, General Practice Note on *"Potentially Contaminated Land"*, dated June 2005.

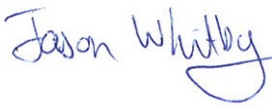
12.0 LIMITATIONS

Your attention is drawn to the document - "Limitations" (LEG04, RL1), which is presented in Appendix I. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by Golder, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

Report Signature Page

GOLDER ASSOCIATES PTY LTD





Freya Amon
Environmental Engineer

Jason Whitby
Associate

FRA-JH/JMW/fr-jh

A.B.N. 64 006 107 857

j:\env\2014\147613076m - wandana heights\correspondence out\147613076m-001-r-rev0.docx

LOCATION MAP

LEGEND

- Investigation Locations
- Property Boundary
- Historical Road Construction Storage Area
- Barwon Water
- Site Boundary

NOTES

1. Road and property data sourced from VicMap.
2. Aerial imagery sourced from NearMap. Date of capture 07/11/2014
3. Location Map data sourced from ESRI basemaps.

COPYRIGHT

0 40 80 120 160 200
METRES

REFERENCE SCALE: 1:2,500 (at A3)

PROJECTION: GDA 1994 MGA Zone 55

CLIENT
VILLAWOOD PROPERTIES / BARWON WATER

PROJECT
PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT
BARRABOOL RD, WANDANA HEIGHTS

TITLE
INVESTIGATION LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-02-20
PREPARED	JPH
DESIGN	-
REVIEW	FRA
APPROVED	JMW

PROJECT No.	CONTROL	Rev.	FIGURE
147613076M	001-R	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3
25mm
0

Path: J:\Env\2014\147613076M - Wandana Heights\Technical Doc\GIS\Project\147613076-001-R-Fi001-RevG.mxd

APPENDIX A

Planning

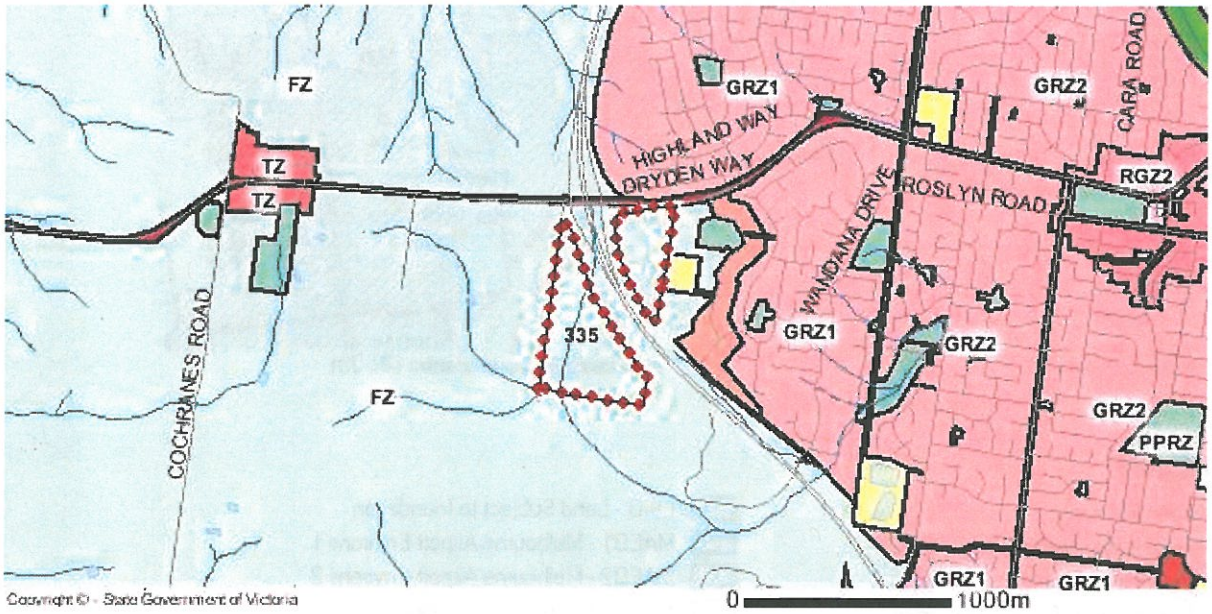
Planning Property Report

from www.dtpli.vic.gov.au/planning on 16 February 2015 03:04 PM

Address: 335 BARRABOOL ROAD WANDANA HEIGHTS 3216
Lot and Plan Number: Lot 1 PS608915
Local Government (Council): GREATER GEELONG **Council Property Number:** 220713
Directory Reference: Melway 450 H10

Planning Zone

FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

Zones Legend

- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- PZ - Port
- R1Z - General Residential
- R2Z - General Residential
- R3Z - General Residential
- RAZ - Rural Activity
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RGZ - Residential Growth
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

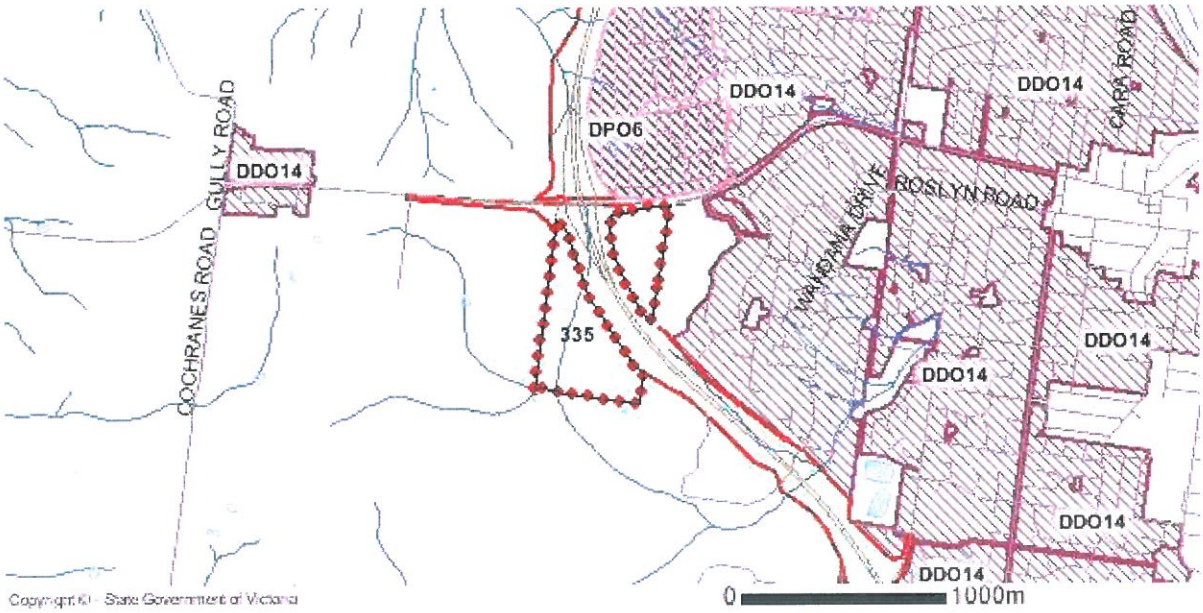
Planning Overlay

None affecting this land - there are overlays in the vicinity

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DEVELOPMENT PLAN OVERLAY (DPO)

PUBLIC ACQUISITION OVERLAY (PAO)



Overlays Legend

- AEO - Airport Environs
- BMO - Bushfire Management (also WMO)
- CLPO - City Link Project
- DCPO - Development Contributions Plan
- DDO - Design & Development
- DDOPT - Design & Development Part
- DPO - Development Plan
- EAO - Environmental Audit
- EMO - Erosion Management
- ESO - Environmental Significance
- FO - Floodway
- HO - Heritage
- IPO - Incorporated Plan
- LSIO - Land Subject to Inundation
- MAEO1 - Melbourne Airport Environs 1
- MAEO2 - Melbourne Airport Environs 2
- NCO - Neighbourhood Character
- PO - Parking
- PAO - Public Acquisition
- RO - Restructure
- RCO - Road Closure
- SBO - Special Building
- SLO - Significant Landscape
- SMO - Salinity Management
- SRO - State Resource
- VPO - Vegetation Protection

Note: due to overlaps some colours on the maps may not match those in the legend.

Further Planning Information

Planning scheme data last updated on 12 February 2015.

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Department of
Transport, Planning and
Local Infrastructure

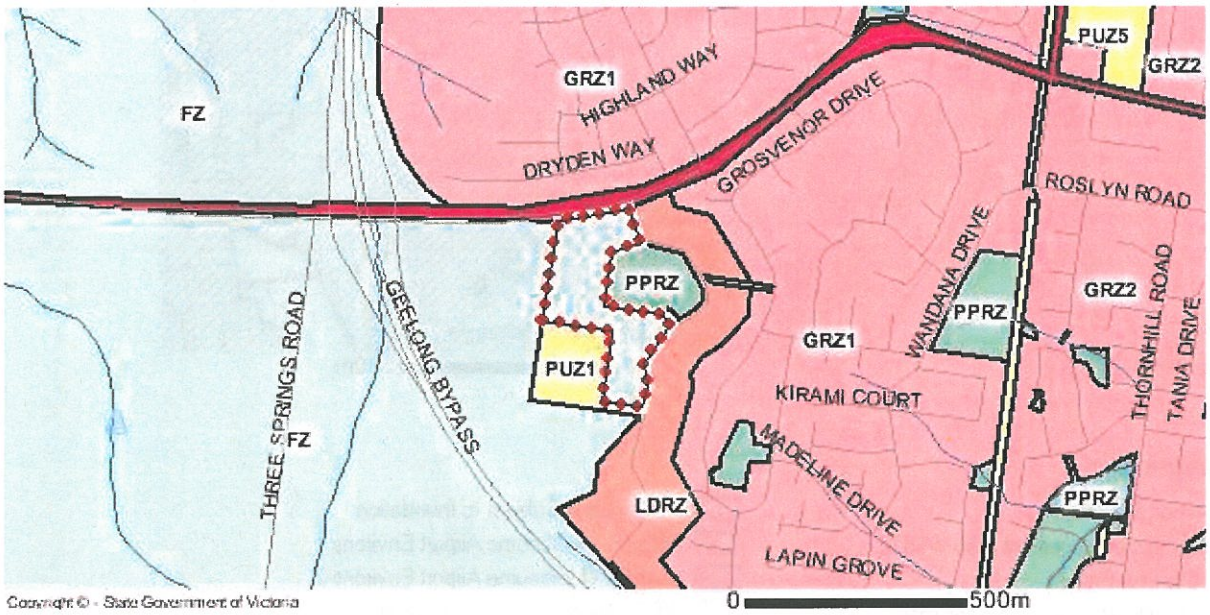
Planning Property Report

from www.dtpli.vic.gov.au/planning on 16 February 2015 02:19 PM

Address: 41-63 CITYVIEW DRIVE WANDANA HEIGHTS 3216
Lot and Plan Number: Lot C LP218593
Local Government (Council): GREATER GEELONG **Council Property Number:** 312900
Directory Reference: Melway 450 H11

Planning Zone

FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

Zones Legend

- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- PZ - Port
- R1Z - General Residential
- R2Z - General Residential
- R3Z - General Residential
- RAZ - Rural Activity
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RGZ - Residential Growth
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- -- Urban Growth Boundary

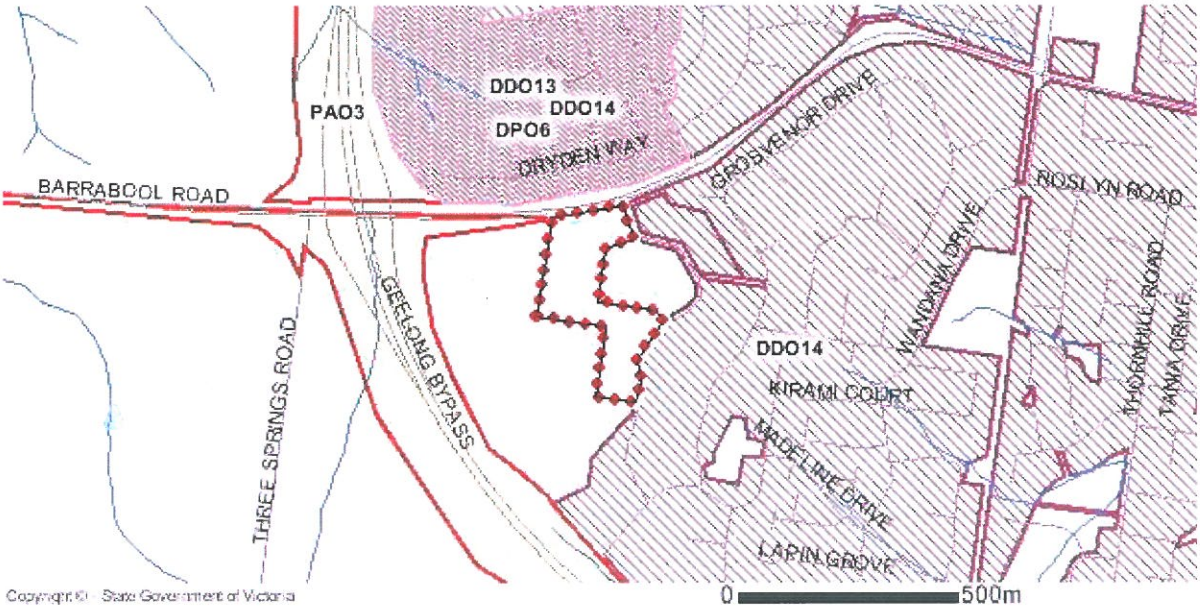
Planning Overlay

None affecting this land - there are overlays in the vicinity

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DEVELOPMENT PLAN OVERLAY (DPO)

PUBLIC ACQUISITION OVERLAY (PAO)



Overlays Legend

- AEO - Airport Environs
- BMO - Bushfire Management (also WMO)
- CLPO - City Link Project
- DCPO - Development Contributions Plan
- DDO - Design & Development
- DDOPT - Design & Development Part
- DPO - Development Plan
- EAO - Environmental Audit
- EMO - Erosion Management
- ESO - Environmental Significance
- FO - Floodway
- HO - Heritage
- IPO - Incorporated Plan
- LSIO - Land Subject to Inundation
- MAEO1 - Melbourne Airport Environs 1
- MAEO2 - Melbourne Airport Environs 2
- NCO - Neighbourhood Character
- PO - Parking
- PAO - Public Acquisition
- RO - Restructure
- RCO - Road Closure
- SBO - Special Building
- SLO - Significant Landscape
- SMO - Salinity Management
- SRO - State Resource
- VPO - Vegetation Protection

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Further Planning Information

Planning scheme data last updated on 12 February 2015.

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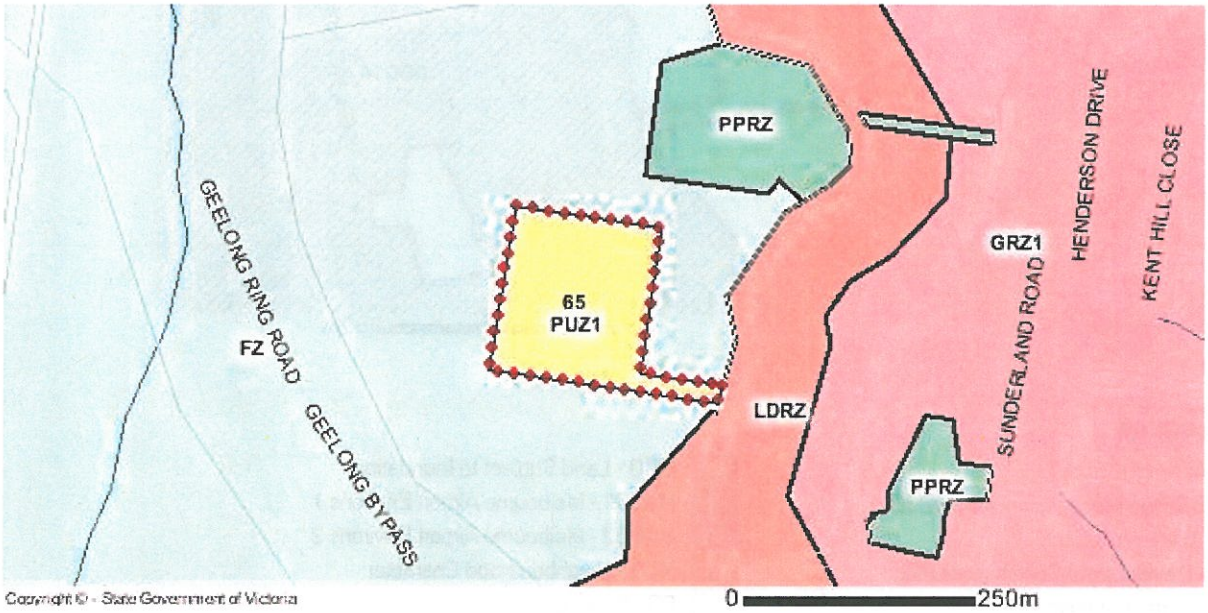
Planning Property Report

from www.dtpli.vic.gov.au/planning on 16 February 2015 03:16 PM

Address: 65 CITYVIEW DRIVE WANDANA HEIGHTS 3216
Lot and Plan Number: Lot 1 TP119205
Local Government (Council): GREATER GEELONG **Council Property Number:** 241728
Directory Reference: Melway 450 H11

Planning Zone

PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)
SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY



Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

Zones Legend

- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- PZ - Port
- R1Z - General Residential
- R2Z - General Residential
- R3Z - General Residential
- RAZ - Rural Activity
- RCZ - Rural Conservation
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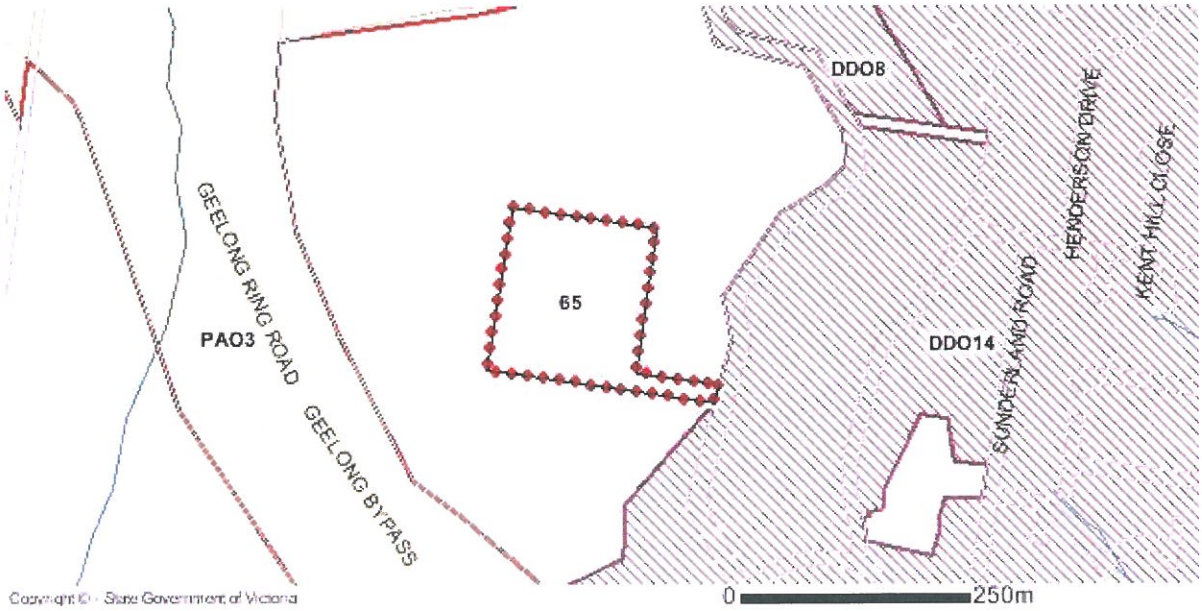
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlay

None affecting this land - there are overlays in the vicinity

DESIGN AND DEVELOPMENT OVERLAY (DDO)

PUBLIC ACQUISITION OVERLAY (PAO)



Overlays Legend

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- BMO - Bushfire Management (also WMO)
- CLPO - City Link Project
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- DDO - Design & Development
- DDOPT - Design & Development Part
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- EAO - Environmental Audit
- EMO - Erosion Management
- ESO - Environmental Significance
- FO - Floodway
- HO - Heritage
- IPO - Incorporated Plan
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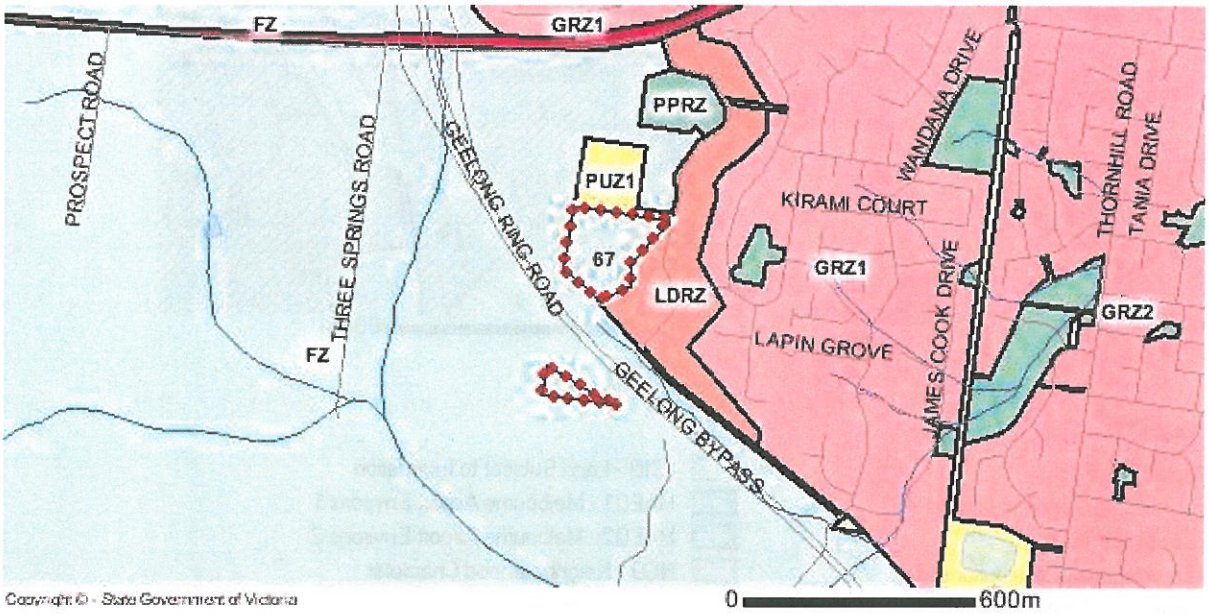
Planning Property Report

from www.dtpli.vic.gov.au/planning on 16 February 2015 03:17 PM

Address: 67 CITYVIEW DRIVE WANDANA HEIGHTS 3216
Lot and Plan Number: Lot 2 PS608915
Local Government (Council): GREATER GEELONG **Council Property Number:** 312899
Directory Reference: Melway 450 H11

Planning Zone

FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE



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- B4Z - Commercial 2
- B5Z - Commercial 1
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- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
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- GWZ - Green Wedge
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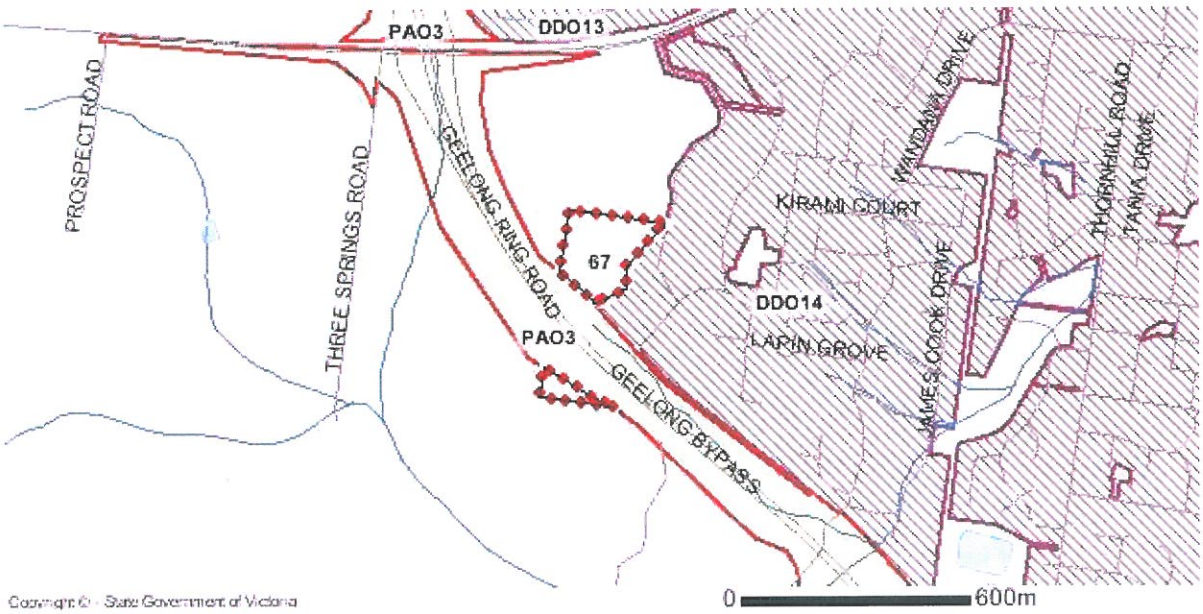
- RGZ - Residential Growth
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlay

None affecting this land - there are overlays in the vicinity

DESIGN AND DEVELOPMENT OVERLAY (DDO)

PUBLIC ACQUISITION OVERLAY (PAO)



Overlays Legend

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APPENDIX B

Historical Aerial Photographs

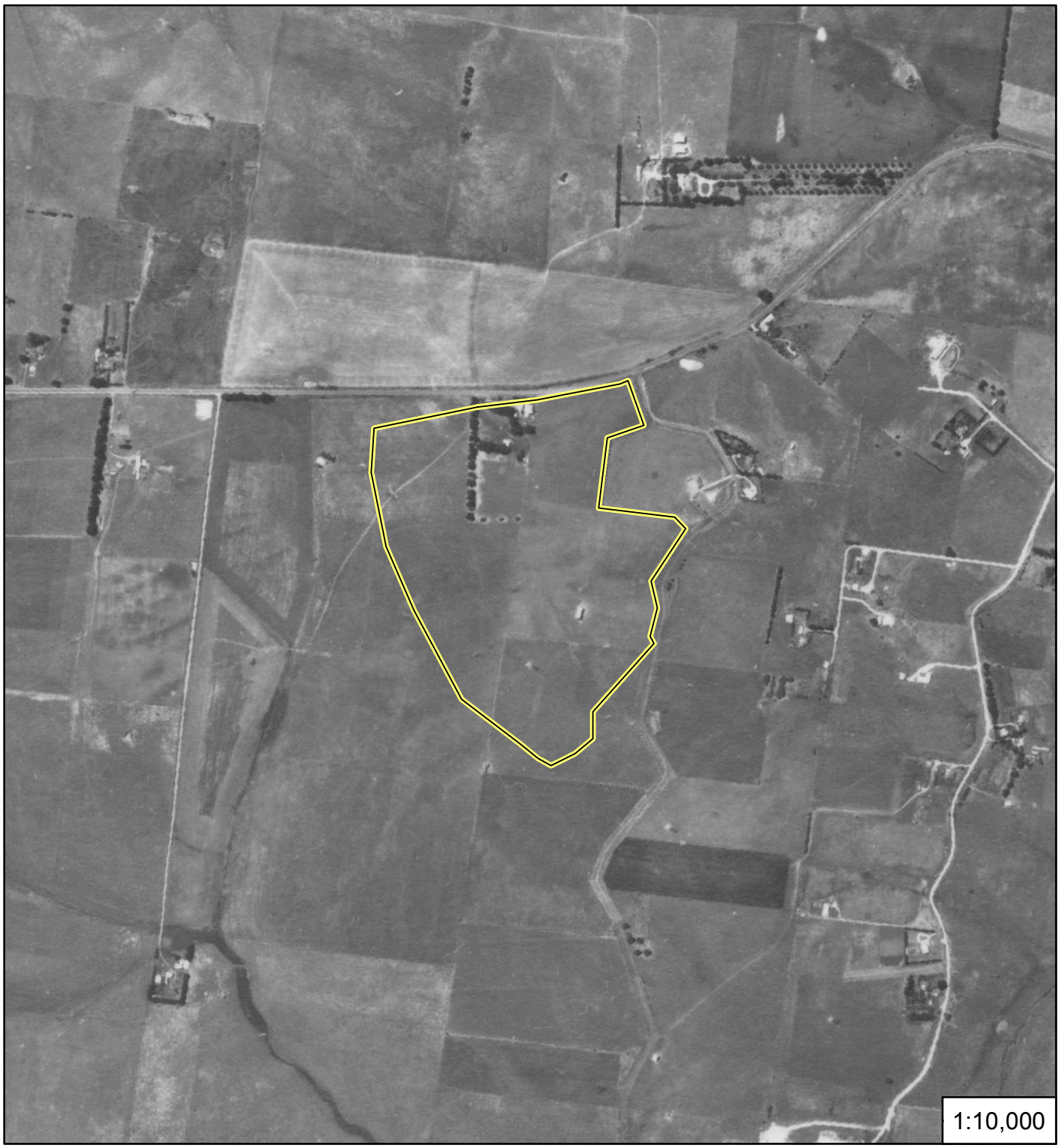
CheckSite Historical

Historical Aerial Imagery

Image Date: Sept 1951

Scale of Original Photograph: 1:31,680

Photo ID: p27r2y09_1951film27fr5052_photoid1733488_serial01150_dpi1000.jp2



CS00255

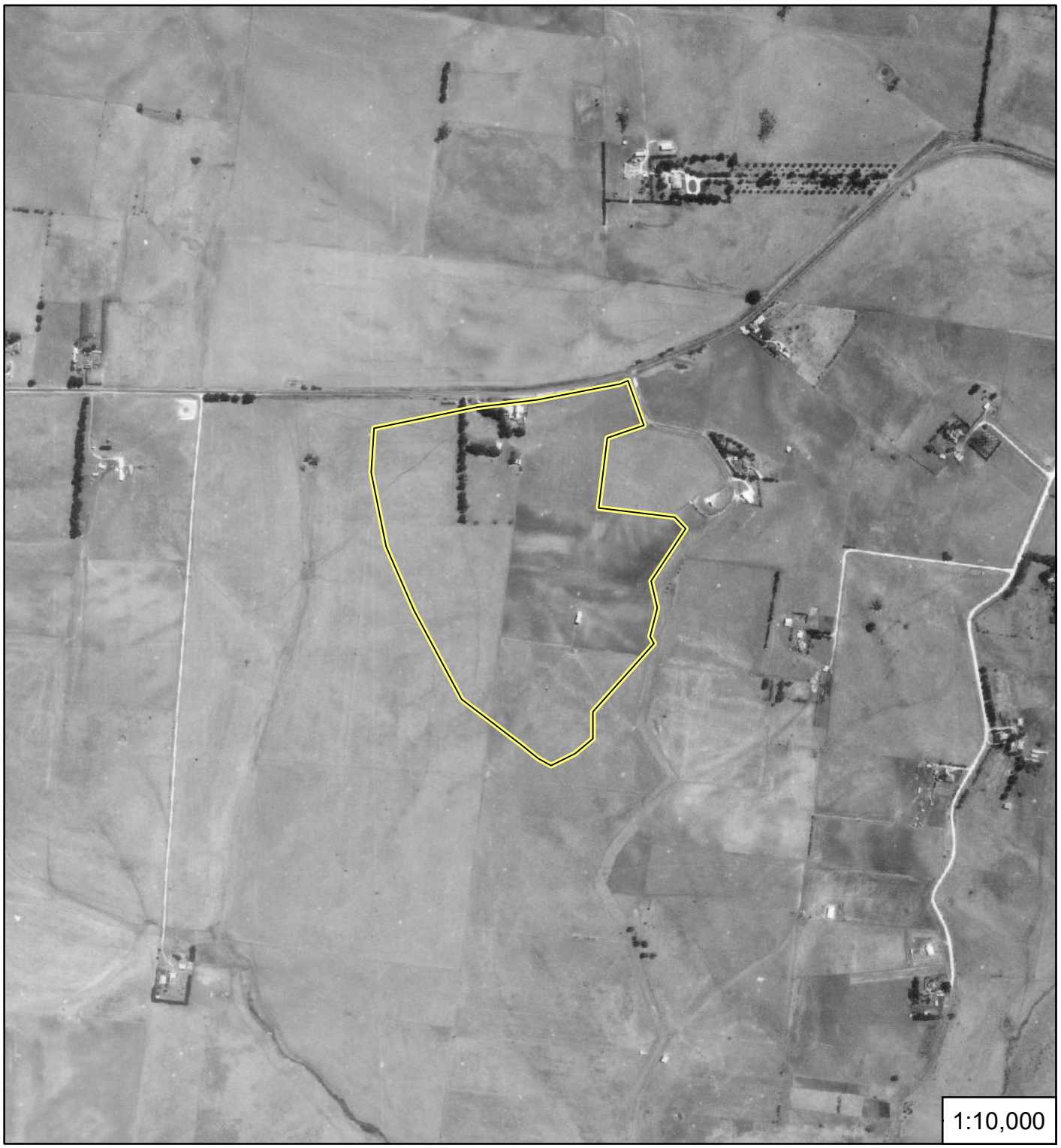
CheckSite Historical

Historical Aerial Imagery

Image Date: Jan 1962

Scale of Original Photograph: 1:19,200

Photo ID: p539r9y01_1962film1526fr103_photoid1791473_serial02250_dpi1000.jp2



CS00255

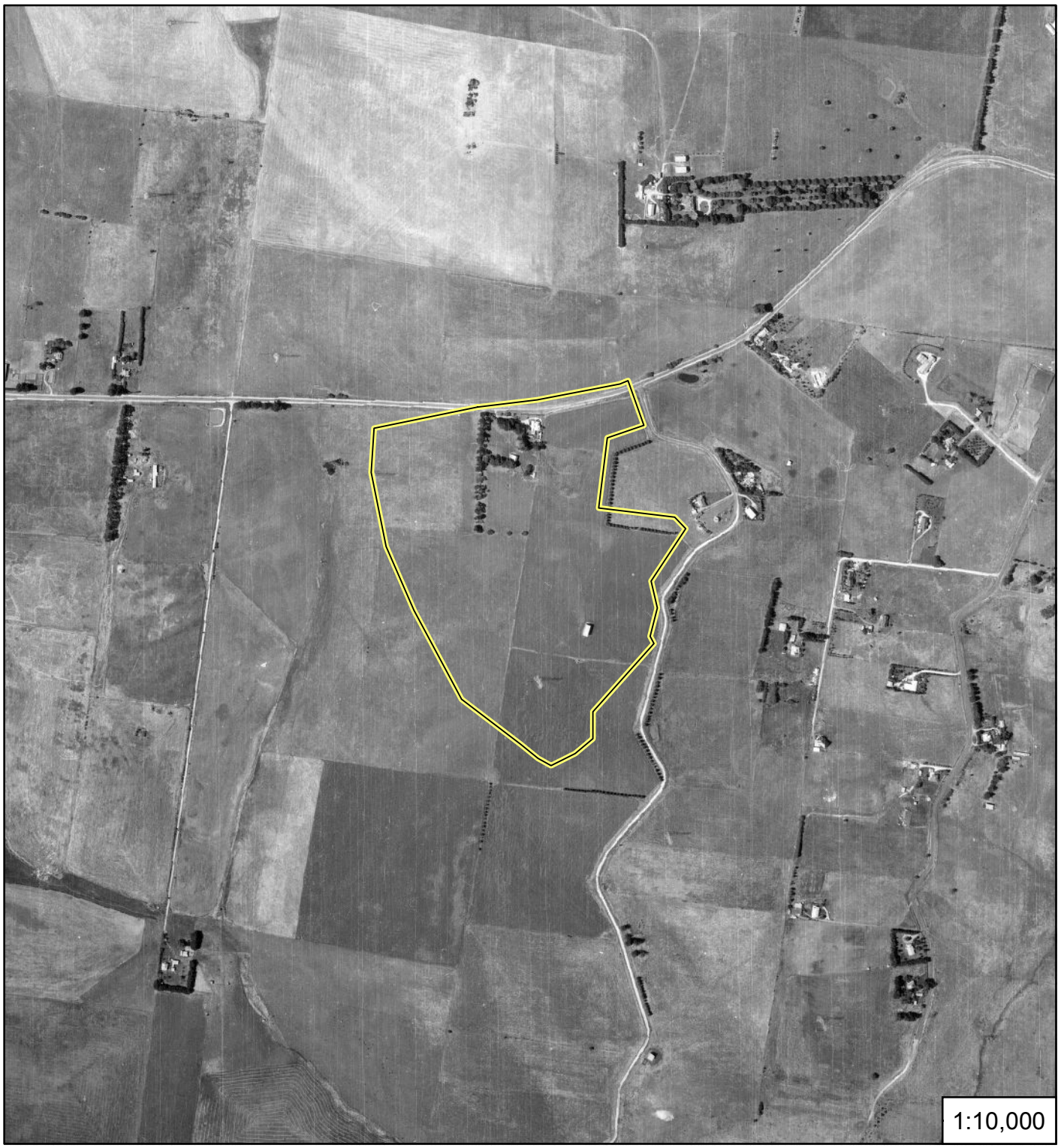
CheckSite Historical

Historical Aerial Imagery

Image Date: Dec 1970

Scale of Original Photograph: 1:25,000

Photo ID: 2457_030_05_16um_19121970.jp2



CS00255

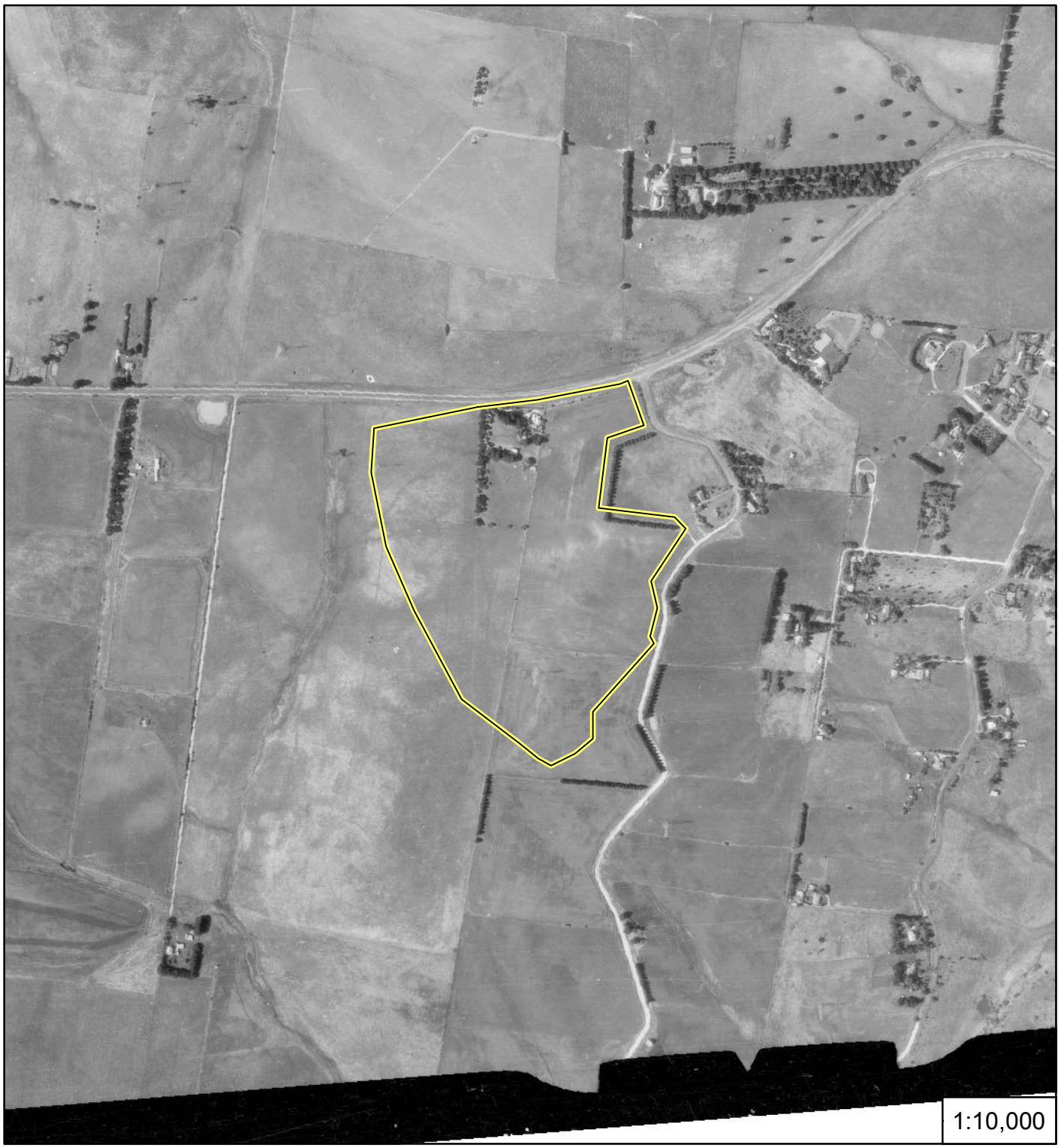
CheckSite Historical

Historical Aerial Imagery

Image Date: Dec 1978

Scale of Original Photograph: 1:25,000

Photo ID: 3371_140_05_16um_29121978.jp2



CS00255

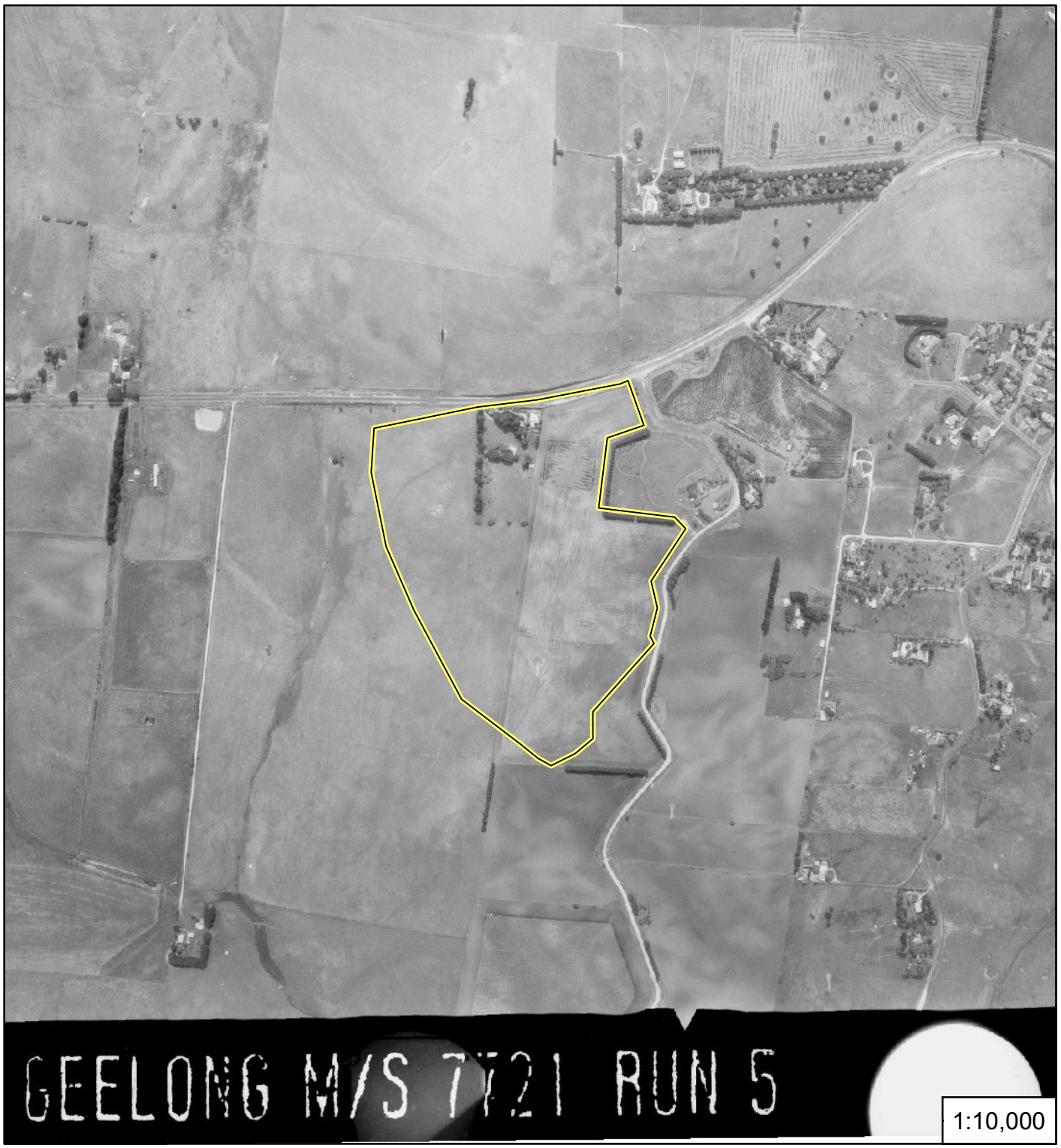
CheckSite Historical

Historical Aerial Imagery

Image Date: May 1984

Scale of Original Photograph: 1:25,000

Photo ID: 3872_062_005_15um_01051984.jp2



CS00255

CheckSite Historical

Historical Aerial Imagery

Image Date: May 1984

Scale of Original Photograph: 1:25,000

Photo ID: 3872_103_006_15um_01051984.jp2

CS00255

CheckSite Historical

Historical Aerial Imagery

Image Date: March 1990

Scale of Original Photograph: 1:25,000

Photo ID: p2024r5y03_1990film4327fr81_photoid1717289_serial04463_dpi1000.jp2

CS00255

APPENDIX B
Aerial Photos

Aerial Photo 2010, Nearmap ®

Aerial Photo 2014, Nearmap ®

APPENDIX C

Certificates of Title

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 02865 FOLIO 825

Security no : 124054089066Q
Produced 16/02/2015 04:33 pm

LAND DESCRIPTION

Lot 1 on Plan of Subdivision 608915K.
PARENT TITLE Volume 02785 Folio 914
Created by instrument 0453117 27/03/1902

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
JOHN WILLIAM BADEN LAMB of "MONCRIEFF WEST" MILL RD MOUNT MORIAC
N126270H 09/11/1987

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS608915K FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 335 BARRABOOL ROAD WANDANA HEIGHTS VIC 3216

DOCUMENT END

Department of Transport, Planning and Local Infrastructure

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Victoria.

Document Type	**plan**
Document Identification	**PS608915K**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**16/02/2015 16:35**

PLAN OF SUBDIVISION

Under Section 35 of the Subdivision Act 1988

Stage No. /

LR use only: EDITION 1

Plan Number: PS 608915K

Location of Land

Parish: BARRARBOOL

Township: ——

Crown Portion: 11 (PART)

Section: 11

Crown Allotment: 42 (PART)

LR Base Record: VICMAP DIGITAL PROPERTY (RURAL)

Title Reference: VOLUME 2865 FOLIO 825
VOLUME 10039 FOLIO 350

Last Plan Reference: PS 304101B LOT 2

Postal Address: (at time of subdivision) BARRABOOL ROAD/WANDANA DRIVE, HIGHTON, VIC. 3216

MGA Co-ordinates: (of approx. centre of land in plan) E 263 000, N 5771 000, Zone: 55

Council Certification and Endorsement

Council Name: CITY OF GREATER GEELONG Ref. 8134

A. This is a plan under section 35 of the Subdivision Act 1988 which does not create any additional lots.

B. This plan is exempt from Part 3 of the Subdivision Act 1988.

C. ~~This is a plan under section 35 of the Subdivision Act 1988 which creates (an) additional lot(s).~~

D. It is certified under section 6 of the Subdivision Act 1988.

E. ~~It is certified under section 11(7) of the Subdivision Act 1988.~~

F. ~~Date of original certification under section 6 / /~~

G. This is a statement of compliance under section 21 of the Subdivision Act 1988.

Council Delegate

~~Council Seal~~

Date 10 / 8 / 07

Re-certified under section 11(7) of the Subdivision Act 1988.

Council Delegate

Council Seal

Date / /

Vesting of Roads or Reserves

Roads and reserves vest in the council/body/person named when the appropriate vesting date is recorded or transfer registered. Only roads and reserves marked thus (%) vest upon registration of this plan.

Identifier	Council/Body/Person
RESERVE No.1	ROADS CORPORATION
ROAD R1	ROADS CORPORATION

Land to be acquired by agreement: NIL

Land to be acquired by compulsory process: RESERVE No.1 AND ROAD R1

All the land is to be acquired free from all encumbrances other than any easements specified on this plan.

Notations

Staging: This ~~is~~/is not a staged subdivision
Planning Permit No. NOT APPLICABLE

Depth Limitation 15·24 METRES BELOW THE SURFACE APPLIES TO C.A.42 (Pt) SEC. 11.

LAND BEING SUBDIVIDED IS ENCLOSED WITHIN THICK CONTINUOUS LINES.
UNDERLINED DIMENSIONS SHOWN THUS 98·62 ARE NOT THE RESULT OF THIS SURVEY.
LOTS 1 AND 2 BOTH CONSIST OF TWO PARTS.
LOTS 1 AND 2 ARE NOT THE SUBJECT OF THIS SURVEY.
AREA OF LOTS 1 AND 2 HAVE BEEN OBTAINED BY DEDUCTION FROM TITLE.

Survey: This plan is based on survey and is compiled from Roads Corporation SP 21273 and SP 21274
This survey has been connected to permanent marks no(s) 112, 173, 285, 293 & 294

In Proclaimed Survey Area No. ——

Vesting Dates & Transfer Registration Dates of Acquired Land

Land affected	Land acquired by compulsory process: Vesting date	Government Gazette: Page	Government Gazette: Year	Date of recording of vesting date	Land acquired by agreement: Date of registration of transfer	LR reference	Assistant Registrar of Titles Signature
THAT PART OF RESERVE No.1 WITHIN C/T V. 2865 F. 825	2/3/2007	S40 (PAGE 1)	2007				
THAT PART OF RESERVE No.1 WITHIN C/T V. 10039 F. 350	2/3/2007	S40 (PAGE 3)	2007				
ROAD R1	2/3/2007	S40 (PAGE 1)	2007				

Easement Information

Easements marked (–) are existing easements.
Easements marked (+) are created upon registration of this plan.
Easements marked (•) are created when the appropriate vesting date is recorded or transfer registered.
Easements marked (#) are removed when the appropriate vesting date is recorded or transfer registered.

Legend: A – Appurtenant Easement E – Encumbering Easement R – Encumbering Easement(Road)

Symbol	Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
+	R1	WAY	SEE DIAG.	THIS PLAN	LAND IN THIS PLAN
–	E-1	TRANSMISSION OF ELECTRICITY	SEE DIAG.	C/E B558558	S.E.C.V.
–	E-2	TRANSMISSION OF ELECTRICITY	SEE DIAG.	C/E E334721	S.E.C.V.
–	E-3	TRANSMISSION OF ELECTRICITY	47·25	C/E C249293	S.E.C.V.
–	E-4	TRANSMISSION OF ELECTRICITY	29·57	C/E G870791	S.E.C.V.

LR use only
Statement of Compliance/ Exemption Statement
Received ☑
Date 5 / 9 / 2007

LR use only
PLAN REGISTERED
TIME 3·14
DATE 18 / 9 / 2007
Assistant Registrar of Titles

Sheet 1 of 2 sheets

DATE 10 / 8 / 07
COUNCIL DELEGATE SIGNATURE

Original sheet size A3

ROADS CORPORATION

SINGLETON BAHEN STANSFIELD PTY. LTD.
ABN 71 088 433 087
SURVEYORS · ENGINEERS · PLANNERS
596 NORTH ROAD ORMOND PH(03) 9578 0829 FAX(03) 9578 1838
61 BULL STREET BENDIGO PH(03) 5443 3188 FAX(03) 5443 3703
13 HARGRAVES STREET CASTLEMAINE PH(03) 5472 2111

SURVEYORS REFERENCE: 07051B VERSION 01

LICENSED SURVEYOR (PRINT) ROSS DAVID SINGLETON

SIGNATURE DATE / /

ROADS CORPORATION REF: JBN 24604

REF SP21273 PS1 VERSION 01

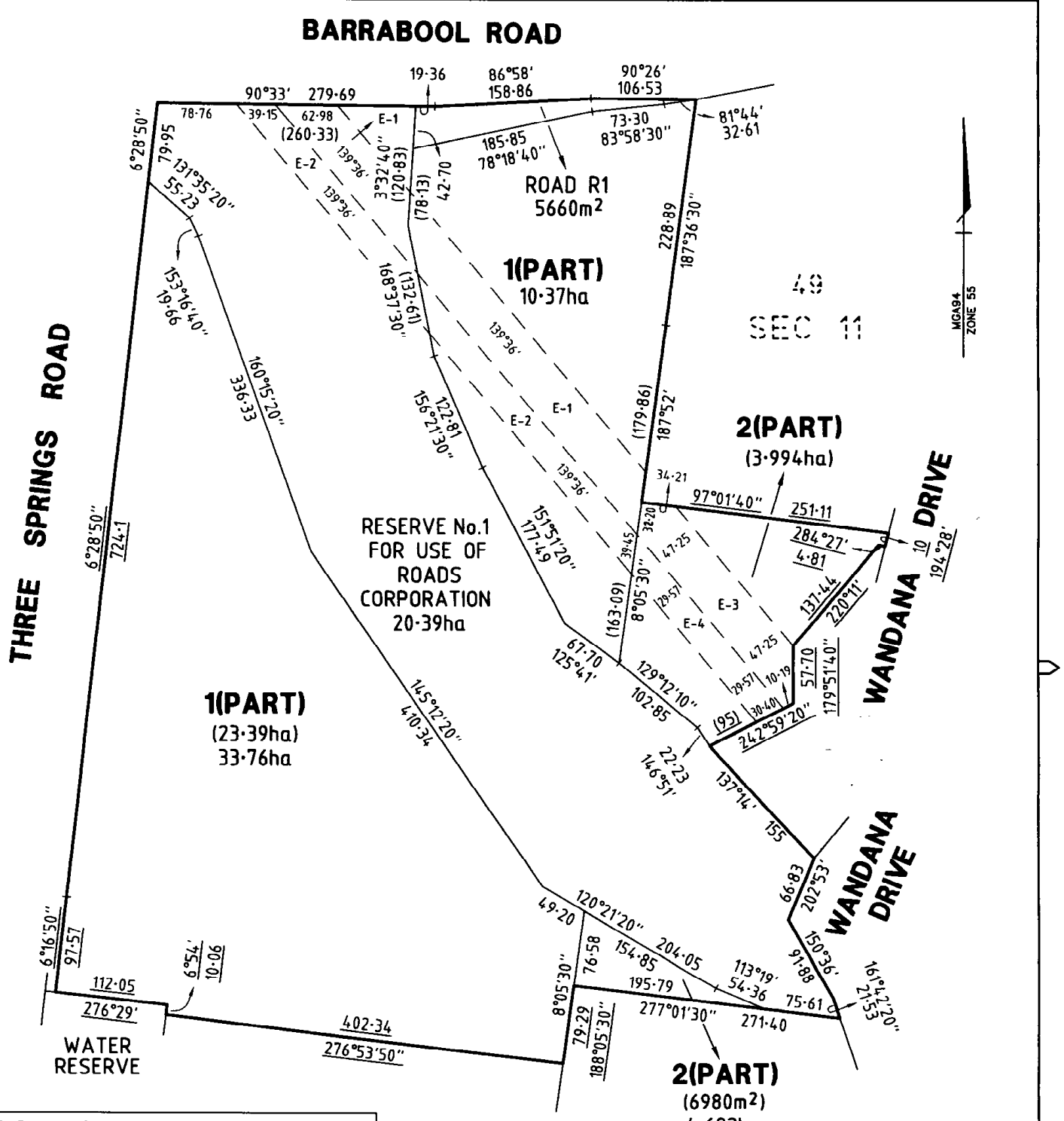
PLAN OF SUBDIVISION

Under Section 35 of the Subdivision Act 1988

STAGE NO.

Plan Number

PS 608915K



ROADS CORPORATION

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61 BULL STREET BENDIGO PH(03) 5443 3188 FAX(03) 5443 3703
13 HARGRAVES STREET CASTLEMAINE PH(03) 5472 2111

SURVEYORS REFERENCE: 070518 VERSION 01

ORIGINAL SCALE	ORIGINAL SHEET SIZE	SCALE
1:4000	A3	40 0 80 120 LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) ROSS DAVID SINGLETON

SIGNATURE DATE / /

ROADS CORPORATION REF: JBN24604

REF SP21273 PS1 VERSION 01

Sheet 2 of 2 sheets

DATE 10/8/07

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

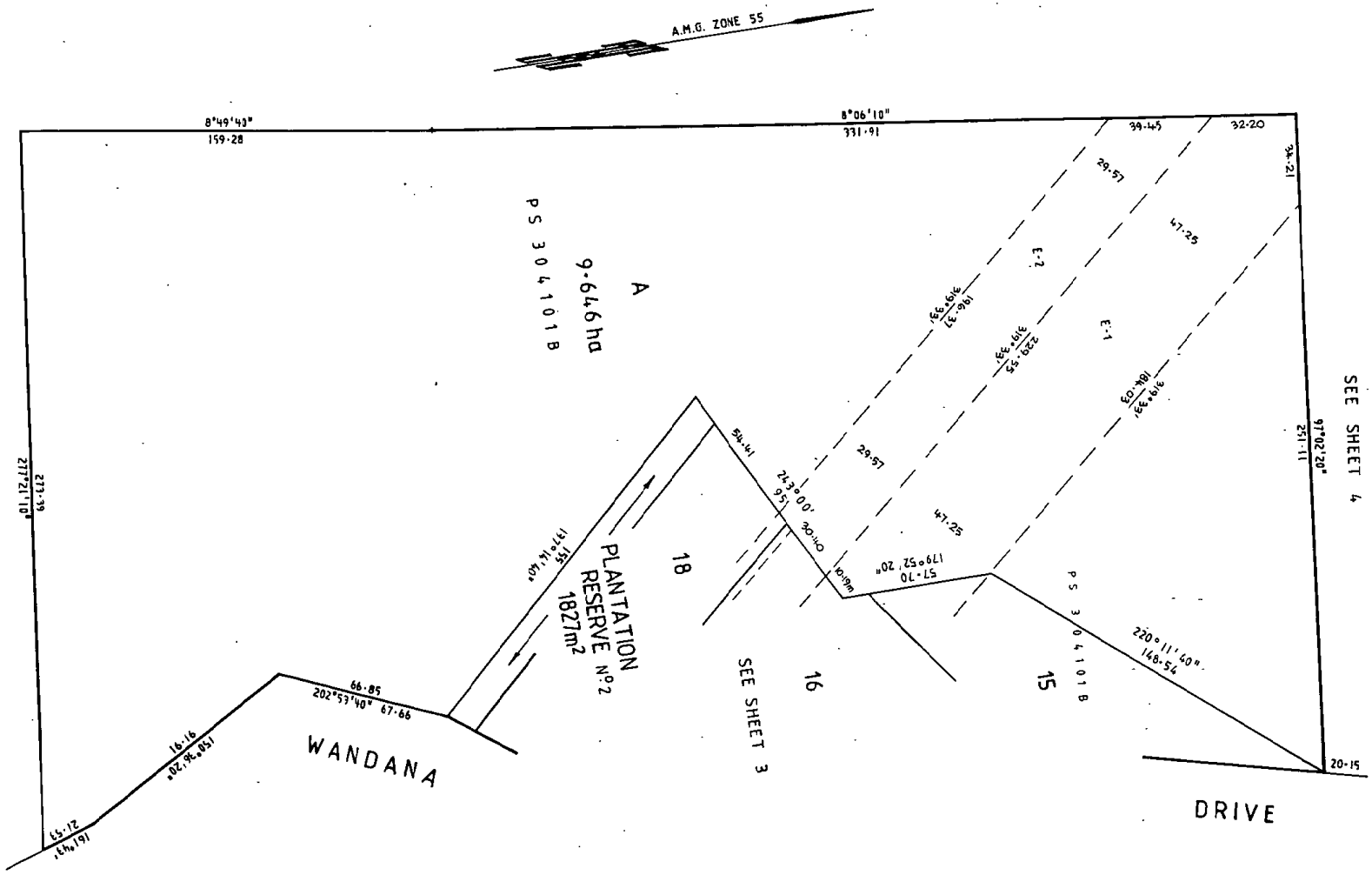
0 10 20 30 40 50 60 70 80 90 100 mm

Department of Transport, Planning and Local Infrastructure

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Victoria.

Document Type	**plan**
Document Identification	**LP218593U**
Number of Pages (excluding this cover sheet)	**4**
Document Assembled	**16/02/2015 15:48**



OFFICE USE ONLY

LP218593U

EDITION 4

NOTATIONS

LAND SUBJECT TO EASEMENT

E-1, E-2, E-3 EASEMENT TO S.E.C.V. VIDE INSTRUMENT C249293
E-4 EASEMENT TO S.E.C.V. VIDE C/E G870791
E-3 DRAINAGE EASEMENT CREATED BY TRANSFER 2379177
E-4 TO GEELONG & DISTRICT WATER BOARD VIDE C/E N693847N

LAND APPROPRIATED OR SET APART

E-5, E-6, E-8 DRAINAGE AND SEWERAGE
E-7 DRAINAGE, SEWERAGE, USE OF THE STATE ELECTRICITY COMMISSION OF VICTORIA FOR POWERLINE PURPOSES PURSUANT TO SECTION 103B OF THE STATE ELECTRICITY COMMISSION ACT 1958.
E-8 USE OF THE STATE ELECTRICITY COMMISSION OF VICTORIA FOR POWERLINE PURPOSES PURSUANT TO SECTION 103 B OF THE STATE ELECTRICITY COMMISSION ACT 1958.

ROADS WITHIN THE CONTINUOUS THICK LINES FOR WAY, DRAINAGE, SEWERAGE AND SUPPLY OF WATER, ELECTRICITY, TELEPHONE AND GAS.

OTHER NOTATIONS

TANGENT POINTS ARE SHOWN THUS —(—
LOT C HAS NOT BEEN FULLY SURVEYED AT THIS TIME AND ALL UNDERLINED DIMENSIONS ARE TAKEN FROM BALANCE OF TITLE.

DEPTH LIMITATION : 15·24 METRES

TO BE COMPLETED WHERE APPLICABLE
THIS SURVEY HAS BEEN CONNECTED TO PERMANENT MARKS NOS:
IN PROCLAIMED SURVEY AREA NO.:

THE LAND TO BE SUBDIVIDED IS SHOWN ENCLOSED BY THICK LINES
TITLE REF.: VOL.8756 FOL. 019 AND VOL.8756 FOL. 020

LAST PLAN REF.:

CERTIFICATION BY SURVEYOR

AMENDMENTS

THOMS & PARTNERS PTY. LIMITED
LICENSED SURVEYORS : CONSULTING ENGINEERS : PLANNING & DESIGNERS
118 YARRA STREET, GEELONG, VIC., 3220
Telephone: (052) 9 3147

SURVEYORS REF. 11695

CERTIFICATE OF MUNICIPAL CLERK

MUNICIPALITY SHIRE OF BARRABOOL COUNCIL REF. 1329

LIST OF MODIFICATIONS

LAND	MODIFICATION	DEALING No	A.R.T.	NEW EDN	LAND	MODIFICATION	DEALING No	A.R.T.	NEW EDN
LOT A	RESUBDIVISION	PS 304101B		2					
LOT 15	RESUBDIVISION	PS 304101B		2					
LOT B	SUBDIVISION	PS 337248		3					
	RES. EXCISED	PS 410091		4					

OFFICE USE ONLY

PLAN APPROVED
AT
ON 12-9-91

(ASSISTANT) REGISTRAR OF TITLES

PLAN OF SUBDIVISION

COUNTY OF GRANT PARISH SHEET 1 CHART 13
PARISH OF BARRARBOOL
SECTION 11
CROWN ALLOTS. 26(PART) 29, 42 AND 49(PART).

NUMBER OF SHEETS IN PLAN: 4
NUMBER OF THIS SHEET : 1

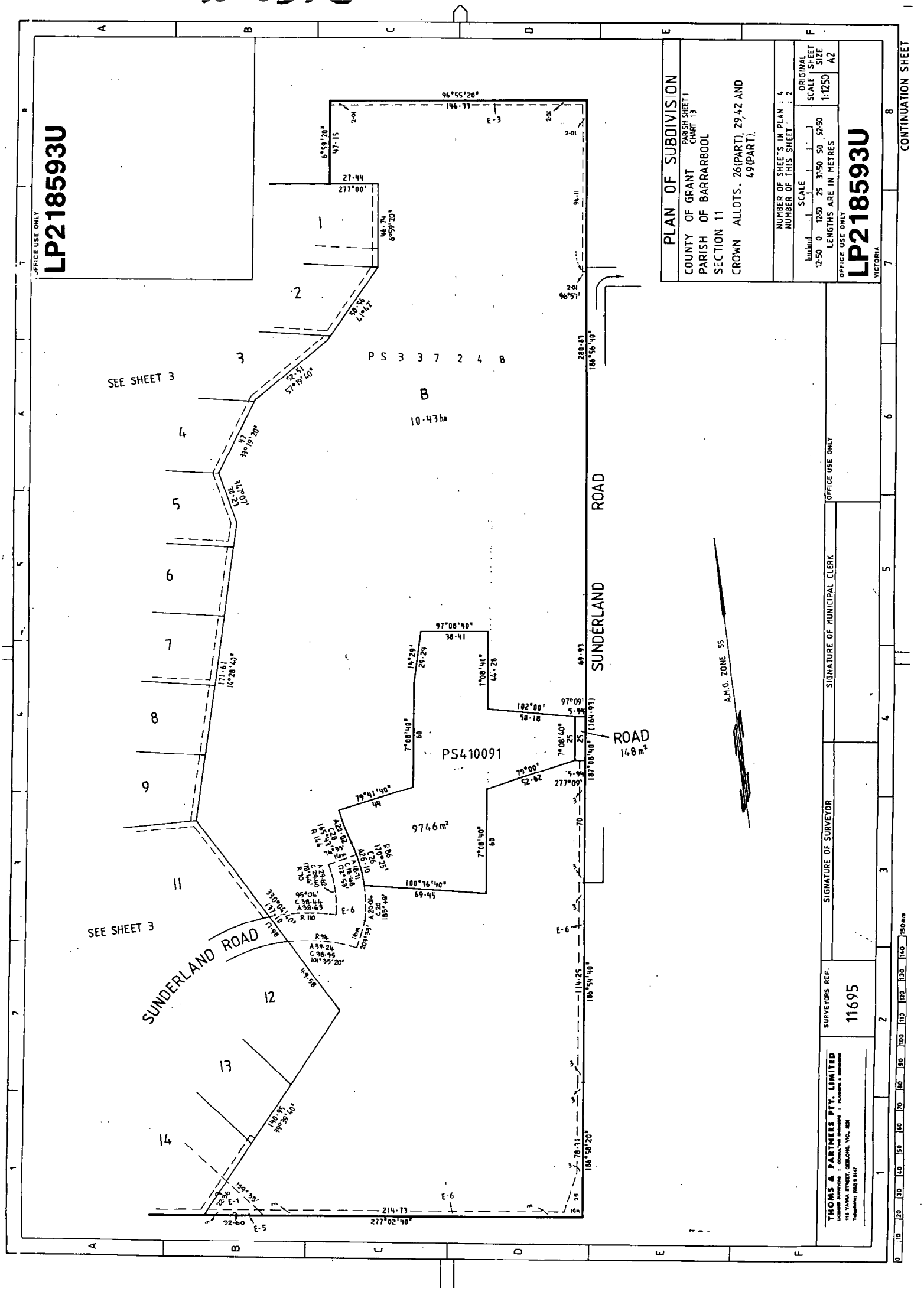
SCALE
12·50 0 12·50 25 37·50 50 62·50
LENGTHS ARE IN METRES

ORIGINAL SCALE 1:1250 SHEET SIZE A2

OFFICE USE ONLY
LP 218593U
VICTORIA

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm

ONLY CERTIFICATE A OR CERTIFICATE B TO BE COMPLETED
* DELETE WORDS NOT APPLICABLE



OFFICE USE ONLY
LP218593U

PLAN OF SUBDIVISION
COUNTY OF GRANT
PARISH OF BARRARBOOL
SECTION 11
CROWN ALLOTS. 26(PART), 29, 42 AND 49(PART).
PARISH SHEET 1
CHART 13

NUMBER OF SHEETS IN PLAN : 4
NUMBER OF THIS SHEET : 3

SCALE 1 0 125 25 375 50 62.5
LENGTHS ARE IN METRES

ORIGINAL SCALE | SHEET SIZE
1:1250 | A2

OFFICE USE ONLY
LP218593U
VICTORIA

CONTINUATION SHEET

DRIVE
ROAD
WANDANA
SUNDERLAND ROAD
PLANTATION
RESERVE No 2
1827m²
A.M.G. ZONE 55
SEE SHEET 1
SEE SHEET 2
SEE SHEET 4
1 3553m²
2 4253m²
3 3968m²
4 3639m²
5 3526m²
6 3210m²
7 3210m²
8 3210m²
9 3574m²
10 3759m²
11 3010m²
12 3738m²
13 3270m²
14 6562m²
15 5361m²
PS304101B
16 6702m²
17 6627m²
18 6012m²

SIGNATURE OF MUNICIPAL CLERK
OFFICE USE ONLY
SIGNATURE OF SURVEYOR
SURVEYORS REF. 11695

THOMS & PARTNERS PTY. LIMITED
LICENSED SURVEYORS : CONSULTING ENGINEERS : PLANNERS & MANAGERS
118 YARRA STREET, GEELONG, VIC. 3220
Telephone (052) 93 9427

OFFICE USE ONLY
LP218593U

PLAN OF SUBDIVISION

COUNTY OF GRANT PARISH SHEET 1 CHART 13
PARISH OF BARRARBOOL
SECTION 11
CROWN ALLOTS. 26 (PART), 29, 42 AND 49 (PART).

NUMBER OF SHEETS IN PLAN : 4
NUMBER OF THIS SHEET : 4

SCALE
12·50 0 12·50 25 37·50 50 62·50
LENGTHS ARE IN METRES

ORIGINAL SHEET SIZE A2
SCALE 1:1250

OFFICE USE ONLY
LP218593U
VICTORIA

CONTINUATION SHEET

BARRABOOL ROAD
WANDANA DRIVE
DRIVE
WANDANA

66°36'40" 15·19
79°16'40" 148·86
160°36'40" 83·42
251°20'40" 67·39
7°38'40" 211·43
124·52 187°00'40"
97°02'40" 134·58
135°18'40" 28·16
0·84
10·46
10
E-4
58·43
29°15'20"
57·52
10·88
37·48
7°50'40" 17·24
160 277°00'40"
110·88 213°18'40"
7°00'40" 160
167°05'40" 48·59
277°00'40" 91·28
51m
20·15
194°28'40"
251·11 97°02'20"
8°06'10" 331·91
116·88
15
A
SEE SHEET 1
A.M.G. ZONE 55

C
5·984ha
(BY DEDUCTION)

SIGNATURE OF MUNICIPAL CLERK
OFFICE USE ONLY
SIGNATURE OF SURVEYOR

SURVEYORS REF.
11695

THOMS & PARTNERS PTY. LIMITED
LICENSED SURVEYORS : CONSULTING ENGINEERS : PLANNERS & DESIGNERS
118 YARRA STREET, GEELONG, VIC., 3220
Telephone: (052) 9 3147

Produced 16/02/2015 03:48 PM

Volume 10035 Folio 483
Folio Creation: Created as paper folio continued as computer folio
Parent titles :
Volume 08756 Folio 019 to Volume 08756 Folio 020

RECORD OF ALTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged	Dealing Type and Details
23/05/2001	25/05/2001	X490803H	Y	TRANSFER SAMSAR PTY LTD

RECORD OF VOTS DEALINGS

Date Lodged for Registration	Date Recorded on Register	Dealing	Imaged

STATEMENT END

Paper Title Images

10035/483 - Version 0, Date 15/04/1999

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

VICTORIA

REGISTER BOOK VOL 10035 FOL. 483

Certificate of Title

P-S

UNDER THE "TRANSFER OF LAND ACT"

McQUAT & SINGLETON PROPRIETARY LIMITED of 531 Moorabool Street Geelong is the proprietor of an estate in fee simple subject to the encumbrances notified hereunder in all that land in the Parish of Barrarbool being Lot C on Plan of Subdivision No. 218593U (being so much as lies above the depth of 15.24 METRES below the surface)-

Issued under Regulation 10 -

Derived From
Vol. 8756 Fols. 019 and 020
12/9/91

OFFICE OF TITLES VICTORIA

R.A. Quinn

Assistant Registrar of Titles

ENCUMBRANCES REFERRED TO

Any easements created by Section 98 of the Transfer of Land Act 1958-

Any other encumbrances shown or entered on the said Plan-

T10035-483-1-6

SEE LP218593U FOR BOUNDARIES AND OTHER DETAILS

VOL. 10035 FOL. 483

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10035 FOLIO 483

Security no : 124054087726W
Produced 16/02/2015 03:46 pm

LAND DESCRIPTION

Lot C on Plan of Subdivision 218593U.
PARENT TITLES :
Volume 08756 Folio 019 to Volume 08756 Folio 020
Created by instrument LP218593U 12/09/1991

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
SAMSAR PTY LTD of 531 MOORABOOL ST. GEELONG 3220
X490803H 23/05/2001

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE LP218593U FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 41-63 CITYVIEW DRIVE WANDANA HEIGHTS VIC 3216

DOCUMENT END

Department of Transport, Planning and Local Infrastructure

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Land Victoria.

Document Type	**plan**
Document Identification	**TP119205G**
Number of Pages (excluding this cover sheet)	**1**
Document Assembled	**16/02/2015 16:13**

TITLE PLAN		EDITION 1	TP 119205G

Location of Land

Parish: BARRARBOOL
Township:
Section: 11
Crown Allotment: 49 (PT)
Crown Portion:

Last Plan Reference:
Derived From: VOL 9845 FOL 841
Depth Limitation: 15.24 m

Notations

ANY REFERENCE TO MAP IN THE TEXT MEANS THE DIAGRAM SHOWN ON THIS TITLE PLAN

Description of Land / Easement Information

ALL THAT PIECE OF LAND IN THE PARISH OF BARRARBOOL BEING PART OF CROWN ALLOTMENT 49 SECTION ELEVEN WHICH LAND IS SHOWN ENCLOSED BY CONTINUOUS LINES ON THE MAP HEREON THE SAID LAND BEING LIMITED TO SO MUCH AS LIES ABOVE THE DEPTH OF "15.24 METRES" BELOW THE SURFACE TOGETHER WITH THE WATER SUPPLY EASEMENT CREATED IN TRANSFER N693847N

THIS PLAN HAS BEEN PREPARED FOR THE LAND REGISTRY, LAND VICTORIA, FOR TITLE DIAGRAM PURPOSES AS PART OF THE LAND TITLES AUTOMATION PROJECT
COMPILED: 24/08/1999
VERIFIED: PB

ENCUMBRANCES

AS TO THE LAND SHOWN MARKED "E-1"
THE EASEMENT TO STATE ELECTRICITY COMMISSION OF VICTORIA CREATED BY INSTRUMENT C249293

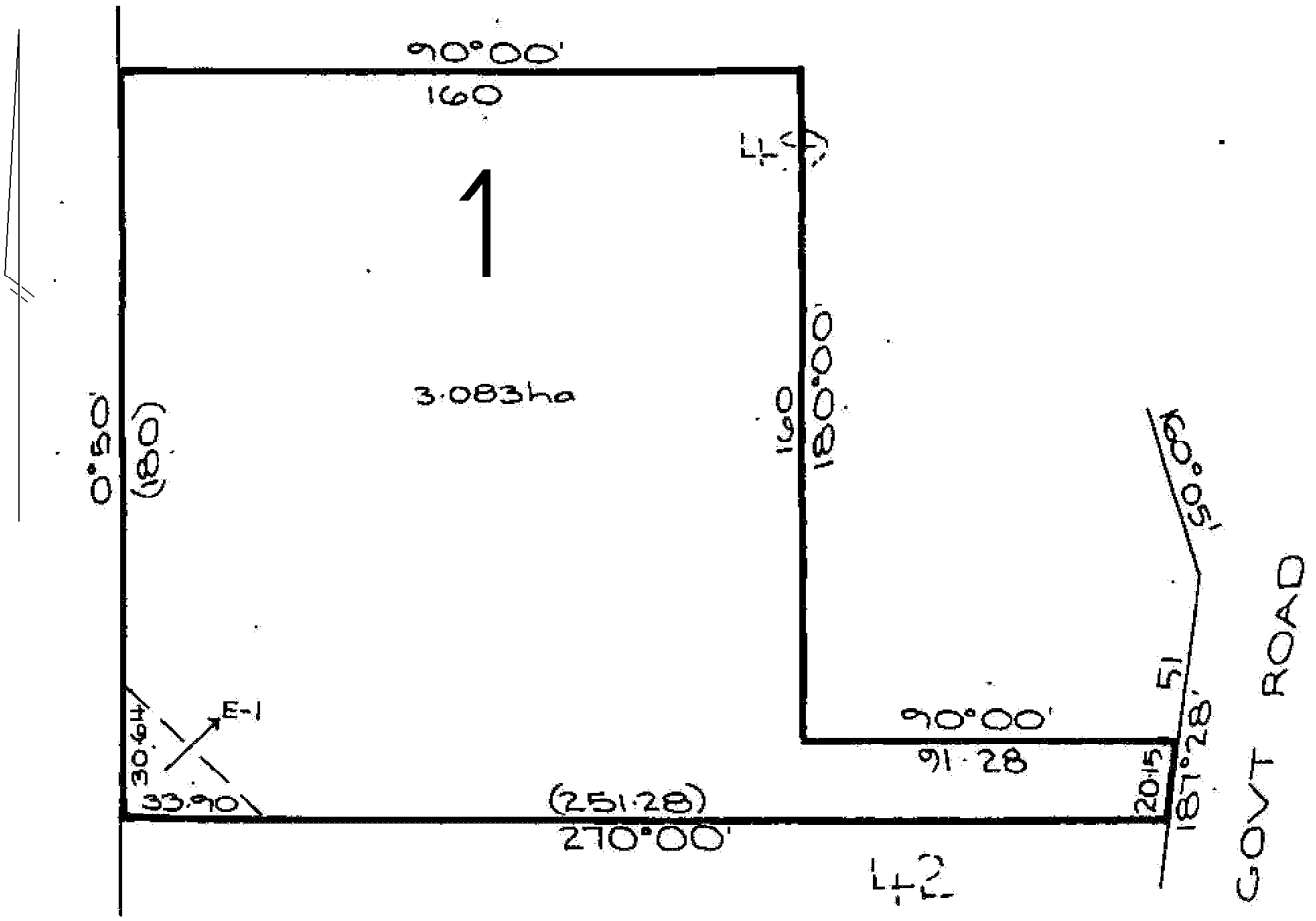


TABLE OF PARCEL IDENTIFIERS
WARNING: Where multiple parcels are referred to or shown on this Title Plan this does not imply separately disposable parcels under Section 8A of the Sale of Land Act 1962
PARCEL 1 = CA 49 (PT)

LENGTHS ARE IN METRES	Metres = 0.3048 x Feet Metres = 0.201168 x Links		Sheet 1 of 1 sheets

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 09845 FOLIO 841

Security no : 124054088470N
Produced 16/02/2015 04:10 pm

LAND DESCRIPTION

Lot 1 on Title Plan 119205G (formerly known as part of Crown Allotment 49 Section 11 Parish of Barrarbool).
PARENT TITLE Volume 08756 Folio 020
Created by instrument N693847N 07/09/1988

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
GEELONG AND DISTRICT WATER BOARD of 61-67 RYRIE STREET GEELONG
N693847N 07/09/1988

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP119205G FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 65 CITYVIEW DRIVE WANDANA HEIGHTS VIC 3216

DOCUMENT END

Department of Transport, Planning and Local Infrastructure

Imaged Document Cover Sheet

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Document Type	**plan**
Document Identification	**PS608915K**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**16/02/2015 16:31**

PLAN OF SUBDIVISION

Under Section 35 of the Subdivision Act 1988

Stage No. /

LR use only: EDITION 1

Plan Number: PS 608915K

Location of Land

Parish: BARRARBOOL

Township: ——

Crown Portion: 11 (PART)

Section: 11

Crown Allotment: 42 (PART)

LR Base Record: VICMAP DIGITAL PROPERTY (RURAL)

Title Reference: VOLUME 2865 FOLIO 825
VOLUME 10039 FOLIO 350

Last Plan Reference: PS 304101B LOT 2

Postal Address: (at time of subdivision) BARRABOOL ROAD/WANDANA DRIVE, HIGHTON, VIC. 3216

MGA Co-ordinates: (of approx. centre of land in plan) E 263 000, N 5771 000, Zone: 55

Council Certification and Endorsement

Council Name: CITY OF GREATER GEELONG Ref. 8134

A. This is a plan under section 35 of the Subdivision Act 1988 which does not create any additional lots.

B. This plan is exempt from Part 3 of the Subdivision Act 1988.

C. ~~This is a plan under section 35 of the Subdivision Act 1988 which creates (an) additional lot(s).~~

D. It is certified under section 6 of the Subdivision Act 1988.

E. ~~It is certified under section 11(7) of the Subdivision Act 1988.~~

F. ~~Date of original certification under section 6 / /~~

G. This is a statement of compliance under section 21 of the Subdivision Act 1988.

Council Delegate

~~Council Seal~~

Date 10 / 8 / 07

Re-certified under section 11(7) of the Subdivision Act 1988.

Council Delegate

Council Seal

Date / /

Vesting of Roads or Reserves

Roads and reserves vest in the council/body/person named when the appropriate vesting date is recorded or transfer registered. Only roads and reserves marked thus (%) vest upon registration of this plan.

Identifier	Council/Body/Person
RESERVE No.1	ROADS CORPORATION
ROAD R1	ROADS CORPORATION

Land to be acquired by agreement: NIL

Land to be acquired by compulsory process: RESERVE No.1 AND ROAD R1

All the land is to be acquired free from all encumbrances other than any easements specified on this plan.

Notations

Staging: This ~~is~~/is not a staged subdivision
Planning Permit No. NOT APPLICABLE

Depth Limitation 15·24 METRES BELOW THE SURFACE APPLIES TO C.A.42 (Pt) SEC. 11.

LAND BEING SUBDIVIDED IS ENCLOSED WITHIN THICK CONTINUOUS LINES.
UNDERLINED DIMENSIONS SHOWN THUS 98·62 ARE NOT THE RESULT OF THIS SURVEY.
LOTS 1 AND 2 BOTH CONSIST OF TWO PARTS.
LOTS 1 AND 2 ARE NOT THE SUBJECT OF THIS SURVEY.
AREA OF LOTS 1 AND 2 HAVE BEEN OBTAINED BY DEDUCTION FROM TITLE.

Survey: This plan is based on survey and is compiled from Roads Corporation SP 21273 and SP 21274
This survey has been connected to permanent marks no(s) 112, 173, 285, 293 & 294

In Proclaimed Survey Area No. ——

Vesting Dates & Transfer Registration Dates of Acquired Land

Land affected	Land acquired by compulsory process: Vesting date	Government Gazette: Page	Government Gazette: Year	Date of recording of vesting date	Land acquired by agreement: Date of registration of transfer	LR reference	Assistant Registrar of Titles Signature
THAT PART OF RESERVE No.1 WITHIN C/T V. 2865 F. 825	2/3/2007	S40 (PAGE 1)	2007				
THAT PART OF RESERVE No.1 WITHIN C/T V. 10039 F. 350	2/3/2007	S40 (PAGE 3)	2007				
ROAD R1	2/3/2007	S40 (PAGE 1)	2007				

Easement Information

Easements marked (–) are existing easements.
Easements marked (+) are created upon registration of this plan.
Easements marked (•) are created when the appropriate vesting date is recorded or transfer registered.
Easements marked (#) are removed when the appropriate vesting date is recorded or transfer registered.

Legend: A – Appurtenant Easement E – Encumbering Easement R – Encumbering Easement(Road)

Symbol	Easement Reference	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
+	R1	WAY	SEE DIAG.	THIS PLAN	LAND IN THIS PLAN
–	E-1	TRANSMISSION OF ELECTRICITY	SEE DIAG.	C/E B558558	S.E.C.V.
–	E-2	TRANSMISSION OF ELECTRICITY	SEE DIAG.	C/E E334721	S.E.C.V.
–	E-3	TRANSMISSION OF ELECTRICITY	47·25	C/E C249293	S.E.C.V.
–	E-4	TRANSMISSION OF ELECTRICITY	29·57	C/E G870791	S.E.C.V.

LR use only
Statement of Compliance/ Exemption Statement
Received ☑
Date 5 / 9 / 2007

LR use only
PLAN REGISTERED
TIME 3·14
DATE 18 / 9 / 2007
Assistant Registrar of Titles

ROADS CORPORATION

SINGLETON BAHEN STANSFIELD PTY. LTD.
ABN 71 088 433 087
SURVEYORS · ENGINEERS · PLANNERS
596 NORTH ROAD ORMOND PH(03) 9578 0829 FAX(03) 9578 1838
61 BULL STREET BENDIGO PH(03) 5443 3188 FAX(03) 5443 3703
13 HARGRAVES STREET CASTLEMAINE PH(03) 5472 2111

SURVEYORS REFERENCE: 07051B VERSION 01

LICENSED SURVEYOR (PRINT) ROSS DAVID SINGLETON

SIGNATURE DATE / /

ROADS CORPORATION REF: JBN 24604

REF SP21273 PS1 VERSION 01

Sheet 1 of 2 sheets

DATE 10 / 8 / 07
COUNCIL DELEGATE SIGNATURE

Original sheet size A3

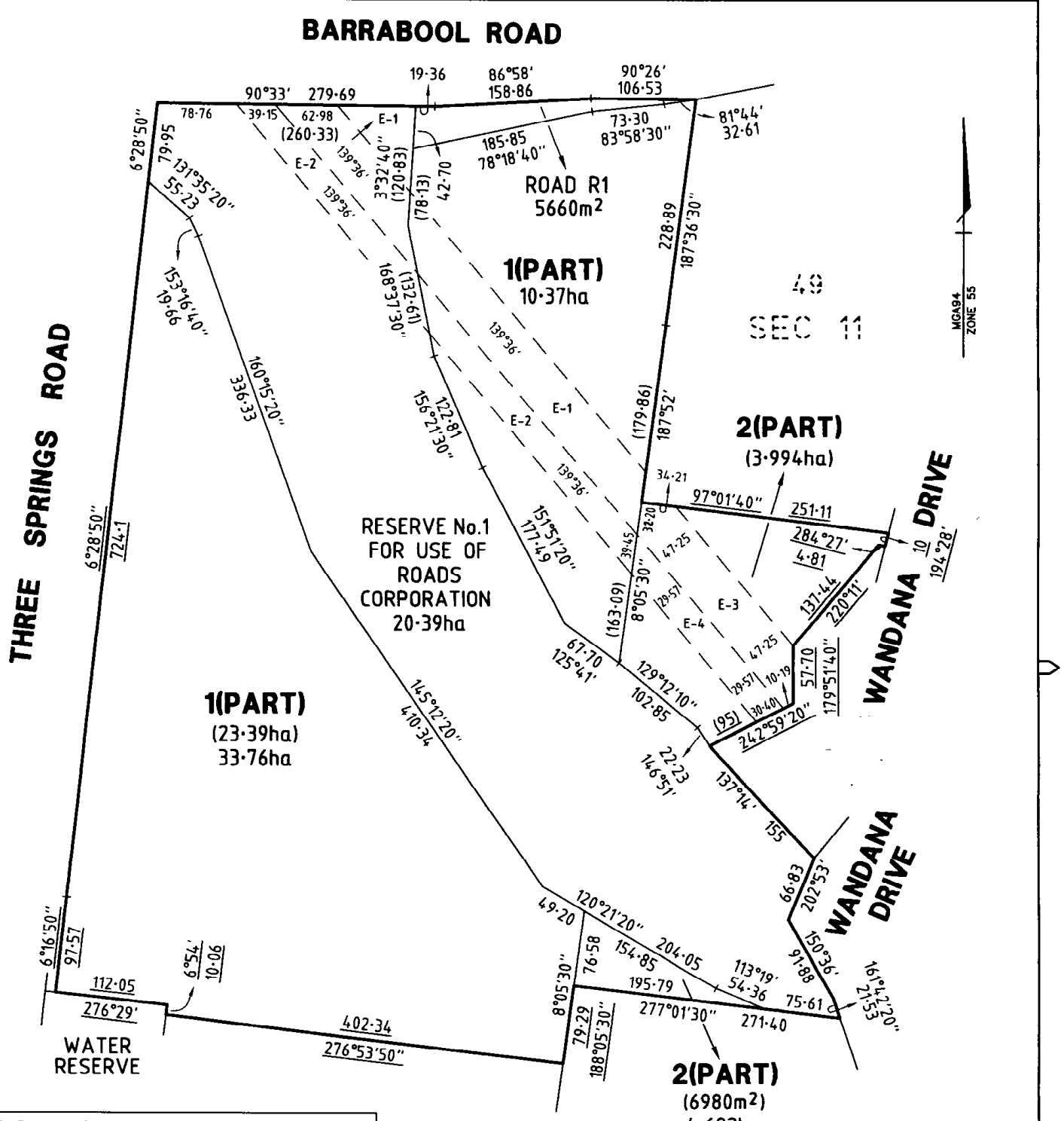
PLAN OF SUBDIVISION

Under Section 35 of the Subdivision Act 1988

STAGE NO.

Plan Number

PS 608915K



ROADS CORPORATION

SINGLETON BAHEN STANSFIELD PTY. LTD.
ABN 71 088 433 087
SURVEYORS • ENGINEERS • PLANNERS
596 NORTH ROAD ORMOND PH(03) 9578 0829 FAX(03) 9578 1838
61 BULL STREET BENDIGO PH(03) 5443 3188 FAX(03) 5443 3703
13 HARGRAVES STREET CASTLEMAINE PH(03) 5472 2111

SURVEYORS REFERENCE: 070518 VERSION 01

ORIGINAL SCALE	ORIGINAL SHEET SIZE	SCALE
1:4000	A3	40 0 80 120 LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) ROSS DAVID SINGLETON

SIGNATURE DATE / /

ROADS CORPORATION REF: JBN24604

REF SP21273 PS1 VERSION 01

Sheet 2 of 2 sheets

DATE 10/8/07

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10039 FOLIO 350

Security no : 124054088999N
Produced 16/02/2015 04:30 pm

LAND DESCRIPTION

Lot 2 on Plan of Subdivision 608915K.
PARENT TITLES :
Volume 10035 Folio 477 Volume 10035 Folio 481
Created by instrument PS304101B 11/10/1991

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
SAMSAR PTY LTD of 531 MOORABOOL ST. GEELONG 3220
X490802L 23/05/2001

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS608915K FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 67 CITYVIEW DRIVE WANDANA HEIGHTS VIC 3216

DOCUMENT END

APPENDIX D

EPA Priority Sites Register

Extract of EPA Priority Site Register

EPA VICTORIA

**** Delivered by the LANDATA® System, Department of Transport, Planning and Local Infrastructure ****

PROPERTY INQUIRY DETAILS:

STREET ADDRESS: 41 - 63 CITYVIEW DRIVE
SUBURB: WANDANA HEIGHTS
MUNICIPALITY: CITY OF GREATER GEELONG
MAP REFERENCES: Melways 40th Edition, Street Directory, Map 450 Reference J11
Melways 40th Edition, Street Directory, Map 450 Reference H10
Melways 40th Edition, Street Directory, Map 450 Reference H11

DATE OF SEARCH: 16th February 2015

PRIORITY SITES REGISTER REPORT:

A search of the Priority Sites Register for the above map references, corresponding to the address given above, has indicated that this site is not listed on, and is not in the vicinity of a site listed on the Priority Sites Register at the above date.

IMPORTANT INFORMATION ABOUT THE PRIORITY SITES REGISTER:

You should be aware that the Priority Sites Register lists only those sites for which EPA has requirements for active management of land and groundwater contamination. Appropriate clean up and management of these sites is an EPA priority, and as such, EPA has issued either a:

Clean Up Notice pursuant to section 62A, or a
Pollution Abatement Notice pursuant to section 31A or 31B

of the Environment Protection Act 1970 on the occupier of the site to require active management of these sites.

The Priority Sites Register does not list all sites known to be contaminated in Victoria. A site should not be presumed to be free of contamination just because it does not appear on the Priority Sites Register.

Persons intending to enter into property transactions should be aware that many properties may have been contaminated by past land uses and EPA may not be aware of the presence of contamination. EPA has published information advising of potential contaminating land uses. Municipal planning authorities hold information about previous land uses, and it is advisable that such sources of information also be consulted.

For sites listed on the Priority Sites Register, a copy of the relevant Notice, detailing the reasons for issue of the Notice, and management requirements, is available on request from EPA for $8 per Notice.

For more information relating to the Priority Sites Register, refer to EPA contaminated site information bulletin: Priority Sites Register & Contaminated Land Audit Site Listing (EPA Publication 735). For a copy of this publication, copies of relevant Notices, or for more information relating to sites listed on the Priority Sites Register, please contact EPA as given below:

EPA Information Centre
Herald & Weekly Times Tower
40 City Road, Southbank 3006
Tel: (03)9695 2700 Fax:(03)9695 2710

[Extract of Priority Sites Register] # 18553305 - 18553305154450 '147613076 Wandana Heights'

APPENDIX E

Soil Logs

Table E1: Soil Sample log

Location	Sample Depth (m bgl)	Sample ID	Soil Description	PID reading (ppm)	Ranking*
BH1	0-0.05	BH1/2001	Topsoil: SILT, brown, dry	0.8	R = 0A
	0.3-0.35	BH1/2002	Silty CLAY, medium plasticity, dark brown	1.0	R = 0A
	0.45-0.5	BH1/2003	Silty CLAY, medium plasticity, dark brown, with some medium to coarse grained sand, light orange yellow brown	1.1	R = 0A
BH2	0-0.05	BH2/2001	Topsoil: Silty CLAY, low to medium plasticity, dark brown	0.7	R = 0A
	0.3-0.35	BH2/2002	Silty CLAY, medium plasticity, dark brown	1.1	R = 0A
	0.5-0.55	BH2/2003	Silty CLAY, medium plasticity, dark brown	1.5	R = 0A
BH3	0-0.05	BH3/2001	Silty CLAY, low to medium plasticity, dark brown	0.5	R = 0A
	0.3-0.35	BH3/2002	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	1.5	R = 0A
	0.45-0.5	BH3/2003	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	1.0	R = 0A
BH4	0-0.05	BH4/2001	Silty CLAY, low to medium plasticity, dark brown, trace glass, sheep poo, wool and wood on surface	1.8	R = 1A
	0.3-0.35	BH4/2002	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	2.0	R = 0A
	0.45-0.5	BH4/2003	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	1.3	R = 0A
BH5	0-0.05	BH5/2001	Silty CLAY, low to medium plasticity, dark brown	1.0	R = 0A
	0.35-0.4	BH5/2002	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	0.8	R = 0A
BH6	0-0.05	BH6/2001	Silty CLAY, low to medium plasticity, dark brown	0.9	R = 0A
	0.35-0.4	BH6/2002	Silty CLAY, low to medium plasticity, dark brown, trace yellow brown medium coarse grained sand	1.2	R = 0A
BH7	0-0.05	BH7/2001 BH7/2801# BH7/2901^	Silty CLAY, low to medium plasticity, dark brown	0.5	R = 0A
	0.35-0.4	BH7/2002	Silty CLAY, low to medium plasticity, dark brown	0.5	R = 0A
BH8	0-0.05	BH8/2001	Silty CLAY, low to medium plasticity, dark brown	0.1	R = 0A
	0.3-0.35	BH8/2002	Silty CLAY, low to medium plasticity, dark brown		R = 0A
	0.45-0.5	BH8/2003	Silty CLAY, low to medium plasticity, dark brown		R = 0A

#primary duplicate QC sample
^secondary duplicate QC sample

***Ranking of Visually Observable Contamination and Odour**

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant Visual Contamination	R = D	Strong non-natural odours identified

APPENDIX F

Adopted Soil Investigation Levels and Tables of Analytical Results

As per the Land SEPP, relevant beneficial uses considered for the investigation include:

- Modified Ecosystems;
- Highly Modified Ecosystems;
- Human Health;
- Buildings and Structures;
- Aesthetics; and
- Production of Food, Flora and Fibre.

The following explains adopted soil investigation levels for the protection of relevant beneficial uses.

Table F1 compares analytical results from the soil investigation to the adopted soil investigation levels.

Maintenance of Ecosystems

For assessment of the beneficial uses of "modified or highly modified ecosystems", the Land SEPP states that contamination must not adversely affect the maintenance of the relevant ecosystems. Furthermore, the level of any indicator (i.e. potential contaminant) must not be greater than:

- Any regional Ecological Investigation Level (EIL) developed in accordance with National Environment Protection (Assessment of Site Contamination) Measure (NEPM);
- Levels derived using site specific risk assessment, the methodology for which is in accordance with NEPM; or
- Levels approved by the Authority (i.e. the Victorian EPA).

Concentrations of potential contaminants have been compared with EILs and ecological screening levels (ESLs) (for the assessment of petroleum hydrocarbon vapour risk) provided in the NEPM for an urban residential.

The criteria outlined in the NEPM are intended to trigger further considerations of risk to these kinds of ecosystems, if exceeded. At this site the protected beneficial uses are "modified ecosystem" and "highly modified ecosystem", for which the NEPM EIL criteria are considered to be conservative.

Generic NEPM EIL criteria are provided for arsenic, lead, DDT and naphthalene. Site-specific EILs were derived for chromium (III) (Cr(III)), copper, nickel and zinc using the NEPM Toolbox (http://www.scew.gov.au/node/941), which includes reference to toxicological data, background soil data and correlations between soil physiological properties, such as cation exchange capacity (CEC), organic matter (OM) content and clay content, with contaminant toxicity.

A sample from location BH7 was chosen for analysis of soil physiological properties as the soil conditions at this location were considered to be representative of soils observed on site. The NEPM toolbox outputs for the derivation of site specific EILs are provided below. Note that relevant output is that for 'urban residential, 'aged' contamination (>2 years). Analytical data is compared to both generic EILs and ESLs and site specific EILs in Table F1.

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Enter soil pH (calcium chloride method) (values from 1 to 14)
5
Enter organic carbon content (%OC) (values from 0 to 50%)
7.4
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	40
Urban residential and open public spaces	55	95
Commercial and industrial	75	140

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Ni soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	50
Urban residential and open public spaces	90	270
Commercial and industrial	180	460

Inputs
Select contaminant from list below
Cr III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
23
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	95	180
Urban residential and open public spaces	240	530
Commercial and industrial	380	880

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
20
Enter soil pH (calcium chloride method) (values from 1 to 14)
5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
1.7
or for aged ABCs only
Enter State (or closest State)
VIC
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	30	80
Urban residential and open public spaces	85	220
Commercial and industrial	130	330

Human Health

For assessment of the beneficial use "human health", the Land SEPP states that contamination must not cause an adverse impact on human health. Furthermore, it is stated that the level of any indicator (i.e. potential contaminant) must not be greater than:

- The investigation levels specified for human health in the NEPM;
- Levels derived using site specific risk assessment, using a methodology which is in accordance with NEPM; and
- Levels approved by the Authority (i.e. the Victorian EPA).

Concentrations of contaminants are therefore compared with Health Investigation Levels (HILs) provided in the NEPM. The NEPM provides HILs for a range of land uses, including Scenario A relating to "residential with garden/accessible soil". Land use Scenario A has been adopted for the site wide soil assessment as it is considered to most closely represent the site use.

Concentrations of petroleum hydrocarbons were assessed against the health screening levels (HSLs) A/B (low to high density residential land use) as outlined in NEPM 2013.

Buildings and Structures

For assessment of the beneficial use of "buildings and structures", the Land SEPP states that contamination must not cause the land to be corrosive to, or adversely affect the integrity of structures or building materials. The beneficial use is assessed by a review of physical parameters, including the pH of soils and sulphate concentration.

Aesthetics

The Land SEPP states that contamination must not cause the land to be offensive to the senses of humans. Generally the land is considered to be aesthetically acceptable if the soils are free of chemical substances or wastes, staining or odours. The beneficial use is assessed by visual and olfactory judgments made during fieldworks, in general accordance with the following:

Ranking of Visually Observable Contamination and Odour

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant Visual Contamination	R = D	Strong non-natural odours identified

Production of Food, Flora and Fibre

The Land SEPP states that contamination must not adversely affect produce quality or yield or be of greater level than that specified by the Australia New Zealand Food Authority, Food Standards Code.

The NEPM HILA considers home grown produce that makes up less than 10% of fruit and vegetable intake. Given the land use proposed for majority of the site is medium density residential land use, Golder considers the NEPM HILA investigation levels appropriate to this investigation for the protection of production of food, flora and fibre.

Golder Associates

Table F1: Summary of Soil Results

Location_Code	Field_ID	Sampled_Date_Time	SDG	SampleCode	Heavy Metals													
					Arsenic	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Zinc
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					2	2	10	0.4	1	5	5	5	5	5	0.1	5	2	5
NEPM 2013 EILs-Urban Residential and public open space					100				530		95		1,100			270		220
NEPM 2013 ESL- Urban residential and public open space, Fine Soil																		
NEPM 2013 HIL- Residential A Soil					100	60	4500	20	100	100	6000		300	3800	40	400	200	7400
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Clay																		
BH1	BH1/2001	2/4/2015	446576	M15-Fe03902	4.6	<2	<10	<0.4	<1	6	8.3	-	7.6	98	<0.1	6.4	<2	24
BH2	BH2/2001	2/4/2015	446576	M15-Fe03903	5	<2	<10	<0.4	<1	9.3	16	-	9.1	790	<0.1	7.8	<2	41
BH3	BH3/2001	2/4/2015	446576	M15-Fe03904	6.4	<2	<10	<0.4	<1	7.1	14	-	37	360	<0.1	7.2	<2	86
BH4	BH4/2001	2/4/2015	446576	M15-Fe03905	10	<2	<10	0.7	<1	8.8	33	-	150	560	<0.1	12	<2	440
BH5	BH5/2001	2/4/2015	446576	M15-Fe03906	4.6	<2	<10	<0.4	<1	7.8	11	-	7.9	550	<0.1	6.8	<2	34
BH6	BH6/2001	2/4/2015	446576	M15-Fe03907	14	<2	<10	<0.4	<1	13	17	-	8.9	430	<0.1	12	<2	40
BH7	BH7/2001	2/4/2015	446576	M15-Fe03908	4.1	<2	<10	<0.4	<1	5.7	10	17,000	6.9	330	<0.1	5.9	<2	29
BH8	BH8/2001	2/4/2015	446576	M15-Fe03909	5.6	<2	<10	<0.4	<1	11	7.3	-	7	650	<0.1	7.1	<2	32

Location_Code	Organochlorine Pesticides																					
	a-BHC	Aldrin	b-BHC	Chlordane (Sum of total)	d-BHC	DDD	DDE	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC	Heptachlor	Heptachlor epoxide	Methoxychlor	Toxaphene	Azinphos-methyl	Bolstar
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.2	0.2
NEPM 2013 EILs-Urban Residential and public open space								180														
NEPM 2013 ESL- Urban residential and public open space, Fine Soil																						
NEPM 2013 HIL- Residential A Soil				50									10				6		300	20		
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Clay																						
BH1	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH2	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH3	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH4	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH5	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH6	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH7	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2
BH8	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2

Table F1: Summary of Soil Results

Organophosphorous Pesticides

Location_Code	Field_ID	Sampled_Date_Time	SDG	SampleCode	Chlorpyriphos	Demeton-o	Diazinon	Dichlorvos	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Merphos	Parathion-methyl	Mevinphos	Naled (Dibrom)	Phorate	Prothiofos	Ronnel	Trichloronate
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2
NEPM 2013 EILs-Urban Residential and public open space																						
NEPM 2013 ESL- Urban residential and public open space, Fine Soil																						
NEPM 2013 HIL- Residential A Soil					160																	
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Clay																						
BH1	BH1/2001	2/4/2015	446576	M15-Fe03902	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH2	BH2/2001	2/4/2015	446576	M15-Fe03903	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH3	BH3/2001	2/4/2015	446576	M15-Fe03904	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH4	BH4/2001	2/4/2015	446576	M15-Fe03905	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH5	BH5/2001	2/4/2015	446576	M15-Fe03906	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH6	BH6/2001	2/4/2015	446576	M15-Fe03907	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH7	BH7/2001	2/4/2015	446576	M15-Fe03908	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2
BH8	BH8/2001	2/4/2015	446576	M15-Fe03909	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2

PAH

Location_Code	Field_ID	Sampled_Date_Time	SDG	SampleCode	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound)*	Benzo(a)pyrene TEQ (medium bound)*	Benzo(a)pyrene TEQ (upper bound)*	Benzo(b)&(j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAH (Sum of Common 16 PAHs - Lab Reported)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EILs-Urban Residential and public open space																					170			
NEPM 2013 ESL- Urban residential and public open space, Fine Soil									0.7															
NEPM 2013 HIL- Residential A Soil										3	3	3												300
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Clay																					5			
BH1	BH1/2001	2/4/2015	446576	M15-Fe03902	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	BH2/2001	2/4/2015	446576	M15-Fe03903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	BH3/2001	2/4/2015	446576	M15-Fe03904	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH4	BH4/2001	2/4/2015	446576	M15-Fe03905	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH5	BH5/2001	2/4/2015	446576	M15-Fe03906	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH6	BH6/2001	2/4/2015	446576	M15-Fe03907	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH7	BH7/2001	2/4/2015	446576	M15-Fe03908	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH8	BH8/2001	2/4/2015	446576	M15-Fe03909	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table F1: Summary of Soil Results

					Other								Total Petroleum Hydrocarbons										
					Electrical Conductivity @ 25°C	pH (Lab)	Sulphate (as SO4)	Total Organic Carbon	Moisture	pH (aqueous extract)	Clay(<2µm)	CEC	TRH C6 - C9 Fraction	TRH C10 - C14 Fraction	TRH C15 - C28 Fraction	TRH C29 - C36 Fraction	TRH+C10 - C36 (Sum of total) (Lab Reported)	TRH C6 - C10 Fraction F1	TRH C6 - C10 Fraction Less BTEX F1	TRH >C10 - C16 Fraction F2	TRH >C10 - C16 Fraction Less Naphthalene F2	TRH >C16 - C34 Fraction F3	TRH >C34 - C40 Fraction F4
					uS/cm	pH	mg/kg	mg/kg	%	pH Units	-	meq/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR					10	0.1	30	50	0.1	0.1	1	0.5	20	20	50	50	50	20	20	50	50	100	100
NEPM 2013 EILs-Urban Residential and public open space																							
NEPM 2013 ESL- Urban residential and public open space, Fine Soil																			180		120	1300	5600
NEPM 2013 HIL- Residential A Soil																							
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Clay																			50		280		
Location_Code	Field_ID	Sampled_Date_Time	SDG	SampleCode																			
BH1	BH1/2001	2/4/2015	446576	M15-Fe03902	-	-	34	-	8.9	6.1	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	BH2/2001	2/4/2015	446576	M15-Fe03903	-	-	<30	-	12	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3	BH3/2001	2/4/2015	446576	M15-Fe03904	-	-	<30	-	12	6.2	-	-	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100
BH4	BH4/2001	2/4/2015	446576	M15-Fe03905	-	-	62	-	9.6	5.7	-	-	<20	<20	88	110	200	<20	<20	<50	<50	170	<100
BH5	BH5/2001	2/4/2015	446576	M15-Fe03906	-	-	<30	-	7.1	5.6	-	-	<20	<20	<50	83	83	<20	<20	<50	<50	110	<100
BH6	BH6/2001	2/4/2015	446576	M15-Fe03907	-	-	50	-	15	6	-	-	<20	<20	<50	<50	<50	<20	<20	<50	<50	<100	<100
BH7	BH7/2001	2/4/2015	446576	M15-Fe03908	110	5	<30	74,000	4.6	-	23	200	-	-	-	-	-	-	-	-	-	-	-
BH8	BH8/2001	2/4/2015	446576	M15-Fe03909	-	-	<30	-	11	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX G

Chain of Custody and Laboratory Certificates

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Golder Associates Pty Ltd (Richmond)
570-588 Swan Street
Richmond
VIC 3121

Attention: **Freya Amon**

Report **446576-S**
Project name GEELONG
Project ID 147613076M
Received Date Feb 05, 2015

Client Sample ID			**BH1/2001**	**BH2/2001**	**BH3/2001**	**BH4/2001**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03902**	**M15-Fe03903**	**M15-Fe03904**	**M15-Fe03905**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	88
TRH C29-C36	50	mg/kg	-	-	< 50	110
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	200
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	170
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	1.2
Acenaphthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	-	< 0.5	< 0.5
Total PAH	0.5	mg/kg	-	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	112	109
p-Terphenyl-d14 (surr.)	1	%	-	-	125	115

Client Sample ID			BH1/2001	BH2/2001	BH3/2001	BH4/2001
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03902**	**M15-Fe03903**	**M15-Fe03904**	**M15-Fe03905**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.06
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	85	126	142	118
Tetrachloro-m-xylene (surr.)	1	%	86	134	148	128
Organophosphorous Pesticides						
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	82	83	103	90
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
pH (1:5 Aqueous extract)	0.1	pH Units	6.1	5.5	6.2	5.7
Sulphate (as SO4)	30	mg/kg	34	< 30	< 30	62
% Moisture	0.1	%	8.9	12	12	9.6

Client Sample ID			BH1/2001	BH2/2001	BH3/2001	BH4/2001
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03902**	**M15-Fe03903**	**M15-Fe03904**	**M15-Fe03905**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.6	5.0	6.4	10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	0.7
Cobalt	5	mg/kg	6.0	9.3	7.1	8.8
Copper	5	mg/kg	8.3	16	14	33
Lead	5	mg/kg	7.6	9.1	37	150
Manganese	5	mg/kg	98	790	360	560
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	6.4	7.8	7.2	12
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	24	41	86	440

Client Sample ID			BH5/2001	BH6/2001	BH7/2001	BH8/2001
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03906**	**M15-Fe03907**	**M15-Fe03908**	**M15-Fe03909**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	83	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	83	< 50	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	110	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			BH5/2001	BH6/2001	BH7/2001	BH8/2001
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03906**	**M15-Fe03907**	**M15-Fe03908**	**M15-Fe03909**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	104	110	-	-
p-Terphenyl-d14 (surr.)	1	%	114	116	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	133	142	126	132
Tetrachloro-m-xylene (surr.)	1	%	136	148	128	94
Organophosphorous Pesticides						
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Naled	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			BH5/2001	BH6/2001	BH7/2001	BH8/2001
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M15-Fe03906**	**M15-Fe03907**	**M15-Fe03908**	**M15-Fe03909**
Date Sampled			**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**	**Feb 04, 2015**
Test/Reference	LOR	Unit				
Organophosphorous Pesticides						
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	86	96	104	94
% Clay*	1	%	-	-	23	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Conductivity (1:5 aqueous extract at 25°C)	10	uS/cm	-	-	110	-
pH (1:5 Aqueous extract)	0.1	pH Units	5.6	6.0	-	5.7
pH (units)(1:5 soil:CaCl2 extract)	0.1	pH Units	-	-	5.0	-
Sulphate (as SO4)	30	mg/kg	< 30	50	< 30	< 30
Total Organic Carbon	50	mg/kg	-	-	74000	-
% Moisture	0.1	%	7.1	15	4.6	11
Heavy Metals						
Arsenic	2	mg/kg	4.6	14	4.1	5.6
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Cobalt	5	mg/kg	7.8	13	5.7	11
Copper	5	mg/kg	11	17	10	7.3
Iron	5	mg/kg	-	-	17000	-
Lead	5	mg/kg	7.9	8.9	6.9	7.0
Manganese	5	mg/kg	550	430	330	650
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	6.8	12	5.9	7.1
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	34	40	29	32
Heavy Metals						
Iron (%)	0.01	%	-	-	1.7	-
Ion Exchange Properties						
Cation Exchange Capacity	0.05	meq/100g	-	-	20	-

Client Sample ID			BH7/2801
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M15-Fe03910**
Date Sampled			**Feb 04, 2015**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05

Client Sample ID			BH7/2801
Sample Matrix			Soil
Eurofins | mgt Sample No.			M15-Fe03910
Date Sampled			Feb 04, 2015
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	83
Tetrachloro-m-xylene (surr.)	1	%	87
Organophosphorous Pesticides			
Bolstar	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Disulfoton	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl azinphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Naled	0.5	mg/kg	< 0.5
Phorate	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	90
Chromium (hexavalent)	1	mg/kg	< 1
pH (1:5 Aqueous extract)	0.1	pH Units	5.6
Sulphate (as SO4)	30	mg/kg	< 30
% Moisture	0.1	%	5.4
Heavy Metals			
Arsenic	2	mg/kg	5.4
Beryllium	2	mg/kg	< 2
Boron	10	mg/kg	< 10
Cadmium	0.4	mg/kg	< 0.4
Cobalt	5	mg/kg	6.1
Copper	5	mg/kg	10
Lead	5	mg/kg	7.3
Manganese	5	mg/kg	350

Client Sample ID			BH7/2801
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M15-Fe03910**
Date Sampled			**Feb 04, 2015**
Test/Reference	LOR	Unit	
Heavy Metals			
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	6.1
Selenium	2	mg/kg	< 2
Zinc	5	mg/kg	29

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 06, 2015	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2015	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 06, 2015	14 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
pH (1:5 Aqueous extract)	Melbourne	Feb 06, 2015	7 Day
- Method: LM-LTM-INO-4000			
Sulphate (as SO4)	Melbourne	Feb 12, 2015	28 Day
- Method: APHA 4500-SO4 Sulfate by FIA			
Eurofins | mgt Suite 14			
Organochlorine Pesticides	Melbourne	Feb 06, 2015	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Organophosphorous Pesticides	Melbourne	Feb 06, 2015	14 Day
- Method: USEPA 8270 Organophosphorus Pesticides			
NEPM Screen for Soil Classification			
% Clay*	Brisbane	Feb 10, 2015	6 Month
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C)	Melbourne	Feb 06, 2015	7 Day
- Method: LM-LTM-INO-4010			
pH (units)(1:5 soil:CaCl2 extract)	Melbourne	Feb 06, 2015	7 Day
Total Organic Carbon	Melbourne	Feb 09, 2015	28 Day
- Method: APHA 5310B Total Organic Carbon			
Heavy Metals	Melbourne	Feb 06, 2015	180 Day
- Method: USEPA 6010/6020 Heavy Metals			
Ion Exchange Properties	Melbourne	Feb 09, 2015	
Chromium (hexavalent)	Melbourne	Feb 06, 2015	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
% Moisture	Melbourne	Feb 06, 2015	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261 Site # 20794

Company Name: Golder Associates Pty Ltd (Richmond)
Address: 570-588 Swan Street
Richmond
VIC 3121

Project Name: GEELONG
Project ID: 147613076M

Order No.: V353397
Report #: 446576
Phone: (03) 8862 3500
Fax: (03) 8862 3501

Received: Feb 5, 2015 5:39 PM
Due: Feb 13, 2015
Priority: 5 Day
Contact Name: Freya Amon

Eurofins | mgt Client Manager: Natalie Krasselt

Sample Detail					HOLD	pH (1:5 Aqueous extract)	Sulphate (as SO4)	Polycyclic Aromatic Hydrocarbons	Eurofins | mgt Suite 14	Total Recoverable Hydrocarbons	NEPM 2013 Metals : Metals M13	NEPM Screen for Soil Classification	Moisture Set
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794												X	
External Laboratory													
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
BH1/2001	Feb 04, 2015		Soil	M15-Fe03902		X	X		X		X		X
BH2/2001	Feb 04, 2015		Soil	M15-Fe03903		X	X		X		X		X
BH3/2001	Feb 04, 2015		Soil	M15-Fe03904		X	X	X	X	X	X		X
BH4/2001	Feb 04, 2015		Soil	M15-Fe03905		X	X	X	X	X	X		X
BH5/2001	Feb 04, 2015		Soil	M15-Fe03906		X	X	X	X	X	X		X
BH6/2001	Feb 04, 2015		Soil	M15-Fe03907		X	X	X	X	X	X		X
BH7/2001	Feb 04, 2015		Soil	M15-Fe03908			X		X		X	X	X
BH8/2001	Feb 04, 2015		Soil	M15-Fe03909		X	X		X		X		X
BH7/2801	Feb 04, 2015		Soil	M15-Fe03910		X	X		X		X		X

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Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794												X	
External Laboratory													
BH1/2002	Feb 04, 2015		Soil	M15-Fe03911	X								
BH2/2002	Feb 04, 2015		Soil	M15-Fe03912	X								
BH3/2002	Feb 04, 2015		Soil	M15-Fe03913	X								
BH4/2002	Feb 04, 2015		Soil	M15-Fe03914	X								
BH5/2002	Feb 04, 2015		Soil	M15-Fe03915	X								
BH6/2002	Feb 04, 2015		Soil	M15-Fe03916	X								
BH7/2002	Feb 04, 2015		Soil	M15-Fe03917	X								
BH8/2002	Feb 04, 2015		Soil	M15-Fe03918	X								
BH1/2003	Feb 04, 2015		Soil	M15-Fe03919	X								
BH2/2003	Feb 04, 2015		Soil	M15-Fe03920	X								

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Sample Detail					HOLD	pH (1:5 Aqueous extract)	Sulphate (as SO4)	Polycyclic Aromatic Hydrocarbons	Eurofins | mgt Suite 14	Total Recoverable Hydrocarbons	NEPM 2013 Metals : Metals M13	NEPM Screen for Soil Classification	Moisture Set
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217													
Brisbane Laboratory - NATA Site # 20794												X	
External Laboratory													
BH3/2003	Feb 04, 2015		Soil	M15-Fe03921	X								
BH4/2003	Feb 04, 2015		Soil	M15-Fe03922	X								
BH8/2003	Feb 04, 2015		Soil	M15-Fe03923	X								

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

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

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - ACCEPTANCE CRITERIA

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

Results <10 times the LOR : No Limit

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

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

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

QC DATA GENERAL COMMENTS

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorous Pesticides							
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl azinphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Naled	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Conductivity (1:5 aqueous extract at 25°C)	uS/cm	< 10			10	Pass	
Sulphate (as SO4)	mg/kg	< 30			30	Pass	
Total Organic Carbon	mg/kg	< 50			50	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	77			70-130	Pass	
TRH C10-C14	%	108			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	115			75-125	Pass	
TRH C6-C10	%	78			70-130	Pass	
TRH >C10-C16	%	102			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	93			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	99			70-130	Pass	
Benz(a)anthracene	%	93			70-130	Pass	
Benzo(a)pyrene	%	92			70-130	Pass	
Benzo(b&j)fluoranthene	%	88			70-130	Pass	
Benzo(g.h.i)perylene	%	84			70-130	Pass	
Benzo(k)fluoranthene	%	91			70-130	Pass	
Chrysene	%	89			70-130	Pass	
Dibenz(a.h)anthracene	%	86			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	
Fluorene	%	97			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	97			70-130	Pass	
Pyrene	%	92			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	107			70-130	Pass	
4.4'-DDE	%	103			70-130	Pass	
4.4'-DDT	%	93			70-130	Pass	
a-BHC	%	112			70-130	Pass	
Aldrin	%	112			70-130	Pass	
b-BHC	%	111			70-130	Pass	
d-BHC	%	112			70-130	Pass	
Dieldrin	%	104			70-130	Pass	
Endosulfan I	%	108			70-130	Pass	
Endosulfan II	%	90			70-130	Pass	
Endosulfan sulphate	%	84			70-130	Pass	
Endrin	%	96			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
Endrin ketone	%	120			70-130	Pass	
g-BHC (Lindane)	%	120			70-130	Pass	
Heptachlor	%	109			70-130	Pass	
Heptachlor epoxide	%	114			70-130	Pass	
Hexachlorobenzene	%	102			70-130	Pass	
Methoxychlor	%	72			70-130	Pass	
LCS - % Recovery							
Organophosphorous Pesticides							
Diazinon	%	95			70-130	Pass	
Ethion	%	94			70-130	Pass	
Fenitrothion	%	77			70-130	Pass	
Methyl parathion	%	78			70-130	Pass	
Mevinphos	%	74			70-130	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	97			70-130	Pass	
Sulphate (as SO4)	%	111			70-130	Pass	
Total Organic Carbon	%	123			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Beryllium	%	104			80-120	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Boron	%	96			80-120	Pass	
Cadmium	%	98			80-120	Pass	
Cobalt	%	104			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	103			80-120	Pass	
Manganese	%	103			80-120	Pass	
Mercury	%	94			75-125	Pass	
Nickel	%	105			80-120	Pass	
Selenium	%	93			80-120	Pass	
Zinc	%	103			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M15-Fe03155	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Boron	M15-Fe04173	NCP	%	81			75-125	Pass	
Manganese	M15-Fe04140	NCP	%	83			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	M15-Fe03903	CP	%	108			70-130	Pass	
4.4'-DDE	M15-Fe03903	CP	%	113			70-130	Pass	
4.4'-DDT	M15-Fe03903	CP	%	101			70-130	Pass	
a-BHC	M15-Fe03903	CP	%	107			70-130	Pass	
Aldrin	M15-Fe03903	CP	%	114			70-130	Pass	
b-BHC	M15-Fe03903	CP	%	97			70-130	Pass	
d-BHC	M15-Fe03903	CP	%	108			70-130	Pass	
Dieldrin	M15-Fe03903	CP	%	106			70-130	Pass	
Endosulfan I	M15-Fe03903	CP	%	99			70-130	Pass	
Endosulfan II	M15-Fe03903	CP	%	99			70-130	Pass	
Endosulfan sulphate	M15-Fe03903	CP	%	96			70-130	Pass	
Endrin	M15-Fe03903	CP	%	106			70-130	Pass	
Endrin aldehyde	M15-Fe03903	CP	%	85			70-130	Pass	
Endrin ketone	M15-Fe03903	CP	%	93			70-130	Pass	
g-BHC (Lindane)	M15-Fe03903	CP	%	106			70-130	Pass	
Heptachlor	M15-Fe03903	CP	%	111			70-130	Pass	
Heptachlor epoxide	M15-Fe03903	CP	%	103			70-130	Pass	
Hexachlorobenzene	M15-Fe03903	CP	%	92			70-130	Pass	
Methoxychlor	M15-Fe03903	CP	%	90			70-130	Pass	
Spike - % Recovery									
Organophosphorous Pesticides				Result 1					
Diazinon	M15-Fe03903	CP	%	109			70-130	Pass	
Ethion	M15-Fe03903	CP	%	85			70-130	Pass	
Fenitrothion	M15-Fe03903	CP	%	72			70-130	Pass	
Methyl parathion	M15-Fe03903	CP	%	70			70-130	Pass	
Mevinphos	M15-Fe03903	CP	%	87			70-130	Pass	
Spike - % Recovery									
				Result 1					
Sulphate (as SO4)	M15-Fe03903	CP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M15-Fe03874	NCP	%	95			70-130	Pass	
TRH C10-C14	M15-Fe03877	NCP	%	112			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M15-Fe03773	NCP	%	122			70-130	Pass	
TRH C6-C10	M15-Fe03874	NCP	%	99			70-130	Pass	
TRH >C10-C16	M15-Fe03877	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M15-Fe03160	NCP	%	98			70-130	Pass	
Acenaphthylene	M15-Fe03160	NCP	%	102			70-130	Pass	
Anthracene	M15-Fe03160	NCP	%	99			70-130	Pass	
Benz(a)anthracene	M15-Fe03160	NCP	%	104			70-130	Pass	
Benzo(a)pyrene	M15-Fe03160	NCP	%	106			70-130	Pass	
Benzo(b&j)fluoranthene	M15-Fe03160	NCP	%	101			70-130	Pass	
Benzo(g.h.i)perylene	M15-Fe03160	NCP	%	99			70-130	Pass	
Benzo(k)fluoranthene	M15-Fe03160	NCP	%	106			70-130	Pass	
Chrysene	M15-Fe03160	NCP	%	98			70-130	Pass	
Dibenz(a.h)anthracene	M15-Fe03160	NCP	%	101			70-130	Pass	
Fluoranthene	M15-Fe03160	NCP	%	102			70-130	Pass	
Fluorene	M15-Fe03160	NCP	%	99			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M15-Fe03160	NCP	%	98			70-130	Pass	
Naphthalene	M15-Fe03160	NCP	%	101			70-130	Pass	
Phenanthrene	M15-Fe03160	NCP	%	101			70-130	Pass	
Pyrene	M15-Fe03160	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Organophosphorous Pesticides				Result 1					
Diazinon	M15-Fe03904	CP	%	109			70-130	Pass	
Ethion	M15-Fe03904	CP	%	85			70-130	Pass	
Fenitrothion	M15-Fe03904	CP	%	72			70-130	Pass	
Methyl parathion	M15-Fe03904	CP	%	70			70-130	Pass	
Mevinphos	M15-Fe03904	CP	%	87			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M15-Fe03909	CP	%	84			75-125	Pass	
Beryllium	M15-Fe03909	CP	%	89			75-125	Pass	
Cadmium	M15-Fe03909	CP	%	90			75-125	Pass	
Cobalt	M15-Fe03909	CP	%	92			75-125	Pass	
Copper	M15-Fe03909	CP	%	101			75-125	Pass	
Lead	M15-Fe03909	CP	%	91			75-125	Pass	
Mercury	M15-Fe03909	CP	%	89			70-130	Pass	
Nickel	M15-Fe03909	CP	%	91			75-125	Pass	
Zinc	M15-Fe03909	CP	%	101			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M15-Fe03902	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endosulfan sulphate	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M15-Fe03902	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M15-Fe03902	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Organophosphorous Pesticides				Result 1	Result 2	RPD			
Bolstar	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl azinphos	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Naled	M15-Fe03159	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phorate	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M15-Fe03159	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Sulphate (as SO4)	M15-Fe03902	CP	mg/kg	34	36	6.6	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M15-Fe03903	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M15-Fe03876	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M15-Fe03762	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M15-Fe03762	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M15-Fe03762	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M15-Fe03876	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M15-Fe03876	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	M15-Fe03876	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	M15-Fe03762	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M15-Fe03762	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M15-Fe03762	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M15-Fe03157	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract)	M15-Fe03905	CP	pH Units	5.7	5.7	pass	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M15-Fe03906	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Clay*	M14-Jl06847	NCP	%	< 1	< 1	<1	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C)	M15-Fe03908	CP	uS/cm	110	110	6.0	30%	Pass	
pH (units)(1:5 soil:CaCl2 extract)	M15-Fe03908	CP	pH Units	5.0	5.0	pass	30%	Pass	
Total Organic Carbon	S15-Fe03481	NCP	mg/kg	65000	71000	9.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Fe03908	CP	mg/kg	4.1	4.4	6.0	30%	Pass	
Beryllium	M15-Fe03908	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M15-Fe03908	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M15-Fe03908	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Cobalt	M15-Fe03908	CP	mg/kg	5.7	5.7	1.0	30%	Pass	
Copper	M15-Fe03908	CP	mg/kg	10	9.7	3.0	30%	Pass	
Iron	M15-Fe03908	CP	mg/kg	17000	17000	1.0	30%	Pass	
Lead	M15-Fe03908	CP	mg/kg	6.9	7.5	9.0	30%	Pass	
Manganese	M15-Fe03908	CP	mg/kg	330	350	4.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Mercury	M15-Fe03908	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M15-Fe03908	CP	mg/kg	5.9	5.8	3.0	30%	Pass	
Selenium	M15-Fe03908	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M15-Fe03908	CP	mg/kg	29	27	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron (%)	M15-Fe03908	CP	%	1.7	1.7	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M15-Fe03909	CP	%	11	11	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M15-Fe03909	CP	mg/kg	5.6	5.6	1.0	30%	Pass	
Beryllium	M15-Fe03909	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M15-Fe03909	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M15-Fe03909	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Cobalt	M15-Fe03909	CP	mg/kg	11	11	3.0	30%	Pass	
Copper	M15-Fe03909	CP	mg/kg	7.3	7.2	1.0	30%	Pass	
Lead	M15-Fe03909	CP	mg/kg	7.0	7.2	3.0	30%	Pass	
Manganese	M15-Fe03909	CP	mg/kg	650	630	3.0	30%	Pass	
Mercury	M15-Fe03909	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M15-Fe03909	CP	mg/kg	7.1	7.1	<1	30%	Pass	
Selenium	M15-Fe03909	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M15-Fe03909	CP	mg/kg	32	32	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Natalie Krasselt	Analytical Services Manager
Carroll Lee	Senior Analyst-Organic (VIC)
Carroll Lee	Senior Analyst-Volatile (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Richard Corner	Senior Analyst-Inorganic (QLD)

Glenn Jackson

National Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

Golder Associates

CHAIN OF CUSTODY

NO. ________

GOLDER ASSOCIATES PTY LTD
LEVEL 3, 50 BURWOOD RD
HAWTHORN VIC 3122

Tel: (03) 8862 3500
Fax: (03) 8862 3501

Page ____ of ____

Golder Job Number: 147613076m

Job Location: Geelong

Laboratory Issued To: MGT (13 CSI golder quote)

Order No.: V353397

Sampled By (Golder): Freya Amon

Golder Job Contact: Freya Amon

Golder Contact Email: famon@golder.com

# OBSERVATIONS	SAMPLE DATE	SAMPLE NUMBER TAAXXX/MONN	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAINERS	pH	~~TDS~~ SULPHATE	~~VOCs~~ M13 NEPM Mets (incl Leachate)	~~TPH~~ B14 OCP/OPP	~~PAH~~ ~~B1 (TPH/BTEX)~~ ~~TPH/PAH~~	TRH ~~(TPH/BTEXN/VOC)~~	PAH ~~(TPH/BTEXN/VOC/PAH)~~	dissolved metals (NEPM 15 +Hg)	hexavalent chromium	NAP*	B11 (anion and cation)	Phenols	NEPM Screen R21	TPH (C6-C9)	HOLD
	4/02/2015	BH1/2001	SOIL	-	1	X	X	X	X											x
	4/02/2015	BH2/2001	SOIL	-	1	X	X	X	X											x
	4/02/2015	BH3/2001	SOIL	-	1	X	X	X	X		X	X								x
	4/02/2015	BH4/2001	SOIL	-	1	X	X	X	X		X	X								x
	4/02/2015	BH5/2001	SOIL	-	1	X	X	X	X		X	X								x
	4/02/2015	BH6/2001	SOIL	-	1	X	X	X	X		X	X								x
	4/02/2015	BH7/2001	SOIL	-	3 J + one bag	[illegible]	X	X	X									X		x
	4/02/2015	BH8/2001	SOIL	-	1	X	X	X	X											x
	4/02/2015	BH7/2801	SOIL	-	1	X	X	X	X											x
	4/02/2015	BH1/2002	SOIL	-	1															X
	4/02/2015	BH2/2002	SOIL	-	1															X
	4/02/2015	BH3/2002	SOIL	-	1															X
	4/02/2015	BH4/2002	SOIL	-	1															X
	4/02/2015	BH5/2002	SOIL	-	1															X
	4/02/2015	BH6/2002	SOIL	-	1															X
	4/02/2015	BH7/2002	SOIL	-	1															X
	4/02/2015	BH8/2002	SOIL	-	1															X
	4/02/2015	BH1/2003	SOIL	-	1															X
	4/02/2015	BH2/2003	SOIL	-	1															X
	4/02/2015	BH3/2003	SOIL	-	1															X
	4/02/2015	BH4/2003	SOIL		1															X
	4/02/2015	BH8/2003	SOIL		1															X

Special Instructions: all samples were taken on the 4/2/2015 - ignor what is writen on the jars re date

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days 5 Working Days (standard) ☒ Other ________

SAMPLE RECEIPT

Relinquished by: Freya Amon Date: 5/2/2015 Recieved by: Catherine Date: 5/2
Organisation: Golder Associates Time: Organisation: EF lmgt Time: 5.39pm

ANALYTICAL SCHEDULE

Relinquished by: Freya Amon Date: 5/2/2015 Received by: Date:
Organisation: Golder Associates Time: Organisation: Time:

DELIVERED BY: COURIER/LAB ☒ GOLDER ☐
RECEIVED BY: FAX ☐ HAND ☒

SAMPLE STATUS: ☐ Security Sealed ☒ Chilled ☐ Frozen ☐ Ambient

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY RETURN EMAIL OR FAX TO: (03) 8862 3501

 # Observations to Assist Analysis and OH&S
C - Expected to be Highly Contaminated HS - Expected High Salinity S - Sheen
N - NAPL Sample HOC - Expected High Total Organic Carbon O - Odourous

446576

Checked By: ________ Date: ________

EnviroSampleVIC

From: Amon, Freya <FAmon@golder.com.au>
Sent: Thursday, 5 February 2015 5:39 PM
To: EnviroSampleVIC
Subject: RE: Analysis
Attachments: SKMBT_C652D15020516310.pdf

Please see attached analysis.

THankyou

Freya Amon (BEng Env (Hons)) | Environmental Engineer | Golder Associates Pty Ltd
Building 7, Botanicca Corporate Park, 570 – 588 Swan Street, Richmond, Victoria 3121, Australia (PO Box 6079, Hawthorn West VIC 3122)
T: +61 3 8862 3500 | D: +61 (3) 8862 3507 | F: +61 3 8862 3501 | M: +61 400 250 756 | E: FAmon@golder.com.au | **www.golder.com**

Winner of 22 BRW Client Choice Awards

Work Safe, Home Safe

From: EnviroSampleVIC [mailto:EnviroSampleVic@eurofins.com.au]
Sent: Thursday, 5 February 2015 12:54 PM
To: Amon, Freya
Cc: Onur Mehmet
Subject: Analysis

Hi Freya,

Please advise testing asap.

Regards

Anthony

Enquiries VIC

Eurofins | mgt
2-5 Kingston Town Close
OAKLEIGH VIC 3166
AUSTRALIA
Fax : +61385645090

Email : EnviroSampleVic@eurofins.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **EM1501205**	Page	: 1 of 6
Client	: **GOLDER ASSOCIATES**	Laboratory	: Environmental Division Melbourne
Contact	: GOLDER CONTACT	Contact	: Steven McGrath
Address	: P O BOX 6079 Building 7, 570-588 Swan St, Richmond, VIC. 3121 HAWTHORN WEST VIC, AUSTRALIA 3122	Address	: 4 Westall Rd Springvale VIC Australia 3171
E-mail	: ----	E-mail	: steven.mcgrath@alsenviro.com
Telephone	: +61 03 8862 3500	Telephone	: +61-3-8549 9600
Facsimile	: +61 03 8862 3501	Facsimile	: +61-3-8549 9601
Project	: 147613076m	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: V353398		
C-O-C number	: ----	Date Samples Received	: 05-FEB-2015
Sampler	: FA	Issue Date	: 11-FEB-2015
Site	: Geelong		
		No. of samples received	: 1
Quote number	: EN/002/14	No. of samples analysed	: 1

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Eric Chau	Metals Team Leader	Melbourne Inorganics
Steven McGrath	Technical Manager - Client Services	Melbourne Inorganics
Steven McGrath	Technical Manager - Client Services	Melbourne Organics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **EG048: LOR has been raised for Hexavalent Chromium due to colour background from digested and filtered sample.**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH7/2901	----	----	----	----
			Client sampling date / time	04-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1501205-001	----	----	----	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	**4.7**	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	**8.0**	----	----	----	----
ED040N: Sulfate - Calcium Phosphate Soluble (NEPM)								
Sulfate as SO4 2-	14808-79-8	50	mg/kg	<50	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Barium	7440-39-3	10	mg/kg	**80**	----	----	----	----
Beryllium	7440-41-7	1	mg/kg	<1	----	----	----	----
Boron	7440-42-8	50	mg/kg	<50	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**14**	----	----	----	----
Cobalt	7440-48-4	2	mg/kg	**8**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**12**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**10**	----	----	----	----
Manganese	7439-96-5	5	mg/kg	**296**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**9**	----	----	----	----
Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----
Vanadium	7440-62-2	5	mg/kg	**36**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**33**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.8	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH7/2901	----	----	----	----
				Client sampling date / time	04-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1501205-001	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH7/2901	----	----	----	----
				Client sampling date / time	04-FEB-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1501205-001	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		**105**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		**73.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139

CHAIN OF CUSTODY

NO. _____

GOLDER ASSOCIATES PTY LTD
LEVEL 3, 50 BURWOOD RD
HAWTHORN VIC 3122
Tel: (03) 8862 3500
Fax: (03) 8862 3501

Golder Job Number: 147613076m

Job Location: Geelong

Laboratory Issued To: ALS golder quote

Order No.: V353398

Sampled By (Golder): Freya Amon

Golder Job Contact: Freya Amon

Golder Contact Email: famon@golder.com

# OBSERV - ATIONS	SAMPLE DATE	SAMPLE NUMBER TAAXXX/MQNN	SAMPLE TYPE	SAMPLE DEPTH (m)	No. OF CONTAIN- ERS	pH	TDS	VHCs	TPH	W4 (TPH/BTEXN)	W9 (TPH/BTEXN/VOC)	W9 (TPH/BTEXN/VOC/PAH)	W-3 (dissolved metals with Hg)	hexavalent chromium	NAP*	N1 (cations)	N2 (anions)	Phenols	TRH-CWG						TPH (C6-C9)	HOLD
	4/02/2015 03/02	BH7/2901	S	-	1																					X

(1)

SCANNED

Environmental Division
Melbourne

Work Order

EM1501205

Telephone : +61-3-8549 9600

Special Instructions: I will email analytical schedule today/tomorrow.

TURN AROUND TIME REQUIRED

☐ 1 Working Day ☐ 2 Working Days ☐ 3 Working Days ☐ 4 Working Days 5 Working Days (standard) ☒ Other _____

SAMPLE RECEIPT

Relinquished by: Freya Amon Date: 5/2/2015
Organisation: Golder Associates Time:
Recieved by: Ray ALS Date: 5/2
Time: 10:40

ANALYTICAL SCHEDULE

Relinquished by: Freya Amon Date: 5/2/2015
Organisation: Golder Associates Time:
Received by: Date:
Organisation: Time:

DELIVERED BY: COURIER/LAB x GOLDER
RECEIVED BY: FAX HAND x

SAMPLE STATUS: ☐ Security Sealed ☒ Chilled ☐ Frozen ☐ Ambient

RECEIVING LABORATORY TO CONFIRM RECEIPT OF ANALYTICAL SCHEDULE BY RETURN EMAIL OR FAX TO : (03) 8862 3501

Checked By: _____ Date: _____

 # Observations to Assist Analysis and OH&S

C - Expected to be Highly Contaminated
N - NAPL Sample
HS - Expected High Salinity
HOC - Expected High Total Organic Carbon
S - Sheen
O - Odourous

Raymond Thai

From: Amon, Freya <FAmon@golder.com.au>
Sent: Thursday, 5 February 2015 5:28 PM
To: Steven McGrath
Subject: RE: ON HOLD - GOLASS 147613076m - EM1501205

Hi steven can you please analyse for pH, sulphate, nepm 13 metals (inc hex chrom)/OCP/OPP

Thankyou

Freya Amon (BEng Env (Hons)) | Environmental Engineer | **Golder Associates Pty Ltd**
Building 7, Botanicca Corporate Park, 570 – 588 Swan Street, Richmond, Victoria 3121, Australia (PO Box 6079, Hawthorn West VIC 3122)
T: +61 3 8862 3500 | **D:** +61 (3) 8862 3507 | **F:** +61 3 8862 3501 | **M:** +61 400 250 756 | **E:** FAmon@golder.com.au | **www.golder.com**

Winner of 22 BRW Client Choice Awards

Work Safe, Home Safe

From: Steven McGrath [mailto:steven.mcgrath@alsglobal.com]
Sent: Thursday, 5 February 2015 12:29 PM
To: Amon, Freya
Subject: FW: ON HOLD - GOLASS 147613076m - EM1501205

Hi Freya – did you need this sample analysed? Also, can you please confirm whether the sample was taken on 3rd or 4th Feb? There is a discrepancy between the date on the COC and that on the jar.

Regards,

Steven McGrath

Technical Manager - Client Services
ALS | Environmental Division

2-4 Westall Road
Springvale VIC 3171 Australia

T +61 3 8549 9600
F +61 3 8549 9626

www.alsglobal.com

APPENDIX H

QAQC

APPENDIX H
QAQC

A data quality assurance (QA) program was implemented as part of the soil investigation. The main aspects of data quality assurance relate to the field work procedures, collection of quality control samples (i.e. field duplicate) and generation of internal laboratory quality control data to support the reported results and the assessment of laboratory results.

The field work for this investigation was carried out in general accordance with Golder standard procedures which operates in accordance with AS/NZS ISO 9001:2000. The work was also carried out in general compliance with the Australian Standard AS 4482.1–2005 *"Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile Compounds"*, AS4482.2-1999 "*Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil – Volatile Substances*".

Golder standard QA procedures and protocols also include the changing of nitrile gloves after the collection of each soil sample and equipment decontamination between each location.

The quality of the laboratory data generated was supported with appropriate laboratory Quality Control (QC) samples and assessed using standard methods. Internal laboratory QC samples including method blanks, laboratory duplicates, matrix spikes, laboratory control sample spikes and surrogate spikes were analysed as part of the quality assurance program.

The Data Quality Indicators (DQIs) for this assessment are required to meet the following acceptance criteria:

- Collection rate for primary and secondary duplicates at a rate of 5% of total primary samples analysed
- All relative percentage differences (RPDs) for primary and secondary field duplicates to be less than 50%;
- All RPDs for laboratory duplicates less than 30%;
- Spike recovery for most analytes to fall in the range of 70 – 130%; and
- Laboratory method blanks to be below analyte LORs
- Overall completeness[1] of at least 95%.

One primary and one secondary duplicate sample were collected during the investigation and a total of eight primary samples were analysed. The total collection rate for primary and secondary duplicates satisfies the minimum target collection rate of 5% each. Duplicate testing was performed for select analytes consistent with the analytical program for the primary samples.

The overall assessment of the Golder quality assurance program for the soil sampling has been made in terms of completeness. Table H1 provides a summary of the program and data quality assessment.

Table H1: QA/QC completeness results

QC Sample Type	Total No. of Results	Results Not Meeting DQIs	Completeness (% pass)
Primary Duplicates	56	0	100
Secondary Duplicates	43	0	100
Internal duplicates	118	0	100
Internal spike recoveries	124	0	100
Internal method blanks	84	0	100
Overall Completeness	**425**	**0**	100

With an overall completeness of 100%, Golder considers the QA procedures to have been successful in assuring reliability of the analytical data presented in this PESA.

[1]Completeness is equal to the percentage of acceptable quality assurance and quality control results

APPENDIX I

Limitations

LIMITATIONS

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