15 June 2012

CFA TRAINING COLLEGE, FISKVILLE, VIC

Preliminary Site Assessment

Submitted to:
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REPORT

Report Number. 117613201-002-R-Rev0

Distribution:

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1.0 INTRODUCTION

Golder Associates Pty Ltd (Golder Associates) was engaged to assist Professor Rob Joy in his *Independent Investigation into the CFA Facility at Fiskville (1971 – 1999) (*the Independent Investigation*)*. Golder was commissioned to undertake a Preliminary Site Assessment (PSA) at the CFA Training College, Fiskville (the Site) in February 2012. The work undertaken was consistent with our proposal (P17613413-001-P-Rev0) dated 13 December 2011 and addendum letters (117613201-001-L-Rev0, 117613201-004-L-Rev0) dated 18 January 2012 and 2 February 2012 respectively. The general site details are listed in Table 1.

Table 1: General Site Detail

Summary Information	Details
Property Name	CFA Training College, Fiskville
Site Address	4549 Geelong - Ballan Rd, Fiskville, Victoria, 3342
Legal Description	Lots 1,2,3 and 4 on Title Plan 845669K, Vol 03555 Folio 516
GIS Coordinates of Site Centroid (MGA94, Zone 55))	254742 5825843
Site Area	146 hectares
Site Owner	Country Fire Authority
Description of Key Site Activity	The site operates as a training college for emergency response and incident management. The site is primarily used by members of the CFA but personnel from other public organisations and private industry have received training at the Site in the past.

Your attention is drawn to the document - “Limitations”, which is included in Appendix A of this report. 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 Associates, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

2.0 OBJECTIVE

The objective of the investigation is to undertake a preliminary site assessment that is consistent with the timeframe of the Independent Investigation and the Investigation Terms of Reference 1(e) which states that:

> *"on the basis of available information, assess the risk that there are buried flammable substances, drums and/or other related contaminants on the Site; where possible identify the location of such materials and make recommendations about any clean up and remediation required; identify where information is considered to be inadequate to enable a risk assessment and recommend action to improve the information base (which may include carrying out exploratory sampling of soils)."*

2.1 Scope of Works

In order to achieve our objective, the following scope of works was undertaken and is described further within this report:

- Completion of a desktop review of information relevant to the Site including: local planning scheme and zoning, regional topography, geology and hydrogeology and regulatory agency records;
- Review of relevant historical documents, previous reports completed for the Site and aerial photography; and
- Limited targeted site investigation of soil, sediment, surface water and tree material on site.

3.0 SITE DESCRIPTION

3.1 Site Location

The site is located in Fiskville, Victoria, approximately 93 km north-west of Melbourne, Victoria. Fiskville is located on the Geelong – Ballan Road approximately 10 km south of Ballan. The site is bounded by Lennox's Lane to the north, Geelong-Ballan Road to the east and agricultural land to the south and west. It is defined as Lots 1, 2,3 and 4 on Title Plan 845669K. The title plans are included in Appendix B.

A site location plan which includes the Site boundary is presented as Figure 1 - Site Location Plan in Appendix C.

3.2 Planning Scheme and Zoning

The site is located within the Shire of Moorabool. Pursuant to the Local Planning Scheme, the Site is zoned as Farming Zone (FZ) and is subject to the following planning overlays:

- Design and Development Overlay – Schedule 2 (DDO2); and
- Environmental Significance Overlay – Schedule 1 (ESO1).

The Farming Zone applies to land that has been identified for agricultural use. The purpose of this zoning includes: to encourage the retention of productive agricultural land; to ensure that non-agricultural uses do not adversely affect the use of this land for agriculture; to encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision and to protect and enhance natural resources and the biodiversity of the area.

The Design and Development Overlay - Schedule 2 requires development within this area to meet the design objectives specified in the schedule. The objectives apply to new or future development within the area. The key objectives of Schedule 2 are: to enhance visual amenity in rural, township and vegetated areas of the Moorabool Shire and to encourage the use of external cladding, such as non-reflective materials for building construction; to discourage the use of materials such as reflective cladding for building construction which could have a detrimental effect on amenity.

The Environmental Significance Overlay - Schedule 1 requires development within this area to meet the environmental objectives specified in the schedule. The objectives apply to new or future development within the area. The Moorabool Shire contains several water catchment areas including the Werribee Catchment. Therefore, the key objectives of Schedule 1 are: to protect the quality and quantity of water produced within proclaimed water catchments and to provide for appropriate development of land within proclaimed water catchments.

The planning zoning map for the Site is included in Appendix B.

3.3 Current Site Use

The site currently operates as a training college for emergency response and incident management and is operational all-year round. The site is primarily used by members of the CFA but personnel from other public organisations and private industry have received training at the Site in the past.

Training exercises include fire fighting exercises at various props, which have been ignited with Liquid Petroleum Gas (LPG) and other flammable liquids including unleaded petrol and diesel.

Site Users

It is understood the following people currently use the Site:

- Site management, administration, support and training staff, who work in the administration buildings, training centre and classrooms;
- Pad Supervisors and Operators who operate and maintain the 'Outdoor Fire Training Area';
- Fire Training Instructors who conduct fire training exercises in the "Outdoor FTA;
- General maintenance and landscaping staff who work in the 'Maintenance Workshop' and across the Site;
- Victorian University of Technology (VUT) staff who work in the VUT building;
- Catering and support staff who work in the canteen and temporary accommodation area;
- Families of site staff who live in the residential buildings in the west of the Site (it is understood that no children under 18 years of age live on the Site); and
- Fire fighting and emergency response trainees who include CFA personnel, staff from government departments and private companies who participate in training exercises in the "Outdoor FTA'.

3.4 Current Site Description:

The site is rectangular shaped and covers approximately 150 hectares. The Training College occupies approximately half the Site and the remainder of the Site is a mixture of forestry and grassland paddocks and landscaped land.

3.4.1 Layout

The current site layout at the time of our assessment (2012) is presented in Figure 3 – Current Site Location Plan in Appendix C. Key structures and buildings on the Site include:

1) The 'Outdoor Fire Training Area' (FTA) which includes the following areas/structures:
   - Flammable Liquid Pad (FLP);
   - Training Props (including Fire Attack Building, imitation fish and chip shop, service station; trains, urban training area and several single storey and two storey buildings on concrete pads);
   - Fire prop storage area (which includes miscellaneous drums, transformers, tires, car wrecks and car batteries);
   - Hazardous Material Store;
   - Fuel Above Ground Storage Tanks (ASTs);
   - Triple-Phase Interceptor;
   - Workshop and Storage Buildings;
   - Amenities Buildings;
   - Victorian University of Technology (VUT) Building;
   - Urban Training Area; and
   - 4 Wheel Drive Area.
2) Site Drainage System, including 4 interconnecting dams and Lake Fiskville;
3) Teaching Centre including classrooms;
4) Administration building;
5) Maintenance Workshops, Storage Buildings and Yard;
6) Canteen and temporary accommodation;
7) Golf Course;
8) Residential buildings (for permanent accommodation for site employees);
9) Historical Landfills (1 & 2); and
10) Airstrip, one hanger building and concrete pad.

The Outdoor Fire Training Area, Teaching Centre, Administration and Maintenance buildings are located in the centre of the Site. The Canteen and temporary accommodation are located in the eastern area of the Site and a golf course is located between these buildings and the Outdoor Fire Training Area. The residential buildings and historical landfills are located in the south-western portion of the Site adjacent to Lake Fiskville. The air-strip and hanger building are located along the northern site boundary.

3.4.2 Site Water Use and Drainage

It is understood that potable water on the Site is mains supplied water from Central Highlands Water.

Water used for fire fighting water on the FLP is a mix of mains water from Central Highlands Water and recirculated water from Dam 2.

Wastewater from the FLP drains through a triple interceptor and a series of interconnecting dams (Dams 1-4) before discharging into Lake Fiskville.

Fire fighting water from the FLP is collected within the FLP bund. The bund includes a valved drainage system that can be closed to retain water during fire training exercises. The bund discharges to a surge pit and subsequently the triple interceptor. The triple interceptor discharges into Dam 1, which contains a mechanical aeration pump that is designed to degrade dissolved hydrocarbons and emulsions. Dam 1 subsequently discharges into Dam 2 via an underground drainage pipe. Dam 2 discharges into Dam 3 also via underground pipe work. Overflow from Dam 3 flows via an open channel to Dam 4. Finally Dam 4 discharges via an open channel to Lake Fiskville. Lake Fiskville discharges off-site via Beremboke Creek.

Dams 1-3 are contained within the fenced “Outdoor Fire Training Area”. Dam 4 and Lake Fiskville are within an unfenced area of the Site.

The wastewater treatment system and series of dams has been significantly modified during the operation of the Site. The history of drainage system development is described in Section 7.0.

The surrounding land use is predominantly agricultural. Of particular note in the surroundings of the Site are the following:

- **North:** To the north, the Site is bordered by Lennox Lane with agricultural land beyond;
- **South:** Immediately south of the Site is agricultural land. A farm house and sheds are located adjacent to the southern site boundary;
- **East:** To the east, the Site is bordered by Geelong – Ballan Road, with the Yaloak Polo Club and agricultural land beyond the road; and
- **West**: Immediately west of the Site is agricultural land.

4.0 ENVIRONMENTAL SITE SETTING

4.1 Topography and Drainage

The site is located on an undulating basaltic plateau approximately 440 m above sea level. A topographical map of the Site and surrounding area is presented in Figure 2 – Site Topography in Appendix C.

This site and surrounding area is generally flat with a slight downward gradient to the south. It is inferred that the western portion of the Site drains to Beremboke Creek, which subsequently drains into an onsite dam known as Lake Fiskville before flowing off-site at the south-western site boundary. Beremboke Creek is part of the Moorabool River Catchment. It is inferred that the eastern portion of site drains south easterly into Yaloak Creek, which is part of the Werribee River Catchment. The State Environment Protection Policy (SEPP) Waters of Victoria (WoV, GoV, 2003) lists the Moorabool River and Werribee River within the Cleared Hills and Coastal Plains Segment.

4.2 Regional Geology

The Geological Survey of Victoria 1: 50,000 scale map in Appendix B, indicates that the Site is generally underlain with Tertiary Age Newer Volcanics; comprising of olivine basalt which is commonly vesicular with columnar jointing, with minor scoria, tuff and agglomerate. The basalt is variably weathered and the depth to the surface of the basalt can vary significantly over short horizontal distances. Weathered basalt is typically overlain by a residual clay layer.

Beremboke Creek in the western portion of the Site is underlain with Quaternary Age Alluvial deposits consisting of stream alluvium comprising of clay, silt, sand, gravel along with clasts of basalt, quartz, sandstone, quartzite, slate and ironstone.

Regionally, areas to the east and west of the Site are underlain by Tertiary Age Werribee Formation sand and fine gravels which are of granitic origin. These may comprise of clay, sandy and silty clay and minor gravel with clasts of quartz, ligneous clay and brown coal.

South of the Site, Beremboke Creek is underlain with Quaternary Age Paludal Lacustrine deposits. These are swamp and lake deposits which typically consist of white, yellow, grey and brown clay and silty clay and minor sandy and gravelly clay often with plant remains.

4.3 Regional Hydrogeology

Regional groundwater flow is inferred to be controlled by the Werribee River to the east and the Moorabool River to the west. The site is inferred to be located at the centre of the regional groundwater divide, thus it was not possible to infer the groundwater flow direction in the vicinity of site.

The regional water quality data in the Newer Volcanics Aquifer was obtained from the Victorian Groundwater Beneficial Use Map Series. This map suggests that groundwater in the vicinity of the Site as part of the Newer Volcanics Aquifer has a background total dissolved solids (TDS) concentration of 1,001 – 3,500 mg/L TDS.

4.4 Regional Groundwater Use

A search of the Department of Sustainability and Environment (DSE) groundwater database which was most recently updated in September 2011 indicated that there is one (1) groundwater bores registered within a 2 km radius of the Site. This bore is registered for groundwater investigation purposes. A further 19 bores are located with a 6 km radius of the Site. These bores are registered for domestic and/or stock purposes, groundwater investigation or unknown use as summarised in Table 2.

Table 2: Groundwater Bores within 6km of the Site

Number of Bores within 6km radius of site	**19**
Minimum Bore Depth (m)	6.3
Maximum Bore Depth (m)	91.44
Average Bore Depth (m)	41.12
Groundwater Use	
Dewatering	0
Domestic	2
Stock Supply	2
Investigation	4
Irrigation	1
Observation	0
Unknown	10
Distance of Bore from Site (km)	
Dewatering	Not applicable
Domestic	4.1 and 4.6km southeast of the Site.
Stock Supply	3 km southwest and 2.4 km northwest of the site.
Investigation	1.5 south west, 3.4 km northwest and 4.8km and 5.0 km from the Site (direction unknown)
Irrigation	3.0 km southeast of the site.
Observation	Not applicable
Unknown	Between 4.4 km to 5.8 km from the Site (direction unknown).

Coffey Partners International Pty Ltd (Coffey) has installed eight (8) bores at the Site. However these bores are not recorded in the DSE database, which suggests the data set held by DSE may be incomplete.

A table with the details of the registered groundwater bores within a 6 km radius of the Site is included Appendix B.

5.0 SITE WALKOVER

Golder Associates conducted a site walkover on 24 January 2012. The objective of the site walkover was to identify potential contaminant sources at the Site. Observations made during this site walkover are outlined in Table 3.

The site walkover was conducted by Golder Associates, who were accompanied by representatives of the Independent Investigation Team. Weather was dry and cool during the site walkover.

Table 3: Site Walkover Observation

Area	Observation
FLP - Dam 1	Hydrocarbon sheen and foam was noted on water contained within Dam 1.
ASTs in outdoor FTP	Hydrocarbon staining was noted outside the bund surrounding the diesel and petrol AST within the Outdoor FTA adjacent to the Prop Storage Area. It appeared that fuel may have migrated beneath the bund. Hydrocarbon staining was observed adjacent to the fuel fill points and bowsers.
Prop Storage Area	Hydrocarbon staining was noted in the area where cars are stripped before being used a fire training props. The following materials were noted in the Prop Storage Area: ■ Transformers; ■ Several drums which were labelled as pesticides, fire fighting foam and petroleum fuels; and ■ Car Batteries. Overall housekeeping in the Prop Storage Area was quiet poor.
Drum Burial Area 1, south of the Airstrip	It was noted that grass had not grown in the area which was identified by the Investigation Team as a 'Drum Burial Area 1' to the south of the Airstrip.
Landfill Area	Waste was evident in the area identified by the Investigation Team as the 'Historical Landfill 2', which was created by CFA in the mid-1980s.

6.0 REGULATORY AGENCY RECORDS REVIEW

6.1 EPA Priority Site Register

Priority Sites are sites for which EPA has issued a Cleanup 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 maintains the Priority Sites Register as a listing of all priority sites and the register is available to the public. 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 reported that the Site is not listed as a Priority Site, and is not in the vicinity of a site listed on the Priority Site. The results of this search are provided in Appendix B.

6.2 Statutory Environmental Audits

The Environmental Audit System was established in Victoria by the EPA as a means by which planning authorities, site owners, purchasers and others are provided with assurance regarding the condition of a property and its suitability for use, frequently in the context of site redevelopment. Each audit undertaken under Section 53X will have a certificate or statement attached, and a list of completed audits is publicly available. It is important to note that the list 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 list of completed audits for properties in the vicinity of the Site found that out of a total of six (6) audits completed within the Shire of Moorabool, no audits were completed within 2.5 km of the Site and the nearest audit was completed approximately 20 km to the east of the Site in Maddingley. The results of this search are provided in Appendix B.

6.3 Cultural Sensitivity

The *Aboriginal Heritage Act 2006* and *Aboriginal Heritage Regulations 2007* provide protection and management for Victoria's Aboriginal heritage. This includes Aboriginal places, objects and human remains regardless of their inclusion on the Victorian Aboriginal Heritage Register or if they are located on public or private land. Based on publicly available information reviewed online on the Victorian Department of Primary Industries website the Site is not a cultural sensitive site. A map obtained from the website showing the areas of cultural sensitivity in the vicinity of Fiskville is presented in Appendix B.

7.0 HISTORICAL INFORMATION

A review of historical site information was undertaken to assess the potential for historical uses or activities at the Site which may have adversely impacted on the contamination status. Historical site information reviewed included certificates of title, historical photographs, key correspondence, anecdotal information obtained from CFA employees, previous assessment reports and other publically available records.

A summary of the historical information which was reviewed as part of this PSA is provided in Appendix D. Key events and the findings of the desktop review are discussed in the following section.

7.1 Summary of Key Events

A chronology of key events at the Site between 1972 and 2011 is summarised in Table 4.

Table 4: Chronology of Events

Date	Event
1972	Theoretical fire fighting training begins at the Site.
1973	Practical fire fighting training begins at the Site.
1974	Flammable Liquid Pad and Fire Attack Building is constructed.
1977	Flammable Liquid Pad and Fire Training Pits have been developed.
22 December 1982	Drum fire occurs in the area immediately west of the classrooms.
23 December 1982	Two personnel are identified as being exposed to fumes while moving the fire damaged drums.
1983	Fire damaged drums are buried onsite. The exact drum burial location is unknown however the drums may have been buried in a treed area north of the Administration Building (Drum Burial Area 2)
1983/1984	Approximately 100 drums are reportedly buried in 3 trenches to the east of the Administration Building (Drum Burial Area 3). Drums were also reportedly buried in an area to the south of the Airstrip (Drum Burial Area 1) during the 1980s, the exact date of the burial is unknown.
1985	Prop Storage Area has been developed and is used for storing drums of flammable liquids. A new landfill has been developed adjacent to the western site boundary. Drums are no longer stored at the rear of the Training Centre.
1988	A.S. James conducts a Geotechnical Investigation in the Drum Burial Area 3 to the east of the Administration Building.
1990	The outdoor FTA has been developed to include Dam 2 and classrooms are built at the Training Centre.
1991	Drums and soil is excavated from the Drum Burial Area 3 to the east of the Administration Building and was disposed of off-site under EPA waste transport certificates.
1996	Rio Tinto (Minenco/CRA) produced a scope of works for site investigation at the Site.
1996	Diomedies and Coffey conduct site investigations at the Site.
1996	Rio Tinto (Minenco/CRA) conduct a review of the site investigations conducted by Diomedes and Coffey and recommend onsite remediation for contaminated soils in the FLP, FMA and Fire Training Pits.
1997	Rio Tinto (Minenco/CRA) issue a Remedial Action Plan for the FLP, FMA and Fire Training Pits.
1998	Coffey carry out the excavation, validation and reinstatement of the FLP, FMA and Fire Training Pits. Coffey concluded that the validation sampling analytical results confirmed the absence of contaminants in the remedial excavations and they recommended the excavations be backfilled with Clean Fill.
1998	Rio Tinto oversees the bioremediation of FLP, FMA and Fire Training Pits. Remediation by onsite composting is completed in 6 months. Dam 3 is observed in aerial photographs.
1998	GHD produce an 'Upgrade of the FLP' document.
1999	Rio Tinto issued a report on the remediation of FLP, FMA and Fire Training Pits.
2002	An excavator driver is identified as being exposed to fumes in the vicinity of Drum Burial Area 1 south the Airstrip during the ripping of soil for tree planting.
2001 – 2010	The site is developed further. The FLP is redeveloped to include a new concrete pad, waste water collection system and triple interceptor. LPG replaces flammable liquids as the main fuel for fire training exercises during this period. Dam 4 is created and additional trees are planted across the Site.
December 2011	Allegations that CFA members and other persons may have been exposed to harmful chemicals at the CFA Training College, Fiskville since 1973. Independent Fiskville Investigation commences chaired by Professor Rob Joy.

A summary of the key events relevant to potential site contamination onsite between 1972 and 2011 based on historical documents, previous reports and information provided by CFA personnel is provided below.

1970's

Theoretical fire fighting training began at Fiskville in 1972. Practical fire fighting training commenced the following year in 1973. Development of the Outdoor Fire Training Area began in 1974 with the construction of the Flammable Liquid Pad and Fire Attack Building. The Fire Training Pits had been developed by 1977. Information from CFA personnel indicates that drums of flammable liquids from various sources were used as fuel during practical fire fighting training sessions from approximately 1973. The drums contained a variety of flammable compounds including hydrocarbon fuels, solvents, thinners and paints.

1980's

Between approximately 1977 and 1985 drums of flammable liquids were stored in an area directly west of the Training Centre. On the 22nd December 1982, several drums stored in this area ignited. The fire was reportedly quickly extinguished but approximately 20 to 30 drums were damaged in the fire. The following day (23 December 1982), CFA personnel were overcome by vapours while moving the 'fire damaged drums. The drums were subsequently moved and buried at a later date. The exact drum burial location is unknown, however, CFA personnel have indicated to the Independent Investigation Team that the drums may have been buried in a treed area north of the Administration Building.

Reportedly a further 100 drums remained in the area west of the Training Centre after the fire affected drums were buried. CFA personnel have advised the Independent Investigation Team that these drums were buried in 3 trenches to the east of the Administration Building, sometime between 1983 and 1984. The golf course is now located in this area. A.S. James conducted a Geotechnical Investigation in this 'Drum Burial Area 3' (east of the Administration Building) in 1988. They reported that the drums were buried in 3 trenches which were approximately 20 to 30 m in length. The drums were laid horizontally in each trench and were olive green in colour, unmarked and in good condition. A.S. James personnel noted that the drums appeared to be full. A.S. James recommended that an impermeable membrane with welded or glued joints could be placed over the drums to restrict drum degradation. However, they noted that this approach would not prevent leachate into groundwater and if the risk to groundwater is unacceptable, the material should be removed from the Site and disposed of in a suitable manner.

CFA personnel reported to the Independent Investigation Team, that drums were also buried in an area to the south of the Airstrip during the 1980s, the exact date of the burial is unknown. The approximate locations of the three (3) suspected Drum Burial Areas are presented in Figure 9 in Appendix C.

1990's

The Independent Investigation Team advised that the 'Drum Burial Area 3' to the east of the Administration Building was excavated in mid January 1991 and drums and soil was disposed of off-site under EPA waste transport certificates. A summary of the waste transport certificates is provided in Appendix D.

A number of environmental site assessments were undertaken at the Site in 1996 by Diomedies, Coffey and Rio Tinto (CRA). Rio Tinto concluded from these assessments that localised soil, sediment and surface water contamination was present onsite as a result of the storage and use of flammable liquids for fire fighting training activities. Rio Tinto reported that TPH concentrations in soil samples collected from several locations including the FLP, the Fire Training Pits and the Drum Burial Pits (south of the Airstrip) exceeded soil investigation guidelines. TPH was also detected in sediment samples collected from Dam 1 and near the Dam 2 inlet. Eight (8) groundwater monitoring wells were installed as part of the ESA, however groundwater samples were only collected from two (2) wells as the other six (6) wells were dry. The reported analyte concentrations in these two (2) groundwater samples were below the groundwater assessment criteria. Therefore, it was concluded by Rio Tinto that no significant groundwater contamination was identified at the Site.

Rio Tinto recommended that onsite soil bioremediation was the most appropriate remedial option for hydrocarbon impacted soil from the FLP, Fuel Mixing Area (FMA) and Fire Training Pits. Offsite disposal

was the recommended remedial option for soil from Drum Burial Area 1 (south of the Airstrip), as the area may contain drums and other containers, so onsite treatment would be difficult.

In 1997, Rio Tinto (CRA) produced a Remediation Action Plan (RAP) for the FLP, FMA and Fire Training Pits which recommended excavation of soil from these areas followed by onsite soil composting. Rio Tinto noted that the Drum Burial Area (south of the Airstrip) and contaminated sediments in Dam 1 have not been included in the RAP and will be the subject of a future RAP.

The following year, 1998, the soil from the FLP, FMA and Fire Training Pits was excavated and remediated onsite by composting. The remediation at site was carried out in two stages. The excavation, validation and reinstatement was carried out and reported by Coffey. While Rio Tinto was commissioned in February 1998 to manage the onsite treatment of this excavated soil. In the same year, GHD produced a design specification document for the FLP.

A soil remediation and validation report for the FLP, FMA and Fire Training Pits was issued by Coffey in March 1998. Coffey collected soil validation samples from the base and sides of the remedial excavations. They concluded that the validation sampling analytical results confirmed the absence of contaminants, at levels exceeding the target concentrations adopted in the RAP (RioTinto, 1997), in soil profile samples collected from the base and sides of the FLP and FTP excavations. On this basis Coffey recommended the excavations be backfilled with clean fill.

Rio Tinto issued a report in June 1999 that outlined that the excavated soil was stockpiled in 4 compost windrows in a bunded area onsite. The soil was composted for approximately 6 months. Rio Tinto sampled the composted soil after 6 months and concluded from the reported results that the treated material did not pose an unacceptable risk to human health or the environment. CFA indicated to Rio Tinto that the soil within the compost windrows would be left in place (i.e. stockpiled in the bunded and drained area) for the foreseeable future.

2000s

In 2002, an excavator driver was exposed to fumes during the ripping of soil for tree planting in the vicinity of Drum Burial Area 1 to the south of the Airstrip. Between 2000 and 2010, the Site was developed to its current layout. The FLP was redeveloped; a new concrete pad, props and interceptor were installed and the waste water collection system was improved. LPG replaced flammable liquids as the main fuel for fire training exercises during this period.

In June 2012, Wynsafe were commissioned by the CFA to assess PFOS and PFOA concentrations in fire fighting water at the Site.

In December 2011, allegations were made that CFA members and other personal may have been exposed to harmful chemicals at the CFA Training College, Fiskville from 1973. Subsequently the Independent Fiskville Investigation commenced chaired by Professor Rob Joy.

7.2 Findings of Historical Information Review

Since the development of the Site as a fire training college in the 1970's, a range of activities have been conducted at the Site which had the potential to contaminate the Site and surrounding environment.

Various flammable liquids from unknown sources were used as fuel during fire fighting training sessions. The flammable liquids reportedly included a variety of flammable compounds such as hydrocarbon fuel, solvents, thinners and paints. Fire training areas were largely unsealed and untreated waste water from these areas drained directly into Dam 1 and the surrounding paddocks.

Several drums of flammable liquid, stored directly west of the Training Centre caught on fire in December 1982. Following this incident, drums of flammable liquids and waste were reportedly buried in three locations on the Site during the early to mid 1980s. The Drum Burial Area 3 to the east of the Administration Building was reportedly excavated in mid January 1991 and drums and soil was disposed of off-site under EPA waste transport certificates.

Following the drum fire and burial, flammable liquid practices appear to have improved at the Site. Several environmental site assessments were undertaken at the Site in the mid to late 1990s. Excavation and remediation of hydrocarbon contaminated soils from the historical FLP, FMA and Fire Training Pits was subsequently undertaken. Dams 2 and 3 were also constructed during this period and waste water treatment improved at the Site.

An excavator driver is identified as being exposed to fumes in the vicinity of Drum Burial Area 1 south the Airstrip during the ripping of soil for tree planting in 2002. Improvements to the FLP were made during 2000s to include a new concrete pad, waste water collection system and triple interceptor. LPG replaced flammable liquids as the main fuel for fire training exercises during this period.

8.0 POTENTIAL SOURCES OF CONTAMINATION

A number of activities associated with potential site contamination have been identified following the review of historical documents, previous reports, information provided by CFA personnel and the Site walkover. These identified activities include:

- Fire training exercises involving the use of flammable liquids and foams in unsealed areas;
- Storage of flammable liquids and wastes onsite;
- Burial of flammable liquids and wastes onsite; and
- Waste water drainage from the FLP.

A list of the identified areas where these activities may have occurred at the Site is provided in Table 5: Areas with Potential Sources of Contamination. Areas where these activities may have occurred are also presented on Figure 7 – Areas with Potential Sources of Contamination in Appendix C.

Table 5: Areas with Potential Sources of Contamination

Area Name	Description
Outdoor Fire Training Area	
Historical Flammable Liquid Pad and Fuel Mixing Area	Gravel covered area where flammable liquids of unknown origin were mixed and burnt during fire fighting training exercises. It is noted that hydrocarbon contamination in this area was remediated in 1997/1998.
Historical Fire Training Pits	Unlined pits into which flammable liquids were poured and burnt during fire fighting training exercises.
Historical Sludge Burial Pit	A pit was referred to in the Minenco (Rio Tinto/CRA) (1996) report, where sludge from the Fire Training Pits was placed before the pits were covered in scoria. The Independent Investigation Team has advised, based on its interviews with CFA personnel, that there is some doubt as to the existence of this 'pit', rather that there may have been shallow 'scrapes' in the ground.
Soil Composting Area	Area where Rio Tinto remediated excavated soil from FLP, FMA and FTP in 1998.
Dam 1	A dam which has collected surface runoff and waste water from the FLP since the 1970s.
Dam 2	A dam which has collected surface runoff and waste water from Dam 1 since the 1990s.
Dam 3	A dam which has collected surface runoff and waste water from Dam 2 since the 1998.
Prop Storage Area	Historically used to store drums of inferred flammable liquids. Now used to store fire training props and materials including: miscellaneous drums, transformers, batteries car tyres, old fire extinguishers.
AST	Diesel and petrol ASTs currently located south of the Prop Storage Area.
USTs	Historical petrol and diesel USTs potentially located adjacent to the 'Ablution Blocks'.
Training Centre Area	
Drum Fire Area	This area pre-1985 was used to store drums of inferred flammable liquids. Information from CFA personnel suggested that this area is where drums caught fire on 22 December 1982.
UST	Historical diesel UST located at the rear of the classrooms.
Drum Burial Area 2 north of the Administration Building	Information provided by CFA personnel to the Independent Investigation Team suggest that fire damaged drums may have been buried in a treed area north of the Administration Building in 1983.
Drum Burial Area 3 east of the Administration Building	Information provided by CFA personnel to the independent Investigation Team suggests that approximately 100 drums are reportedly buried in 3 trenches to the east of the Administration Building between 1983 and 1984.
Northern Area	
Drum Burial Area 1 south of the Airstrip	Information from CFA personnel suggests that drums were buried in this area during the 1980s.
South Western Area	
Lake Fiskville	This dam is connected to the Dam 1 – 4. Water in this dams flows off-site via Beremboke Creek which is part of the Moorabool River Catchment.
Dams 4	A dam which has collected surface runoff and waste water from Dam 3 since approximately 2005.
Landfill 1	Area where AWM reportedly disposed of unknown materials between 1950 and 1970. CFA disposed of waste including potentially drums of flammable liquids and sludge from the Fire Training Pits during the 1970s and 1980s. CFA ceased using this landfill in the early 1990s.
Landfill 2	This area was developed by CFA sometime between 1977 and 1985. CFA reportedly disposed of partially burned plastics, props and sludge from the Fire Training Pits in this landfill.

9.0 FIELD INVESTIGATION

9.1 Scope

The field work component of this PSA was intended to provide an initial assessment of the areas that are related to the terms of reference for the Independent Investigation, particularly areas associated with buried flammable liquids, drums and/or other related contaminants.

The scope of the field investigation of this PSA was therefore targeted at selected 'Areas of Interest' where drums of flammable liquids may have been stored, used or buried as well as the dams which collected surface runoff from the FTA.

When Golder Associates commenced this PSA, the Independent Investigation Team was only aware of one (1) Drum Burial Area which was a small area within Drum Burial Area 1. The additional two (2) Drum Burial Areas (2&3) and remainder of Drum Burial Area 1 were identified by the Independent Investigation Team based on advice from CFA personnel, following the completion of the Golder Associates intrusive investigation. Therefore only a small area of Drum Burial Area 1 to the south of the Airstrip and north of Deep Creek Road was intrusively investigated during this PSA. However, subsequent to the completion of the intrusive investigation, the three (3) suspected Drum Burial Areas were surveyed with Ground Penetrating Radar (GPR) to assess if any subsurface features (e.g. drums or trenches) were present. The results of this GPR are discussed in Section 9.2.4 and the suspected Drum Burial Areas are presented in Figure 9 in Appendix C.

It was beyond the scope of this PSA to undertake a comprehensive assessment of all potential sources of contamination across the entire Site. Therefore, a number of areas identified in Table 5 have not been assessed further in this report. The areas which were not investigated but may be sources of soil, surface water or groundwater contamination are:

- Historical Flammable Liquid Pad and Fuel Mixing Area;
- Historical Fire Training Pits;
- Part of Drum Burial Area 1 (south of the Airstrip and south of Deep Creek Road);
- Drum Burial Area 2 (north of the Administration Building);
- Drum Burial Area 3 (east of the Administration Building);
- Historical Sludge Burial Pit;
- ASTs;
- USTs; and
- Landfill 1 and Landfill 2.

Additional investigation of these areas could include:

- Collection of soil samples from test pits and soil bores; and
- Groundwater monitoring well installation and sampling.

9.2 Methodology

Discrete shallow soil samples were collected from identified drum storage and burial areas (i.e. Drum Burial Area 1 (south of the Airstrip), Drum Fire Area and Prop Storage Area). The current FLP is located in the area which previously included the Historical FLP, FMA and Fire Training Pits. Shallow soils from these areas were excavated and bio-remediated onsite in the 'Soil Composting Area' in the 1990's. Composite soil samples were collected from stockpiled 'bio-remediated' soil in the Soil Composting Area.

Sediment and surface water samples were collected from Dam 1, adjacent to the current FLP. Dam 1 has collected surface water runoff from the FLP since the FLP was constructed in the mid 1970s. Sediment and surface water samples were also collected from Dams 2 - 4 and Lake Fiskville, as these dams are connected to Dam 1.

Tree core samples were collected from eucalyptus trees within Drum Burial Area 1 (south of the Airstrip), as analysis of the Volatile Organic Compounds (VOC) content of tree cores can be used to detect subsurface VOC contamination.

The three (3) accessible groundwater bores (BH3, BH4 and BH5) onsite, were gauged with an oil/water interface probe during fieldworks, however all three bores were found to be dry. Therefore, it was not possible to collect and analyse groundwater samples during this site investigation.

Fieldwork was undertaken between the 7 February and 1 March 2012. The sampling programme is presented in Table 6.

Table 6: Sampling Program

Area of Interest	Sample Type	Chemicals of Interest
Outdoor Fire Training Area		
Soil Composting Area	Soil	TPH, BTEX, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCDD and PCDF, PCB, Pesticides
Prop Storage Area	Soil	TPH, BTEX, PAH, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCB, Pesticides
Dams 1,2,3,4	Sediment	TPH, BTEX, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCDD and PCDF, PCB, Pesticides, TOC
	Surface Water	TPH, BTEX, PAH, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCB, Pesticides
Training Centre Area		
Drum Fire Area	Soil	TPH, BTEX, PAH, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCB, Pesticides
Northern Area		
Drum Burial Area 1 (south of the Airstrip)	Soil	TPH, BTEX, PAH, Metals, VOC*, SVOC* Phenols, Perchlorates, PFOA/PFOS, PCB, Pesticides
	Tree Core	VOC
South Western Area		
Lake Fiskville	Sediment	TPH, BTEX, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCDD and PCDF, PCB, Pesticides, TOC
Lake Fiskville	Surface Water	TPH, BTEX, PAH, Metals, VOC*, SVOC*, Phenols, Perchlorates, PFOA/PFOS, PCB, Pesticides

Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Poly Aromatic Hydrocarbons (PAH)Metals (As, Cd, Cr, Cu, Hg, Ni, Pb & Zn), , Perfluoroctyl Sulfonate (PFOS), Perfluoroctanoic Acid (PFOA), Polychlorinated biphenyls (PCBs); and Semi Volatile Organic Compounds SVOC (SVOC)

* Standard suite and tentatively identified compounds

In total, Golder Associates collected and analysed 19 primary soil samples from Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Prop Storage Area and Soil Composting Area. A total of 10 sediment samples and six (6) surface water samples were collected and analysed from the Dams 1-4 and Lake Fiskville.

Additional samples were collected as necessary based on Golder Associates Quality Assurance/Quality Check (QA/QC) protocols. Additional soil and tree core samples were collected during the intrusive works and were placed on hold for analysis at a later date if deemed necessary.

A sample location plan is presented as Figure 8 – 2012 Sampling Location Plan in Appendix C.

A summary of the sampling methodology is presented in Appendix E.

Environmental data (soil, sediment, surface water) collected from the Site were compared to available generic risk-based criteria protective of humans and the environment in a screening level risk assessment. Where criteria were lacking, assessment of risks to humans and the environment could not be made. Not all samples were screened for impacts to ecology and humans. The samples were screened based on the beneficial uses identified under the applicable State Environmental Protection Policies (SEPPs) and the likelihood of exposure to receptors as interpreted by Golder based on the understanding of activities at the Site, and observations made during the Site inspection. The objectives of the screening are described in the appropriate sections for assessment of soil, sediment and water. Where exclusions apply to the screening assessment (i.e., if exposure to ecology and/or humans was not considered for areas or media identified at the Site), this is stated for transparency.

9.2.1 Tentatively Identified Compounds

In addition to the wide range of compounds analysed, samples were also analysed for tentatively identified volatile and semi-volatile compounds. This analytical method identifies chemicals that are not included as target compounds in the standard VOC and SVOC analytical suite. The purpose of this analysis was to identify if there were any additional compounds which would warrant further assessment.

Tentatively Identified Compounds (TICs) were detected in a number of soil samples collected in the Drum Burial Area and Prop Storage Area. TICs were also identified in all sediment and surface water samples collected from Dams 1-4 and Lake Fiskville. The TICs laboratory reports are presented in Appendix J.

The TICs results were screened to identify if the compound was a ‘suspected or known human carcinogen’, or a ‘suspected or known human mutagen’. For the purposes of screening, classifications by expert international organisations or Australian/overseas regulatory authorities were used. In particular classifications were sought from:

- International Agency for Research on Cancer (IARC);
- Australian Hazardous Substances Information System (HSIS);
- European Chemicals Agency (ECHA);
- United States National Toxicology Program (NTP);
- United States Environment Protection Authority (US EPA);
- American Conference of Industrial Hygienists (ACGIH); and
- DFG Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (German MAK, presented in ACGIH).

In the absence of a classification information on similar substances was considered. If no information was available the status of the substances was designated as unknown.

Since each of the organisations have different science policies for considering a chemical as a potential human carcinogen, a hierarchical approach was adopted during screening. The hierarchy is consistent with Australian science policy (enHealth 2004).

The TICs screening process did not identify compounds that were 'suspected or known human carcinogens or mutagens. Thus, no TICs warranting further assessment were identified during this PSA.

9.2.2 Assessment of Dioxins

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) are poly-chlorinated dioxin like compounds that are considered to be structurally and toxicologically related. PCDDs are represented by up to seven isomers, while PCDFs are represented by up to ten isomers. The structural differences between each isomer, results in differences in toxicity or potency. The overall toxicity of PCDD/F mixtures is expressed using the International Toxic Equivalents (TEQ). The TEQ scheme assigns each isomer a specific Toxic Equivalency Factor (TEF) relative to the most toxic isomer (TCDD (2,3,7,8-TCDD) - which is given a value of one).

To calculate the total PCDD or PCDF TEQ of a dioxin/furan mixture, the amounts of each isomer are multiplied by the respective TEF and summed. In this report the TEQ were calculated using World Health Organisation TEF's.

Where isomers are reported at concentrations less than the laboratory LOR), there are a number of standard methods that the TEQ can be calculated for PCDD/Fs. The TEQ can be calculated by assuming that the isomers reported below the LOR are present at zero, 50% or 100% of the LOR. These give an indication of a conservative best-case to worst-case estimate of actual concentrations, respectively, of total PCDD/D TEQ. This assessment calculates the TEQ based on 50% of the LOR.

9.2.3 Tree Core Samples

Tree core samples were collected from eucalyptus trees which are growing in the Drum Burial Area 1 (south of the Airstrip). Shallow groundwater and water in the unsaturated groundwater zone is absorbed by tree roots and is transported up the tree trunk. VOC from subsurface contamination can also be taken up by tree roots into the tree trunks. Thus the VOC content of tree cores can be used as an indication of the presence of subsurface VOC contamination. A number of factors influence the VOC concentrations in tree cores including the type of VOC, tree species, rooting depth, depth to groundwater, groundwater chemistry and depth to contamination.

This method was adopted as a rapid and cost effective method to screen for the potential presence of a range of VOCs in the subsurface soil vapour in the suspected Drum Burial Area 1 (south of the Airstrip).

Tree core sampling was undertaken in general accordance with Golder Associates standard sampling protocols and in accordance with the United States Geological Society 5008 – 2008 *"User guide to the collection and analysis of tree cores to assess the distribution of subsurface volatile organic compounds.* The results of the laboratory tree core sample analysis are summarised in Appendix H.

The reported analytical results for all tree core samples collected from eucalyptus trees growing in the Drum Burial Area 1 (south of the Airstrip) were below the laboratory LOR for VOC.

The absence of VOC in tree core samples does not mean that VOC contamination in the soil vapour is absent in the subsurface of the Drum Burial Area. It simply indicates that this method is not able to be used on this site as a rapid screening tool. The results are hence not discussed any further in this report.

9.2.4 Ground Penetrating Radar Survey

Golder Associates engaged Cardno Australia Pty Ltd (Cardno) to undertake a GPR survey of three (3) suspected Drum Burial Areas at the CFA Training College at Fiskville between the 1 and 2 May 2012.

The three (3) suspected burial areas were surveyed with GPR to assess if any subsurface features such as drums or trenches were present. Cardno reported that no anomalies were detected that resembled buried drums or trenches.

The suspected Drum Burial Areas are presented in Figure 9 in Appendix C.

A copy of Cardno's report is provided in Appendix E.

9.3 Soil Assessment

The SEPP 2002 (Prevention and Management of Contamination of Land) (Land SEPP, GoV, 2002) outlines land use categories and specifies beneficial uses that are to be protected for each category.

The site operates as a training college for emergency response and incident management and will remain in this use for the foreseeable future. There are a number of land uses at the Site:

- Industrial land use (areas directly associated with fire training);
- Residential land use (houses for site staff and temporary accommodation for trainees); and
- Parks and Recreation land use (open space such as the golf course and running tracks).

The field investigation component of this PSA has focussed on areas associated with fire training. Therefore Industrial was determined to be the most appropriate land use category for the areas investigated during this PSA and 'Industrial' criteria have been used to assess soil results.

A summary of beneficial uses which must be protected for Industrial land use categories is provided in Appendix F. A summary of the soil criteria used to assess soil samples collected at the Site is also provided in Appendix F.

9.3.1 Field Observations

The subsurface conditions encountered in the boreholes are summarised in Table 7 and presented in borehole logs in Appendix G.

Table 7: Summary of Subsurface Condition in Boreholes

Sub-surface units	Approximate Depth (m bgl)	Description
Unit 1 – Fill	0.0 – 0.5	Sandy Silt, low liquid limit, pale brown, sand is fine to coarse grained
Unit 2 – Silty Clay	0.2 – 1.8	Silty Clay, high plasticity, pale grey to dark brown, trace of fine to coarse sub-rounded gravel and fine to course sand.

An assessment of each soil sample was made in the field and involved ranking based on both odorous and visible evidence of contamination. Each soil sample recovered was given a ranking according to Table 8.

Table 8: Environmental Ranking System for Soil Samples

Visible Contamination		Odorous Soil	
Rank	**Description**	**Rank**	**Description**
0	No visible evidence of contamination	A	No odour
1	Slight evidence of visual contamination (trace quantities)	B	Slight odour
2	Visible contamination (more than trace quantities)	C	Moderately offensive odour
3	Obviously contaminated (significant colour and staining)	D	Strongly offensive odour

During the soil sampling works, the following field observations were recorded:

Drum Burial Area, Drum Fire Area and Soil Composting Area

- Recorded PID headspace results were less than 1ppm;
- Samples collected were assigned a ranking of 0A indicating no visual or olfactory evidence of contamination; and
- Groundwater was not encountered during the assessment.

Prop Storage Area

- PID headspace results ranged from a minimum of 0ppm to a maximum of 2.0ppm in soil sample H8HA1/2001 collected and tested from hand auger hole H8HA1;
- One sample collected (A8HA1) was assigned a ranking of 0B indicating no evidence of visual of contamination and a slight odour;
- Three samples collected (A8HA2, A8HA4, A8HA5) were assigned a ranking of 1D indicating slight evidence of visual of contamination and a strong odour; and
- Groundwater was not encountered during the assessment.

Details of each soil sample including PID readings and contamination rankings are presented in the borehole logs included in Appendix G.

9.3.2 Soil Results

The results of the laboratory soil analysis are summarised in Table H1 (results excluding PCDD/Fs) and Table H2 (PCDD/Fs only) in Appendix H and are discussed in comparison with the adopted assessment criteria below.

A summary of the reported COI detected above the laboratory LOR is presented in Table 9 below.

Table 9: Reported Chemicals of Interest in Soil Results

Sample Location	Sample ID with Maximum Concentration	Chemicals of Interest	Maximum Reported Concentration mg/kg
Drum Burial Area, Prop Storage Area, Soil Composting Area	A6PT8/2002	TPH	600 (TPH C_{15}–C_{28})
Drum Burial Area, Drum Fire Area, Prop Storage Area, Soil Composting Area	A9HA1/3001	Metals	91 (Zinc)
Prop Storage Area, Soil Composting Area	A8HA2/2001	PFOA	0.027
Drum Burial Area, Drum Fire Area, Prop Storage Area, Soil Composting Area	A9HA2/3001	PFOS	2.19
Prop Storage Area (1 sample)	A8HA5/2001	Phenols	4.6 (3 & 4 methylphenol)
Soil Composting Area	A9HA2/3001	PCDD & PCDF	3.48 (TEQ)*

* PCDD & PCDF reported in pg/g

The reported analytical results for soil samples collected from Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Prop Storage Area and Soil Composting Area were below the laboratory LOR for BTEX, PAH, PCB, pesticides, perchlorates, VOC (standard suite) and SVOC (standard suite).

Assessment of Ecological Risk

A summary of the reported COI detected above the laboratory LOR and the available ecological assessment criteria is presented in Table 10.

Table 10: Summary of COI in Soils Above Ecological Assessment Criteria

Sample Location	Sample ID with Maximum Concentration	Chemicals of Interest	Maximum Reported Concentration mg/kg	Ecological Criteria mg/kg
Prop Storage Area (1 sample)	A8HA5/2001	Phenols (3 & 4 methylphenol)	4.6	**2.6**

The analytical results for soil samples collected from Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Soil Composting Area and Prop Storage Area were below the adopted NEPM (1999) *EILs* for metals (where EILs are provided) .

Reported TPH concentrations were below the adopted CCME (2008) – *Canada-Wide Standard for Petroleum Hydrocarbons in Soils* criteria.

The reported 3- & 4-methylphenol concentration of 4.6 mg/kg in sample A8HA5/2001 exceeded the adopted Dutch RIVM (Verbruggen et al., 2001) SRC_{eco} soil assessment criteria of 2.6 mg/kg for p-cresol (4-methylphenol). The reported concentration is approximately twice the adopted criterion.

The reported 3- & 4-methylphenol concentration in sample A8HA5/2001 from the Drum Burial Area 1 (south of the Airstrip) exceeded the adopted Dutch RIVM (Verbruggen et al., 2001) SRC_{eco} soil assessment criterion for 4-methylphenol (p-cresol). The criterion adopted represents p-cresol only but has been used to screen the sum of 3- & 4-methylphenol (m- and p-cresol) for which the relative proportions present are unknown. The criterion is of low reliability indicating there were insufficient data to derive a higher reliability criterion. In derivation of risk-based criteria where there are limited data, standard risk-based practice is to apply additional safety factors to reduce the likelihood of a criterion being under-protective. This may in turn result in a criterion being over-protective. Measured 3- & 4-methylphenol concentrations therefore do not indicate the potential for a risk of ecological impact at the Site.

The impact of 6:2 Fluorotelomer Sulfonate, PFOA and PFOS on the beneficial use; “maintenance of modified ecosystems” was not assessed, as no ecological assessment criteria were found during the preparation of this report.

Assessment of Human Health Risk

A summary of the reported COI detected above the LOR and the available human health assessment criteria is presented in Table 11.

Table 11: Summary of COI in Soils Above the Human Health Assessment Criteria

Sample Location	Sample ID with Maximum Concentration	Chemicals of Interest	Maximum Reported Concentration mg/kg	HH Criteria Industrial mg/kg
Soil Composting Area	A9HA2/3001	PFOS	2.2	**2.1**

The analytical results for soil samples collected from the Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Soil Composting Area and Prop Storage Area were compared to the adopted NEPM *HILs F* for metals, PAHs, OCPs, PCBs, phenols and petroleum hydrocarbon constituents (where provided) and were found to be below the adopted criteria.

Reported TPH concentrations were below the adopted CCME (2008) – *Canada-Wide Standard for Petroleum Hydrocarbons in Soils* criteria. Reported 3- & 4-methylphenol concentrations were below the adopted US EPA (2011) *Regional Screening Levels for Industrial use*.

The reported PFOS concentration of 2.2 mg/kg in sample A9HA2/3001 collected in the Soil Composting Area exceeded the adopted Minnesota PCA (1999) *SRV* criterion of 2.1 mg/kg for Industrial land use. However, the exceedance was marginal and as such the concentration measured does not indicate the potential for a risk of impact to humans at the Site.

6:2 Fluorotelomer Sulfonate (6:2 FtS) was detected in soils, however, published human health criteria for this compound could not be sourced during the preparation of this report.

9.3.3 Summary of Soil Assessment

The reported soil analytical results were compared to the ecological and human health based assessment criteria with the majority of compounds reported below the adopted soil criteria. PFOS and 3- & 4-methylphenol concentrations were found above adopted criteria, however the reported concentrations do not indicate the potential for an adverse impact on potential receptors as:

- PFOS concentrations in soils do not indicate the potential for an adverse impact on human health at the Site, as the criteria exceedance is marginal and the location where the exceedance was found, is a soil stockpile in an area of the Site infrequently accessed by site users; and
- 3- & 4-methylphenol concentrations in soils do not indicate the potential for an adverse impact on ecology at the Site due to the conservative nature of the adopted criteria.

Overall, where applicable criteria are available, the soil analytical results from Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Prop Storage Area and Soil Composting Area do not indicate the potential for an adverse impact on the beneficial uses; “maintenance of modified ecosystems” and “human health”.

9.4 Surface Water Assessment

The protected beneficial uses of surface water in Victoria are outlined in the SEPP (WoV, GoV, 2003) (Variation S 107). The SEPP (GoV, 2003) classifies surface water into the following four segments:

- Aquatic Reserves Segments;
- Wetland and Lakes Segments;
- River and Stream Segments; and
- Marine and Estuarine Segments.

Each segment has defined beneficial uses and surface water in each segment must be of a suitable quality and quantity to support the defined beneficial uses.

The assessment of surface waters has been considered in two parts:

- Lake Fiskville; and
- Dams 1-4.

Lake Fiskville is located in the south western portion of the Site, and discharges into Beremboke Creek which is part of the Moorabool River Catchment. It is inferred that the eastern portion of site drains south easterly into Yaloak Creek, which is part of the Werribee River Catchment. The Moorabool and Werribee rivers are listed within the Cleared Hills and Coastal Plains (River and Stream) Segment in the SEPP (WoV, GoV, 2003) (S 107).

A detailed summary of beneficial uses which must be protected for Cleared Hills and Coastal Plains Segment is provided in Appendix F.

Dams 1-4 have been constructed by CFA and form part of the wastewater treatment system for collected runoff from the fire training areas prior to discharge to Lake Fiskville. Beneficial uses as established under the SEPP (WoV) do not therefore apply in the Dams as they are considered 'waters within artificial wastewater treatment systems'.

A summary of the surface water criteria used to assess surface water samples collected at the Site is provided in Appendix F.

9.4.1 Field Observations

Sampling was performed in general accordance with the Golder Associates' standard surface water sampling procedures and the Monitoring Guidelines Summary in ANZECC and ARMCANZ (2000) WQG.

Surface waters from Dams 1- 4 and Lake Fiskville were sampled using dedicated disposable bailers. Water Quality Parameters (pH, electrical conductivity (EC), temperature, and dissolved oxygen (DO)) were measured in-situ using a Hanna Multi-Meter Probe. The recorded water quality parameters are summarised in Table 12.

Table 12: Surface Water Quality Parameters

Sample Details		Water Quality Parameters			
Sample Location	**Sample ID**	**Temperature (ºC)**	**Dissolved Oxygen (ppm)**	**Electric Conductivity (µS/cm)**	**pH**
Dam 1	SW6	19.8	9.51	460.9	9.11
Dam 2	SW5	20.4	21.18	573	8.81
Dam 3	SW4	20.3	12.21	663	9.61
Dam 4	SW3	17.4	9.59	553	9.21
Lake Fiskville (inlet)	SW2	17.6	7.79	285.3	7.70
Lake Fiskville (outlet)	SW1	17.6	5.90	269.4	7.25

9.4.2 Surface Water Assessment Results

The results of the laboratory surface water sample analysis are summarised in Table H3 for Lake Fiskville and Table H4 for the Dams 1-4 in Appendix H and are discussed in comparison with the adopted assessment criteria below.

A summary of the reported COI detected above the laboratory LOR is presented in Table 13 below.

Table 13: Reported Chemicals of Interest in Surface Water Results

Sample Location	Sample ID with Maximum Concentration	Chemicals of Interest	Maximum Reported Concentration mg/L
Dam 1, Dam 2, Dam 3	SW6 (Dam 1)	TPH	2.1 (TPH C_{15}-C_{28})
Dam 1, Dam 2	SW6 (Dam 1)	BTEX	0.002 (xylene (m&p))
Dam 1 - 4 and Lake Fiskville	SW6 (Dam 1)	Metals	0.026 (zinc)
Dam 1 - 4 and Lake Fiskville	SW5 (Dam 2)	PFOA	0.0132
Dam 1 - 4 and Lake Fiskville	SW5 (Dam 2)	PFOS	0.202

The reported analytical results for the surface water samples were below the laboratory LOR for PAH, pesticides, phenols, perchlorates, PCBs, VOC (standard suite) and SVOC (standard suite).

9.4.3 Lake Fiskville

Assessment of Ecological Risk

The analytical results for surface water samples from Lake Fiskville (SW1 and SW2) were compared to the available assessment criteria protective of the beneficial use for the maintenance of aquatic ecosystems.

The reported analytical concentrations which exceeded the adopted ecological assessment criteria are summarised in Table 14.

Table 14: COI in Surface Water Above Ecological Assessment Criteria

Sample Location	Sample ID	Chemicals of Interest	Reported Concentration (mg/L)	Ecological Criteria (mg/L)
Lake Fiskville (inlet)	SW2	Copper (Filtered)	0.003	**0.0014**
		Zinc (Filtered)	0.013	**0.008**
Lake Fiskville (outlet)	SW1	Copper (Filtered)	0.002	**0.0014**

Reported concentrations of copper in samples SW1 and SW2 and zinc in sample SW2 were found to exceed the available ecological assessment criteria.

The analytical results for surface water samples from Lake Fiskville (SW1 and SW2) were below the available ecological assessment criteria for the majority of compounds with the exception of copper and zinc. The metal exceedance were less than two times the criteria for copper in sample SW1 and zinc in sample SW2. The exceedence of copper in sample SW2 was slightly greater than two times the criterion. The results for water samples from Lake Fiskville indicate limited potential for water quality in Lake Fiskville to adversely impact on the beneficial use “maintenance of aquatic ecosystems”. Coffey (1996, Reference E3523/2-AD) suggested that elevated heavy metal concentrations in surface water and groundwater samples may be typical of background concentrations. However as Golder Associates was unable to sample groundwater and background surface water quality has not been assessed as part of this PSA, it is not possible to determine if copper and zinc concentrations in Lake Fiskville are indicative of background concentrations.

Assessment of Human Health Risk

The analytical results for surface water samples from Lake Fiskville (SW1 and SW2) were compared to the adopted drinking water criteria.

The majority of the reported analytical results for surface water samples were below the drinking water criteria. The reported analytical concentrations which exceeded the drinking water criteria are summarised in Table 15.

Table 15: COI above adopted Human Health Assessment Criteria

Sample Location	Sample ID	Chemicals of Interest	Reported Concentration (mg/L)	Drinking Water Criteria (mg/L)
Lake Fiskville (inlet)	SW2	PFOA	0.00146	**0.0004**
		PFOS	0.035	**0.0002**
Lake Fiskville (outlet)	SW1	PFOA	0.00135	**0.0004**
		PFOS	0.0272	**0.0002**
		TPH C16-C34	0.13	**0.09 (aromatic fraction only), 0.3 (aliphatic)**

Concentrations of TPH C16-C34 in SW1 exceeded aromatic fraction criteria. However, concentrations of TPH C16-C34 do not indicate the potential for an adverse impact on human health as:

- The criteria adopted were developed in regard to aromatic hydrocarbons, and PAHs were not detected above the laboratory LOR in this sample; and
- The exceedance of the criterion is only marginal and since these criteria were developed to be protective of an adult drinking 2 Litres of water per day, the criteria would be conservative relative to a primary contact recreation exposure.

The concentrations of PFOA and PFOS in surface water samples from Lake Fiskville were found to exceed the US EPA (2009) *HAL* assessment criteria. Concentrations of PFOS were several orders of magnitude greater than the drinking water criteria.

As Lake Fiskville is hydraulically connected to the Moorabool River Catchment area, the beneficial uses “human consumption” and “contact recreation” have the potential to be realised with pathways potentially linking PFOA and PFOS in waters of Lake Fiskville to human receptors downstream. These criteria are conservative in that they are based on a daily consumption of around 2 litres of water, which for downstream users, will not come from Lake Fiskville alone. Furthermore, dilution of the PFOA and PFOS concentrations in the Moorabool River Catchment following discharge from Lake Fiskville is likely to result in reduced exposure concentrations compared to that reported in Lake Fiskville. In addition, the exposure concentrations may be further reduced via mechanisms of environmental fate and transport.

With respect PFOA and PFOS, further investigation is recommended to:

- Better quantify the potential for risk to downstream human receptors taking into account downstream dilution and environmental fate and transport mechanisms; and
- Investigate potential sources of PFOA and PFOS discharges to Lake Fiskville and identify potential means of reducing PFOA and PFOS concentrations in Lake Fiskville and discharging off site, if the potential risk of adverse impact to downstream human health receptors is found to be unacceptable.

Assessment of Risk to Agriculture, Irrigation and Aquaculture

The analytical results for surface water samples from Lake Fiskville (SW1 and SW2) were below the available criteria protective of the beneficial uses for agriculture and irrigation and aquaculture. It is noted that the assessment criteria were below the laboratory LOR for some VOC and pesticides. The impact of 6:2 Fluorotelomer Sulfonate, PFOA and PFOS on this beneficial use was not assessed, as no assessment criteria were found during the preparation of this report.

The analytical results for surface water samples from Lake Fiskville do not indicate the potential for an adverse impact on beneficial uses associated with “agriculture and irrigation and aquaculture”.

9.4.4 Dams 1-4

Assessment of Human Health Risk

The analytical results for the surface water samples from Dams 1-4 (SW6-SW3) were compared to the adopted drinking water criteria. The majority of the reported analytical results for surface water samples were below the drinking water criteria.

As listed in Table 16 the concentrations of PFOA and PFOS in surface water samples from Dams 1-4 were found to exceed the US EPA (2009) HAL assessment (Drinking Water) criteria. Screening the dam water quality against these criteria is a conservative approach as the criteria are based on daily consumption of 2 L of water. As Dams 1-4 form part of the wastewater treatment at the Site, consumption of this volume of water from these dams is unlikely. The more likely exposure scenarios are associated with limited dermal contact, inhalation or ingestion of water from these Dams during routine maintenance activities, accidental exposures, and use of dam water during fire training (Dam 2 only). The exposure doses in these exposure scenarios are significantly reduced compared to the exposure doses upon which the drinking water criteria are based.

Concentrations of TPH were found to exceed WHO 2008 guidance, though it is noted that these criteria were developed for individual aromatic and aliphatic fractions. The comparison of TPH concentrations detected in surface water against criteria for aromatic fractions is also conservative given that (with the exception of 2ug/L xylene detected in SW6) MAHs and PAH were not detected in surface water samples. Concentrations of TPH C10-C16 in SW6 exceeded both aromatic and aliphatic fraction criteria. It is also noted that these criteria were also developed to be protective of an adult drinking 2 Litres of water per day and as such would be conservative relative to the likely exposure scenarios; routine maintenance activities, accidental exposures, and use of dam water during fire training (Dam 2 only). .

In summary, these data indicate that appropriate occupational health and safety procedures need to be undertaken when personnel and trainees are involved in activities or works associated with the Dam water.

A previous assessment of PFOS and PFOA concentrations in fire fighting water at the Site, undertaken by Wynsafe Occupational Health Services Pty Ltd in June 2010, made similar recommendations. Wynsafe concluded that if Standard Operating Procedures (SOPs) are followed and related Personal Protective Equipment (PPE) is used, personnel will suffer no adverse health effects from exposure to PFOS and/or PFOA in the fire fighting water. A copy of the report is provided in Appendix D.

Table 16: Dams 1-4 Surface Water Results which exceed Human Health Assessment Criteria

Sample Location	Sample ID	Chemicals of Interest	Reported Concentration, mg/L	Drinking Water Criteria, mg/L
Dam 1	SW6	PFOA	0.0113	**0.0004**
		PFOS	0.122	**0.0002**
		TPH C10 – C16	0.47	**0.09 (aromatic), 0.3 (aliphatic)**
		TPH C16 – C34	2.00	**0.09 (aromatic), no aliphatic criteria**
		TPH C34 – C40	0.11	**0.09 (aromatic), no aliphatic criteria**
Dam 2	SW5	PFOA	0.0132	**0.0004**
		PFOS	0.202	**0.0002**
		TPH C10 – C16	0.11	**0.09 (aromatic), 0.3 (aliphatic)**
		TPH C16 – C34	1.36	**0.09 (aromatic), no aliphatic criteria**
		TPH C34 – C40	0.15	**0.09 (aromatic), no aliphatic criteria**
Dam 3	SW4	PFOA	0.00888	**0.0004**
		PFOS	0.153	**0.0002**
		TPH C16 – C34	0.32	**0.09 (aromatic), no aliphatic criteria**
Dam 4	SW3	PFOA	0.0082	**0.0004**
		PFOS	0.115	**0.0002**

9.5 Sediment Assessment

Sediment samples were collected from Dams 1 – 4 and Lake Fiskville. The assessment of sediments has been considered in two parts:

- Lake Fiskville; and
- Dams 1-4.

Beremboke Creek flows through Lake Fiskville thus sediments in Lake Fiskville must be of a suitable quality and quantity to support the defined beneficial uses within the Cleared Hills and Coastal Plains Segment. The beneficial uses for Lake Fiskville listed under the Cleared Hills and Coastal Plains Segment (and identified above) are considered unlikely to be realised given the use of the Site. The beneficial uses of "maintenance of aquatic ecosystems", "human health" and "aesthetics" are protected by the SEPP (WoV). The sediment in Lake Fiskville has been assessed against these indicators and objectives.

There is the potential for site users to come into contact with sediment in these dams as a consequence of accidental exposures, or during routine maintenance activities (e.g. dredging, installing aeration pumps). Noting that humans undertaking planned maintenance activities, are likely to be wearing appropriate PPE which will further limit the likelihood for exposure. On this basis, sediments in Dams 1-4 have been assessed for the beneficial uses: "human health".

9.5.1 Field Observations

An assessment of each sediment sample was made in the field and each sediment sample recovered was given a ranking based on both odorous and visible evidence of contamination. These field observations are summarised in Table 17.

Table 17: Sediment Sampling Field Observations

Sample Location		PID Headspace Reading (ppm)	Observations
Dam 1	(inlet)	29.5	2C = Hydrocarbon Sheen and Moderate Hydrocarbon Odour
	(outlet)	23.7	IC = Hydrocarbon Sheen and Moderate Hydrocarbon Odour
Dam 2	(inlet)	13.6	IC = Hydrocarbon Sheen and Slight Hydrocarbon Odour
	(outlet)	0.0	0A = no visual or olfactory evidence of contamination
Dam 3	(inlet)	0.0	0A = no visual or olfactory evidence of contamination
	(outlet)	0.0	0A = no visual or olfactory evidence of contamination
Dam 4	(inlet)	0.0	0A = no visual or olfactory evidence of contamination
	(outlet)	0.0	0A = no visual or olfactory evidence of contamination
Lake Fiskville	(inlet)	0.0	0A = no visual or olfactory evidence of contamination
	(outlet)	0.0	0A = no visual or olfactory evidence of contamination.

9.5.2 Sediment Assessment Results

The results of the laboratory sediment analyses are summarised in Table H5 (Lake Fiskville excluding PCDD/Fs), Table H6 (Dams 1-4 excluding PCDD/Fs) and Table H7 (Lake Fiskville and Dams 1-4 PCDD/Fs) presented in Appendix H and are discussed in comparison with the assessment criteria below.

A summary of the reported COI detected above the laboratory LOR is presented in Table 18.

Table 18: Reported Chemicals of Interest in Sediment Samples

Sample Locations	Sample ID with Maximum Concentration	Chemicals of Interest	Maximum Reported Concentration mg/kg (dry weight)
Dam 1, Dam 2, Dam 3, Dam 4	SD9 (Dam1 outlet)	TPH	21,600 (TPH C_{10}-C_{36})
Dam 1, Dam 2	SD10 (Dam1 inlet)	BTEX	1.4 (xylene (m&p))
Dam 1	SD10 (Dam1 inlet)	Mono Aromatic Hydrocarbons	3 (1,3,5-trimethylbenzene)
Dam 1 - 4 and Lake Fiskville	SD9 (Dam1 outlet)	Metals	399 (zinc)
Dam 1, Dam 2	SD9 (Dam1 outlet)	PAH	10 (fluoranthene), 20 (pyrene)
Dam 1 - 4 and Lake Fiskville	SD10 (Dam1 inlet)	PFOA	1.2
Dam 1 - 4 and Lake Fiskville	SD10 (Dam1 inlet)	PFOS	66
Dam 1, 2 and Lake Fiskville	SD8 (Dam 2 inlet)	PCDD & PCDF	5.52*

* PCDD & PCDF reported in pg/g

The reported analytical results for all sediment samples were below the LOR for PCB, perchlorates, pesticides, phenols, VOC (standard suite) and SVOC (standard suite).

9.5.3 Lake Fiskville

Assessment of Ecological Risk

The analytical results for sediment sample SD1 and SD2 from Lake Fiskville were below the available ecological sediment assessment criteria for the compounds assessed with the exception of PCDD/Fs. A summary of the reported concentrations of PCDD/Fs greater than the adopted assessment criterion is presented in Table 19.

Table 19: COI in Sediments Above Ecological Assessment Criteria Lake Fiskville

Location	Sample ID	Contaminant	Reported Concentration (TEQ)	Ecological Criterion (pg/g)
Lake Fiskville (Outlet)	SD1	PCDD & PCDF	2.92*	**0.85**

Reported PCDD and PCDF TEQ values in samples SD1 from Lake Fiskville exceeded the adopted CEQG (2012) *Sediment Quality Guidelines for Protection of Aquatic Life* by an approximate factor of 3 and are consistent with the highest concentrations found in aquatic sediments as part of the National Dioxins Program (2004). These criteria are considered to be conservative and an exceedance of this type does not necessarily demonstrate evidence of an adverse impact to aquatic life. However, it is recommended that an assessment of the ecological condition of Lake Fiskville be undertaken, to determine if COI are likely to have an adverse impact on aquatic ecosystems.

Assessment of Human Health Risk

The reported analytical results for sediment samples collected from Lake Fiskville were below the available human health assessment criteria.

9.5.4 Dams 1- 4

Human Health Risk Assessment

A summary of the reported concentrations of contaminants that were greater than the available assessment criteria is presented in Table 19.

Table 20: COI in Sediment Results above Adopted Human Health Assessment Criteria Dams 1- 4

Location	Sample ID	Contaminant	Units	Reported Concentration	Human Health Criteria Industrial
Dam 1 Inlet	SD10	PFOS	mg/kg	66	**2.1**
Dam 1 Outlet	SD9	TPH C10-C14	mg/kg	1550	**260**
		TPH C15-C28	mg/kg	19300	**2500**
		PFOS	mg/kg	13.7	**2.1**
Dam 2 Inlet	SD8	TPH C10-C14	mg/kg	685	**260**
		TPH C15-C28	mg/kg	3720	**2500**
		PFOS	mg/kg	7.53	**2.1**

TPH C10-C14 and TPH C15-C28 concentrations in samples from Dams 1 and 2 were above the CCME (2008) *Canada-Wide Standard for Petroleum Hydrocarbons in Soils* human health assessment criteria for Industrial land use.

Reported PFOS concentrations in samples SD8, SD9, SD10 were above the Minnesota PCA (1999) *SRV* assessment human health criteria.

The reported PCDD and PCDF TEQ values in all sediment samples were below the adopted criteria for Industrial land use.

In summary, these data indicate that appropriate occupational hygiene precautions must be taken when involved in activities or works associated with the Dam water. This is consistent with previous assessments made by Wynsafe (2010).

9.6 Summary of Surface Water and Sediment Assessment

Lake Fiskville

The assessment of surface water and sediment results in Lake Fiskville found that with respect to potential human health risk:

- The reported analytical results for sediment samples collected from Lake Fiskville were below the available human health assessment criteria;
- The majority of the reported analytical results for surface water samples were below the drinking water criteria;
- The concentrations of PFOA and PFOS in surface water samples from Lake Fiskville exceed the Drinking Water criteria by up to several orders of magnitude; and
- Concentrations of TPH C16-C34 in Lake Fiskville do not indicate the potential for an adverse impact on human health as the adopted criteria were developed in regard to aromatic hydrocarbons, and PAHs were not detected above the laboratory LOR in this sample.

With respect to potential ecological risk:

- The analytical results for surface water samples from Lake Fiskville were below the ecological assessment criteria for the majority of compounds with the exception of copper and zinc. Coffey (1996, Reference E3523/2-AD) suggested that elevated heavy metal concentrations in surface water samples and groundwater samples may be typical of background concentrations. However as Golder Associates was unable to sample groundwater and background surface water quality has not been assessed as part of this PSA, it is not possible to determine if copper and zinc concentrations in Lake Fiskville are indicative of background concentrations;
- The analytical results for sediment samples from Lake Fiskville were below the adopted ecological sediment assessment criteria for the compounds assessed with the exception of PCDD/PCDF;

It is recommended that further investigation of Lake Fiskville is undertaken to;

- Better quantify the potential for risk to downstream human health receptors taking into account downstream dilution and environmental fate and transport mechanisms;
- Investigate potential sources of PFOA and PFOS discharges to Lake Fiskville and identify potential means of reducing PFOA and PFOS concentrations in Lake Fiskville and discharging off site, if the potential risk of adverse impact to downstream human health receptors is found to be unacceptable
- Collect surface water samples at a representative location to assess if the reported copper and zinc concentrations are consistent with background levels; and
- Assess the ecological condition of Lake Fiskville.

Dams 1 -4

The assessment of surface water and sediment results in Dams 1-4 found that with respect to potential human health risk:

- The majority of the reported analytical results for surface water samples from Dams 1–4 were below the drinking water criteria;
- Concentrations of PFOA, PFOS and TPH in surface water samples from Dams 1–4 were found above drinking water criteria. However application of these criteria are considered conservative as the more likely exposure scenarios are limited dermal contact, inhalation or ingestion of water from these Dams during routine maintenance activities, accidental exposures, and use of dam water during fire training (Dam 2 only). The exposure doses in these exposure scenarios are reduced compared to the exposure doses on which the drinking water criteria are based;
- Concentrations of PFOA, PFOS and TPH in sediment samples from Dam 1 and 2 were found above the available human health assessment criteria; and
- These exceedances of surface water and sediment assessment criteria do not indicate the potential for an immediate human health risk. Procedures should be established to manage the risks to individuals who have the potential to come into contact with surface water and sediments in Dams 1-4 during training and routine maintenance activities, consistent with the previous advice to CFA from Wynsafe.

10.0 CONCLUSIONS

Golder Associates has undertaken a PSA at the CFA Training College, Fiskville, Victoria. The objective of this PSA was to undertake a preliminary assessment that was consistent with the timeframe of the Independent Investigation and the Investigation Terms of Reference 1(e). This PSA consisted of the two phases of work; a desktop review of information relevant to the Site and a targeted site investigation.

In preparing this report there are a number of uncertainties and gaps in data that should be acknowledged:

- The exact location of buried drums of flammable liquids is not known. Three (3) potential areas were identified by CFA personnel during interviews with the Independent Investigation Team. However, the GPR survey of these areas did not detect anomalies that resembled buried drums or trenches;
- The precise nature and volume of flammable liquids used at the Site between 1973 and 1990s is not known. The lack of formal records regarding the receipt of flammable liquids during this period suggests this information is unlikely to be obtained.
- The depth to groundwater underlying the Site and the local groundwater flow direction has not been determined; and
- The soil, sediment and surface water sampling was preliminary in nature and targeted at key source areas identified from the desktop review and was aimed at identifying whether there was a risk to beneficial uses of the environment.

10.1 Historical Information Review

Since the development of the Site as a fire training college in the 1970's, a range of activities have been conducted at the Site which had the potential to contaminate the Site and surrounding environment.

These identified activities include:

- Fire training exercises involving the use of flammable liquids and foams in unsealed areas;
- Storage of flammable liquids and wastes onsite;
- Burial of flammable liquids and wastes onsite; and
- Waste water drainage from the FLP.

The following areas have been identified as potential sources of contamination; they are thought to be the locations where the above activities took place:

- Outdoor Fire Training Area;
- Training Centre Area (including Drum Burial Areas 2 and 3);
- Northern Area (specifically the Drum Burial Area 1 (south of the Airstrip)); and
- South Western Area (Landfills 1 and 2 and Lake Fiskville).

10.2 Site Investigation

A targeted site investigation was undertaken as part of this PSA which comprised of the collection of shallow soil, composite soil, surface water, sediment samples and tree core samples in several identified Areas of Interest. It was not possible to collect and analyse groundwater samples during this site investigation as the three (3) accessible groundwater bores onsite were found to be dry.

Based on the findings of this PSA, Golder Associates provides the following conclusions.

10.2.1 Soil

The reported soil analytical results were compared to the adopted ecological and human health based assessment criteria with the majority of compounds reported below the adopted soil criteria.

PFOS and 3- & 4-methylphenol concentrations were found above adopted assessment criteria, however the reported concentrations do not indicate the potential for an adverse impact on potential receptors as:

- PFOS concentrations in soils do not indicate the potential for an adverse impact on human health at the Site, as the criteria exceedance is marginal and the location where the exceedance was found, is a soil stockpile in an area of the Site infrequently accessed by site users; and
- 3- & 4-methylphenol concentrations in soils do not indicate the potential for an adverse impact on ecology at the Site due to the conservative nature of the criteria adopted.

Overall, where applicable criteria are available, the soil analytical results from Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Prop Storage Area and Soil Composting Area do not indicate the potential for an adverse impact on the beneficial uses; “maintenance of modified ecosystems” and “human health”.

10.2.2 Surface Water and Sediment

Lake Fiskville

The majority of the reported analytical results for surface water samples were below the drinking water criteria, with the exception of PFOA and PFOS.

The reported analytical results for sediment samples collected from Lake Fiskville were below the available human health assessment criteria.

The surface water and sediments results from Lake Fiskville are unlikely to have an adverse impact on human health receptors, however further investigation is recommended to better quantify the potential risk to downstream receptors.

The assessment of surface water samples from Lake Fiskville found that the majority of compounds were below the ecological assessment criteria with the exception of copper and zinc. Similarly the analytical results for sediment samples from Lake Fiskville were below the ecological sediment assessment criteria for the majority of compounds assessed with the exception of PCDD/Fs.

The surface water and sediments results from Lake Fiskville are unlikely to have an adverse impact on aquatic ecosystems in Lake Fiskville. However, it is recommended that an assessment of the ecological condition of Lake Fiskville be undertaken.

Dams 1 -4

The assessment of surface water in Dams 1-4 found that the majority of the reported analytical results for surface water samples were below the drinking water criteria with the exception of PFOA, PFOS and TPH.

The assessment of sediment in Dams 1-4 found that the majority of the reported analytical results for sediment samples were below the human health criteria with the exception of PFOA, PFOS and TPH in Dams 1 and 2.

These exceedances of surface water and sediment assessment criteria in Dams 1-4 do not indicate the potential for an immediate human health risk. Procedures should be established to manage the risks to

individuals who have the potential to come into contact with surface water and sediments in Dams 1-4 during training and routine maintenance activities, consistent with the previous advice to CFA from Wynsafe.

11.0 RECOMMENDATIONS

To provide a more comprehensive understanding of site conditions, Golder Associates recommends that soil and groundwater quality be assessed in the following areas which were not included in site investigation phase of the PSA:

- Part of Drum Burial Area 1 (south of the Airstrip and south of Deep Creek Road);
- Drum Burial Area 2 (north of the Administration Building);
- Drum Burial Area 3 (east of the Administration Building);
- Fuel storage tanks (above ground and underground) (historical and current); and
- Historical Landfills 1 & 2.

Golder Associates also recommends that additional groundwater investigations are undertaken in the vicinity of the Historical Flammable Liquid Pad, Fuel Mixing Area, Historical Fire Training Pits, Sludge Burial Pits, Drum Burial Area 1 (south of the Airstrip), Drum Fire Area, Soil Composting Area and Prop Storage Area to assess water quality and flow conditions.

Groundwater assessment is recommended as whilst many solvents can readily volatilise from near surface soils over time, they can be more persistent when they migrate deeper in to the subsurface or to groundwater where they can then migrate laterally.

With respect to surface waters in and discharging from Lake Fiskville, it is recommended that further investigation is undertaken to:

- Better quantify the potential for risk to downstream human health receptors taking into account downstream dilution and environmental fate and transport mechanism;
- Investigate potential sources of PFOA and PFOS discharges to Lake Fiskville and identify potential means of reducing PFOA and PFOS concentrations in Lake Fiskville and discharging off site, if the potential risk of adverse impact to downstream human health receptors is found to be unacceptable;
- Collect surface water samples at a representative location to assess if the reported copper and zinc concentrations are consistent with background levels; and
- Assess the ecological condition of Lake Fiskville.

Assess the ecological condition of Lake Fiskville. Suitable occupational health and safety procedures should be established to manage the risks to individuals who have the potential to come into contact with surface water and sediments in Dams 1-4 during training and routine maintenance activities.

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Report Signature Page

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APPENDIX A

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APPENDIX B

Desktop Study Information

Department of Sustainability and Environment Victoria

Imaged Document Cover Sheet

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Document Type	**Cancelled Title**
Document Identification	**3390/975**
Number of Pages (excluding this cover sheet)	**2**
Document Assembled	**09/02/2012 12:25**

Vol. 601758 Transfer. 611510 Application

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Mortgage	The 29th January 1910 at 10. am	Edward Brown to Hugh Wilson Morrow John Headon Cuthbert and The Union Trustee Company of Australia Limited. Assistant Registrar of Titles.	279412.
ge	The 29th January 1910 at 10. am	Edward Brown to William Frederick Coltman and Frederick Edward Sides Assistant Registrar of Titles.	279412
Transfer	The 1st day of October 1911 at 4 o'clock in the afternoon	Edward Brown to William Frederick Coltman and Frederick Edward Sides Assistant Registrar of Titles.	663498
		Assistant Registrar of Titles.	
		Assistant Registrar of Titles.	
		Assistant Registrar of Titles.	

VOL 3538 FOL 707516

Department of Sustainability and Environment Victoria

Imaged Document Cover Sheet

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Document Type	**Cancelled Title**
Document Identification	**3538/516**
Number of Pages (excluding this cover sheet)	**4**
Document Assembled	**09/02/2012 12:12**

Vol. 3390 Fol. 677975 Transfer. 663498 Application

Nature of Instrument.	Day and Hour of its Production.	Names of the Parties to it.	Number or Symbol thereon.
Caveat No 41626 lodged 5 October 1911 at 10.3 am			
Caveat No 41626 lapsed 11 October 1911 at 11:39 a.m.			
		Assistant Registrar of Titles.	

James Isaac Watson of St. Kilda Street Elsternwick Gentleman is now the proprietor of the within described Estate and Land pursuant to a Transfer from within named William Frederick Coltman and Frederick Edward Sides registered on the 11th day of October 1911 at 11.39 o'clock in the fore noon and Numbered 663498.

Assistant Registrar of Titles.

George William Stead of Ballan Farmer is now the proprietor of the within-described estate pursuant to a transfer from James Isaac Watson registered on the 6th day of November 1920 and numbered 971787

Assistant Registrar of Titles.

CAVEAT No 61335 LODGED 5 October 1923

CAVEAT No 61335 LAPSED 5th May 1925

COUNTRY ROADS BOARD has pursuant to section ... of Transfer of Land Act served a Notice ... relating to compulsory acquisition of PART OF the land comprised herein. Dated ... JUNE 1963 Corres. No. 63/8850 (PLAN WITH LETTER)

Assistant Registrar of Titles.

Amalgamated Wireless (Australasia) Limited of 97 Clarence Street, Sydney, New South Wales is now the proprietor of the within described estate by transfer from George William Stead registered on 5th May 1925 and numbered 1213750

Assistant Registrar of Titles.

TRANSFER AS TO PART No. B923943 registered 1st May 1964 CANCELLED AS TO PART See Vol. 8503 Fol. 986

Assistant Registrar of Titles.

Overseas Telecommunications Commission (Australia) of 47 York Street Sydney in New South Wales is now the proprietor of the within described estate by transfer registered on 5th August 1948 and numbered 2157314

Assistant Registrar of Titles

9.10.48

CAVEAT No. E37053 LODGED 10 May 1971 CAVEAT WILL LAPSE ON REGISTRATION OF K206778

TRANSFER AS TO PART No. E5772 9 MAR 1983 registered 2nd April 1971 CANCELLED AS TO PART See Vol. 8879 Fol. 728

Assistant Registrar of Titles

CANCELLED

TRANSFER AS TO BALANCE No K206778 registered 21st December 1982

CANCELLED See Vol. 9503 Fol. 693

Natural Resources and Environment

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LAND DESCRIPTION

Lots 1,2,3 and 4 on Title Plan 845669K (formerly known as part of Crown Allotment 2 Section 16, Crown Allotments 3 and 8 Section 16, part of Crown Allotment 9 Section 16 Parish of Yaloak).
PARENT TITLE Volume 03538 Folio 516
Created by instrument K206778 21/12/1982

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
COUNTRY FIRE AUTHORITY
K206778 21/12/1982

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 TP845669K FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

DOCUMENT END

43.02 DESIGN AND DEVELOPMENT OVERLAY

19/01/2006
VC37

Shown on the planning scheme map as **DDO** with a number.

Purpose

To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

To identify areas which are affected by specific requirements relating to the design and built form of new development.

43.02-1 Design objectives

19/01/2006
VC37

A schedule to this overlay must contain a statement of the design objectives to be achieved for the area affected by the schedule.

43.02-2 Buildings and works

19/01/2006
VC37

Permit requirement

A permit is required to:

- Construct a building or construct or carry out works. This does not apply:
  - If a schedule to this overlay specifically states that a permit is not required.
  - To the construction of an outdoor swimming pool associated with a dwelling unless a specific requirement for this matter is specified in a schedule to this overlay.
- Construct a fence if specified in a schedule to this overlay.

Buildings and works must be constructed in accordance with any requirements in a schedule to this overlay. A schedule may include requirements relating to:

- Building setbacks.
- Building height.
- Plot ratio.
- Landscaping.
- Any other requirements relating to the design or built form of new development.

A permit may be granted to construct a building or construct or carry out works which are not in accordance with any requirement in a schedule to this overlay, unless the schedule specifies otherwise.

Exemption from notice and review

A schedule to this overlay may specify that an application is exempt from the notice requirements of Section 52(1)(a), (b) and (d), the decision requirements of Section 64(1), (2) and (3) and the review rights of Section 82(1) of the Act.

43.02-3 Subdivision

19/01/2006
VC37

Permit requirement

A permit is required to subdivide land.

This does not apply if a schedule to this overlay specifically states that a permit is not required.

Subdivision must occur in accordance with any lot size or other requirement specified in a schedule to this overlay.

A permit may be granted to subdivide land which is not in accordance with any lot size or other requirement in a schedule to this overlay, unless the schedule specifies otherwise.

Exemption from notice and review

A schedule to this overlay may specify that an application is exempt from the notice requirements of Section 52(1)(a), (b) and (d), the decision requirements of Section 64(1), (2) and (3) and the review rights of Section 82(1) of the Act.

43.02-4 Advertising signs

19/01/2006
VC37

Advertising sign controls are at Clause 52.05 unless otherwise specified in a schedule to this overlay.

43.02-5 Decision guidelines

19/01/2006
VC37

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- The design objectives of the relevant schedule to this overlay.
- The provisions of any relevant policies and urban design guidelines.
- Whether the bulk, location and appearance of any proposed buildings and works will be in keeping with the character and appearance of adjacent buildings, the streetscape or the area.
- Whether the design, form, layout, proportion and scale of any proposed buildings and works is compatible with the period, style, form, proportion, and scale of any identified heritage places surrounding the site.
- Whether any proposed landscaping or removal of vegetation will be in keeping with the character and appearance of adjacent buildings, the streetscape or the area.
- The layout and appearance of areas set aside for car parking, access and egress, loading and unloading and the location of any proposed off street car parking
- Whether subdivision will result in development which is not in keeping with the character and appearance of adjacent buildings, the streetscape or the area.
- Any other matters specified in a schedule to this overlay.

Notes: *Refer to the* State Planning Policy Framework *and the* Local Planning Policy Framework, *including the* Municipal Strategic Statement, *for strategies and policies which may affect the use and development of land.*

Check the requirements of the zone which applies to the land.

Other requirements may also apply. These can be found at Particular Provisions.

19/01/2006
VC37

SCHEDULE 2 TO THE DESIGN AND DEVELOPMENT OVERLAY

Shown on the planning scheme map as **DDO2**

Visual amenity and building design

1.0 Design objectives

19/01/2006
VC37

- To enhance visual amenity in rural, township and vegetated areas of the Moorabool Shire.
- To encourage the use of external cladding, such as non-reflective materials for building construction.

19/01/2006
VC37

- To discourage the use of materials, such as reflective cladding for building construction, which could have a detrimental effect on amenity.

2.0 Buildings and works

19/01/2006
VC37

Exemption

A permit is not required to construct a building or to carry out works where all external walls and roof areas are clad with non-reflective materials.

Application requirements

An application to construct buildings or to carry out or construct works must be accompanied by a site analysis and descriptive statement, a site plan and plans and elevations of the proposed structures showing:

- The location of the proposed development explaining how the proposed development responds to the site and its context with adjoining land. Details of views obtained to the proposed development from outside the site should also be provided.
- The form of development proposed;
- Full details of the type, colour and finish of all external cladding materials proposed;
- Any landscaping proposed around the buildings and works; and
- A report that shows how the proposal responds to the decision guidelines detailed in this schedule.

Exemption from notice and appeal

An application is exempt from the notice requirements of Section 52(1)(a), (b) and (d), the decision requirements of Section 64(1), (2) and (3) and the review rights of Section 82(1) of the Act.

3.0 Subdivision

19/01/2006
VC37

A permit is not required to subdivide land under this overlay.

4.0 Advertising signs

19/01/2006
VC37

A permit is not required to develop an advertising sign which is constructed of non-reflective materials.

5.0 Decision guidelines

19/01/2006
VC37

Before deciding on an application to construct a building using reflective materials the responsible authority must consider:

- Whether the proposed buildings and works would have any adverse impact on the landscape and the visual amenity of the surrounding area.
- Whether the materials proposed to be used, and the form of development proposed would avoid or reduce any adverse impact on the landscape and the visual amenity of the surrounding area.
- Whether the setbacks of the proposed building and works from adjoining roads and properties will ensure that the development would avoid or reduce any adverse impact on the landscape and the visual amenity of the surrounding area.
- Whether any proposed landscaping around the buildings and works would reduce any adverse visual impacts on the landscape and the visual amenity of the surrounding area.

42.01 ENVIRONMENTAL SIGNIFICANCE OVERLAY

18/11/2011
VC83

Shown on the planning scheme map as **ESO** with a number.

Purpose

To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

To identify areas where the development of land may be affected by environmental constraints.

To ensure that development is compatible with identified environmental values.

42.01-1 Environmental significance and objective

19/01/2006
VC37

A schedule to this overlay must contain:

- A statement of environmental significance.
- The environmental objective to be achieved.

42.01-2 Permit requirement

15/09/2008
VC49

A permit is required to:

- Construct a building or construct or carry out works. This does not apply if a schedule to this overlay specifically states that a permit is not required.
- Construct a fence if specified in a schedule to this overlay.
- Construct bicycle pathways and trails.
- Subdivide land. This does not apply if a schedule to this overlay specifically states that a permit is not required.
- Remove, destroy or lop any vegetation, including dead vegetation. This does not apply:
  - If a schedule to this overlay specifically states that a permit is not required.
  - If the table to Clause 42.01-3 specifically states that a permit is not required.
  - To the removal, destruction or lopping of native vegetation in accordance with a native vegetation precinct plan specified in the schedule to Clause 52.16.

42.01-3 Table of exemptions

18/11/2011
VC83

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
Regrowth	▪ The vegetation is regrowth which has naturally established or regenerated on land lawfully cleared of naturally established vegetation and is within the boundary of a timber production plantation, as indicated on a Plantation Development Notice or other documented record, and has established after the plantation. This exemption does not apply to land on which vegetation has been cleared or otherwise destroyed or damaged as a result of flood, fire or other natural disaster.

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
Bracken	▪ The vegetation is bracken (*Pteridium esculentum*) which has naturally established or regenerated on land lawfully cleared of naturally established vegetation. This exemption does not apply to land on which vegetation has been cleared or otherwise destroyed or damaged as a result of flood, fire or other natural disaster.
Noxious weeds	▪ The vegetation is a noxious weed the subject of a declaration under section 58 or section 58A of the Catchment and Land Protection Act 1994. This exemption does not apply to Australian Dodder (*Cuscuta australis*).
Pest animal burrows	▪ The vegetation is to be removed, destroyed or lopped to enable the removal of pest animal burrows. In the case of native vegetation the written agreement of an officer of the Department responsible for administering the Flora and Fauna Guarantee Act 1988 is required before the vegetation can be removed, destroyed or lopped.
Land use conditions	▪ The vegetation is to be removed, destroyed or lopped to comply with a land use condition served under the Catchment and Land Protection Act 1994.
Land management notices	▪ The vegetation is to be removed, destroyed or lopped to comply with land management notice issued under the Catchment and Land Protection Act 1994.
Planted vegetation	▪ The vegetation has been planted or grown as a result of direct seeding for Crop raising or Extensive animal husbandry.
Emergency works	▪ The vegetation presents an immediate risk of personal injury or damage to property and only that part of vegetation which presents the immediate risk is removed, destroyed or lopped. ▪ The vegetation is to be removed, destroyed or lopped by a public authority or municipal council to create an emergency access or to enable emergency works.
Fire protection	▪ The vegetation is to be removed, destroyed or lopped for the making of a fuelbreak by or on behalf of a public authority in accordance with a strategic fuelbreak plan approved by the Secretary to the Department of Sustainability and Environment (as constituted under Part 2 of the Conservation, Forest and Lands Act 1987. The maximum width of a fuelbreak must not exceed 40 metres). ▪ The vegetation is to be removed, destroyed or lopped for fire fighting measures, fuel reduction burning, or the making of a fuel break up to 6 metres wide. ▪ The vegetation is ground fuel within 30 metres of a building. ▪ The vegetation is to be removed, destroyed or lopped in accordance with a fire prevention notice under: ▪ Section 65 of the Forests Act 1958. ▪ Section 41 of the Country Fire Authority Act 1958.

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
	▪ Section 8 of the Local Government Act 1989. ▪ The vegetation is to be removed, destroyed or lopped to keep the whole or any part of any vegetation clear of an electric line in accordance with a code of practice prepared under Part 8 of the Electricity Safety Act 1998. ▪ The vegetation is to be removed, destroyed or lopped in accordance with any code of practice prepared in accordance with Part 8 of the Electricity Safety Act 1998 in order to minimise the risk of bushfire ignition in the proximity of electricity lines. ▪ The vegetation is to be removed, destroyed or lopped to reduce fuel loads on roadsides to minimise the risk to life and property from bushfire of an existing public road managed by the relevant responsible road authority (as defined by the Road Management Act 2004) in accordance with the written agreement of the Secretary to the Department of Sustainability and Environment (as constituted under Part 2 of the Conservation, Forest and Lands Act 1987).
Surveying	▪ The vegetation is to be removed, destroyed or lopped for establishing sight-lines for the measurement of land by surveyors in the exercise of their profession, and if using hand-held tools.
Road safety	▪ The vegetation is to be removed, destroyed or lopped to maintain the safe and efficient function of an existing public road managed by the relevant responsible road authority (as defined by the Road Management Act 2004) in accordance with the written agreement of the Secretary of the Department of Sustainability and Environment (as constituted under Part 2 of the Conservation, Forest and Lands Act 1987).
Railways	▪ The vegetation is to be removed, destroyed or lopped to maintain the safe and efficient function of an existing railway or railway access road, in accordance with the written agreement of the Secretary to the Department of Sustainability and Environment (as constituted under Part 2 of the Conservation, Forest and Lands Act 1987).
Stone extraction	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of Stone extraction in accordance with a work plan approved under the Mineral Resources (Sustainable Development) Act 1990 and authorised by a work authority granted under that Act.
Stone exploration	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of the Stone exploration. The maximum extent of vegetation removed, destroyed or lopped under this exemption on contiguous land in the same ownership in a five year period must not exceed any of the following: ▪ 1 hectare of vegetation which does not include a tree. ▪ 15 trees if each tree has a trunk diameter of less than 40

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
	centimetres at a height of 1.3 metres above ground level. ▪ 5 trees if each tree has a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level. This exemption does not apply to vegetation to be removed, destroyed or lopped to enable costeaning and bulk sampling activities.
Mineral extraction	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of Mineral extraction in accordance with a work plan approved under the Mineral Resources (Sustainable Development) Act 1990 and authorised by a work authority granted under that Act.
Mineral Exploration	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of Mineral exploration.
Geothermal energy exploration and extraction	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the Geothermal Energy Resources Act 2005.
Greenhouse gas sequestration exploration	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the Greenhouse Gas Geological Sequestration Act 2008.
Greenhouse gas sequestration	▪ The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the Greenhouse Gas Geological Sequestration Act 2008.

42.01-4 Decision guidelines

18/11/2011
VC83

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- The statement of environmental significance and the environmental objective contained in a schedule to this overlay.
- The need to remove, destroy or lop vegetation to create defendable space to reduce the risk of bushfire to life and property.
- Any other matters specified in a schedule to this overlay.

Notes: *Refer to the* State Planning Policy Framework *and the* Local Planning Policy Framework, *including the* Municipal Strategic Statement, *for strategies and policies which may affect the use and development of land.*

Check the requirements of the zone which applies to the land.

Other requirements may also apply. These can be found at Particular Provisions.

02/08/2007
C50

SCHEDULE 1 TO THE ENVIRONMENTAL SIGNIFICANCE OVERLAY

Shown on the planning scheme map as **ESO 1**

PROCLAIMED WATER CATCHMENT AREAS

1.0 Statement of environmental significance

19/01/2006
VC37

The Shire of Moorabool contains several proclaimed water catchments, which provide water to urban and rural development throughout the Shire. The protection of water catchments is essential to the health of all communities that rely on water for domestic and stock supply.

2.0 Environmental objective to be achieved

19/01/2006
VC37

- To protect the quality and quantity of water produced within proclaimed water catchments.
- To provide for appropriate development of land within proclaimed water catchments.

3.0 Buildings and works

02/08/2007
C50

A permit is not required for:

- Repairs and routine maintenance and emergency works to existing buildings and works.
- The construction of a dam under 3ML capacity that is not on a waterway.
- The construction or carrying out of works associated with a minor utility installation.
- The construction or carrying out of works associated with informal outdoor recreation.
- Development undertaken by a public authority to regulate the flow of water in a watercourse, regulate flooding or to construct or redirect a watercourse.
- Routine maintenance works on land managed by a public land manager
- Activities conducted on public land by or on behalf of the Department of Sustainability and Environment or the Department of Primary Industries under the relevant provisions of the Reference Areas Act 1978, the National Parks Act 1975, the Fisheries Act 1995, the Wildlife Act 1975, the Land Act 1958, the Crown Land (Reserves) Act 1978 or the Forests Act 1958.
- The removal, destruction of lopping of vegetation necessary for extractive industry authorised by an approved work plan and in accordance with a work authority issued under the Extractive Industry Development Act 1995.
- The construction of a dwelling in a Farming Zone, where the lot exceeds 40 hectares and the building and its septic tank effluent absorption area are not located within 100 metres of a waterway or upstream of a dam or wetland, and
  - any site cut required is less than one metre in depth and less than 300 square metres in area ; and
  - no stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system.
- The construction of a dwelling in the any of the Residential 1 Zone, Residential 2 Zone, Low Density Residential Zone, Township Zone or Rural Living Zone where the

dwelling is connected to reticulated sewerage, and no stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system.

- The construction of a dwelling in the any of the Residential 1 Zone, Residential 2 Zone, Low Density Residential Zone, Township Zone or Rural Living Zone where the dwelling is not connected to reticulated sewerage but the proposal complies with the following:
  - it has been demonstrated to the satisfaction of the responsible authority and the relevant water authority that the lot can contain effluent in accordance with the requirements and provisions of the State Environment Protection Policy (Waters of Victoria) and the provisions of the "Septic Tanks Code of Practice", and
  - the building and its septic tank effluent absorption area are not located within 100 metres of a waterway or upstream of a dam or wetland, and
  - no stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system.
- The construction of an extension or alterations to an existing dwelling or the construction or carrying out of works which are ancillary to a dwelling which:
  - has an area of 30 square metres or less; or
  - would not increase the number of bedrooms of the dwelling (where studies or studios that are separate rooms are counted as bedrooms), provide additional sanitary or laundry fixtures or otherwise impose any additional load on an existing septic tank facility;

  and
  - any site cut required is less than one metre in depth and less than 300 square metres in area;
  - no stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system; and
  - the building and its septic tank effluent absorption area are not located within 100 metres of a waterway or upstream of a dam or wetland.
- The construction of a building ancillary to the use of the land for crop raising that is not a dwelling or a building for the storage of fuel, fertilisers, insecticides or similar chemicals that is within 100m of a stream; and
  - any site cut required is less than one metre in depth and less than 300 square metres in area; and
  - no stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system.
- The construction or carrying out of works if all of the following conditions are met:
  - any site cut required is less than one metre in depth and less than 300 square metres in area; and
  - No stormwater is discharged less than 100 metres from a waterway unless into an approved drainage system.
- The removal, destruction or lopping of all vegetation including trees, shrubs, herbs and grasses, to the minimum extent necessary for works undertaken by or on behalf of Central Highlands Water required for the construction of the Goldfields Superpipe Project in accordance with the Project Impact Assessment and Environmental Management Plan approved by the Secretary of the Department of Sustainability and

Environment and the native vegetation offset plan approved by the Minister for Environment.

- The construction of a building or carrying out of works associated with a utility installation required for the Goldfields Superpipe Project. The building and works must be in accordance with the Project Impact Assessment and Environmental Management Plan approved by the Secretary of the Department of Sustainability and Environment and the native vegetation offset plan approved by the Minister for Environment.

Application requirements

An application must include details of slope, soil type and vegetation.

An application must include details of any excavation proposed, and any vegetation proposed to be removed, destroyed or lopped.

An application to construct buildings or to carry out or construct works must be accompanied by a report which demonstrates the following:

- That the land is capable of absorbing sewage and sullage effluent generated on the lot.
- That the design of any wastewater treatment facility will ensure that wastewater will not enter any waterway, dam or wetland.
- That any excavation will be carried out and maintained to prevent erosion and the siltation of any waterway or wetland.
- That any removal, destruction or lopping of vegetation will not compromise the quality of water within proclaimed catchment areas.
- That the siting of buildings and wastewater treatment systems will not compromise the quality of water within proclaimed catchment areas.

4.0 Referral

19/01/2006
VC37

All applications must be referred in accordance with Section 55 of the Act to the referral authority specified in Clause 66.04 or a schedule to that clause.

Applications of the kind listed below must be referred in accordance with Section 55 of the Act to the referral authority specified in Clause 66.04 or a schedule to that clause:

- Subdivision creating lots less than 40 hectares.
- Development that facilitates intensive animal husbandry and horticulture.

5.0 Decision guidelines

19/01/2006
VC37

Before deciding on an application, the responsible authority must consider

- The slope, soil type and other environmental factors.
- The need to maintain water quality at a local and regional level.
- The possible effect of the development on the quality and quantity of water in local watercourses, including the impact on nutrient levels.
- The preservation of and impact on soils and the need to prevent erosion.
- The need to prevent or reduce the concentration or diversion of stormwater.

Before deciding on an application, the responsible authority must consider the comments of the relevant water authority on the:

- Effect of the proposed development and, where applicable, the method of waste disposal on the quality and quantity of water within the proclaimed catchment; and
- Requirements and provision of the State Environment Protection Policy (Waters of Victoria) and the provisions of the "Septic Tanks Code of Practice".

Where the land is not connected to reticulated sewerage and facilities are to be provided for the onsite disposal and treatment of wastewater the responsible authority must consider the following:

- Whether a report from a qualified geotechnical engineer has been provided which demonstrates that the land is capable of absorbing sewage and sullage effluent generated on the lot and that the waste water treatment system has been designed to prevent wastewater entering any waterway, dam or wetland.
- Where an application is for the subdivision of land, whether the plan of subdivision shows appropriate building and effluent disposal envelopes.
- Where an application proposes to make use of a septic tank system, whether any building and the septic tank effluent absorption area associated with it are located:
  - Within 100 metres of a waterway; or
  - Upstream of a dam or wetland.
- Where an application proposes to make use of a treatment and wastewater disposal system other than a septic tank system, and the building or its associated wastewater treatment and disposal system is proposed to be located within 100 metres of a waterway, dam or wetland, whether:
  - The applicant has provided evidence to the satisfaction of the responsible authority that the building and wastewater treatment and disposal system cannot be located outside these areas; and
  - The applicant has provided evidence to the satisfaction of the responsible authority that the siting of buildings and wastewater treatment systems will not compromise the quality within proclaimed catchment areas; and
  - The applicant has provided evidence to the satisfaction of the responsible authority of compliance and consistency with the State Environment Protection Policy (Waters of Victoria).

The responsible authority must consider any relevant catchment management plan, policy, strategy or Ministerial Direction (such as the Interim Guideline for Planning Permit Applications in Open, Potable Water Supply Catchment Areas) before deciding on an application, as appropriate.

35.07 FARMING ZONE

23/09/2011
VC77

Shown on the planning scheme map as **FZ** with a number.

Purpose

To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

To provide for the use of land for agriculture.

To encourage the retention of productive agricultural land.

To ensure that non-agricultural uses, particularly dwellings, do not adversely affect the use of land for agriculture.

To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

To protect and enhance natural resources and the biodiversity of the area.

35.07-1 Table of uses

23/09/2011
VC77

Section 1 – Permit not required

Use	Condition
Agriculture (other than Animal keeping, Apiculture, Intensive animal husbandry, Rice growing and Timber production)	
Animal keeping (other than Animal boarding)	Must be no more than 5 animals.
Bed and breakfast	No more than 6 persons may be accommodated away from their normal place of residence. At least 1 car parking space must be provided for each 2 persons able to be accommodated away from their normal place of residence.
Cattle feedlot	Must meet the requirements of Clause 52.26. The total number of cattle to be housed in the cattle feedlot must be 1000 or less. The site must be located outside a special water supply catchment under the Catchment and Land Protection Act 1994. The site must be located outside a catchment area listed in Appendix 2 of the Victorian Code for Cattle Feedlots – August 1995.
Dependent person's unit	Must be the only dependent person's unit on the lot. Must meet the requirements of Clause 35.07-2.
Dwelling (other than Bed and breakfast)	Must be the only dwelling on the lot. The lot must be at least the area specified in a schedule to this zone. If no area is specified, the lot must be at least 40 hectares.

Use	Condition
	Must meet the requirements of Clause 35.07-2.
Home occupation	
Informal outdoor recreation	
Minor utility installation	
Railway	
Timber production	Must meet the requirements of Clause 52.18. The plantation area must not exceed any area specified in a schedule to this zone. Any area specified must be at least 40 hectares. The total plantation area (existing and proposed) on contiguous land which was in the same ownership on or after 28 October 1993 must not exceed any scheduled area. The plantation must not be within 100 metres of: ▪ Any dwelling in separate ownership. ▪ Any land zoned for residential, business or industrial use. ▪ Any site specified on a permit which is in force which permits a dwelling to be constructed. The plantation must not be within 20 metres of a powerline whether on private or public land, except with the consent of the relevant electricity supply or distribution authority.
Tramway	
Any use listed in Clause 62.01	Must meet requirements of Clause 62.01.

Section 2 – Permit required

Use	Condition
Animal boarding	
Broiler farm	Must meet the requirements of Clause 52.31.
Car park	Must be used in conjunction with another use in Section 1 or 2.
Cattle feedlot – if the Section 1 condition is not met	Must meet the requirements of Clause 52.26. The site must be located outside a catchment area listed in Appendix 2 of the Victorian Code for Cattle Feedlots – August 1995.
Cemetery	
Community market	
Crematorium	
Dependent person's unit – if the Section 1 condition is not met	Must meet the requirements of Clause 35.07-2.
Dwelling (other than Bed and breakfast) – if the Section 1 condition is not met	
Emergency services facility	

Use	Condition
Freeway service centre	Must meet the requirements of Clause 52.30.
Freezing and cool storage	
Group accommodation	Must be used in conjunction with Agriculture, Outdoor recreation facility, Rural industry, or Winery. Must be no more than 6 dwellings.
Host farm **Intensive animal husbandry (other than Broiler farm and Cattle feedlot)** **Interpretation centre** **Leisure and recreation (other than Informal outdoor recreation and Motor racing track)** **Manufacturing sales**	
Place of assembly (other than Carnival and Circus)	Must not be used for more than 10 days in a calendar year.
Primary produce sales	
Renewable energy facility (other than Wind energy facility)	Must meet the requirements of Clause 52.42.
Residential hotel **Restaurant**	Must be used in conjunction with Agriculture, Outdoor recreation facility, Rural industry, or Winery.
Rice growing **Rural industry** **Rural store** **Saleyard**	
Store (other than Freezing and cool storage and Rural store)	Must be in a building, not a dwelling, and used to store equipment, goods, or motor vehicles used in conjunction with the occupation of a resident of a dwelling on the lot.
Timber production – if the Section 1 condition is not met	Must meet the requirements of Clause 52.18.
Transfer station	The use must cover no greater than 500m² and must not accept construction and demolition or commercial and industrial waste.
Utility installation (other than Minor utility installation and Telecommunications facility) **Veterinary centre**	
Wind energy facility	Must meet the requirements of Clause 52.32.
Winery **Any use listed in Clause 62.01**	

Section 3 – Prohibited

Use
Accommodation (other than Dependent person's unit, Dwelling, Group accommodation, Host farm and Residential hotel)
Industry (other than Rural industry and Transfer station)
Motor racing track
Retail premises (other than Community market, Manufacturing sales, Primary produce sales and Restaurant)
Warehouse (other than Store)
Any other use not in Section 1 or 2

35.07-2 Use of land for a dwelling

19/01/2006
VC37

A lot used for a dwelling must meet the following requirements:

- Access to the dwelling must be provided via an all-weather road with dimensions adequate to accommodate emergency vehicles.
- The dwelling must be connected to a reticulated sewerage system or if not available, the waste water must be treated and retained on-site in accordance with the State Environment Protection Policy (Waters of Victoria) under the Environment Protection Act 1970.
- The dwelling must be connected to a reticulated potable water supply or have an alternative potable water supply with adequate storage for domestic use as well as for fire fighting purposes.
- The dwelling must be connected to a reticulated electricity supply or have an alternative energy source.

These requirements also apply to a dependent person's unit.

35.07-3 Subdivision

19/01/2006
VC37

A permit is required to subdivide land.

Each lot must be at least the area specified for the land in a schedule to this zone. If no area is specified, each lot must be at least 40 hectares.

A permit may be granted to create smaller lots if any of the following apply:

- The subdivision is to create a lot for an existing dwelling. The subdivision must be a two lot subdivision. An agreement under Section 173 of the Act must be entered into with the owner of each lot created which ensures that the land may not be further subdivided so as to create a smaller lot for an existing dwelling. The agreement must be registered on title.
- The subdivision is the re-subdivision of existing lots and the number of lots is not increased. An agreement under Section 173 of the Act must be entered into with the owner of each lot created which ensures that the land may not be further subdivided so as to increase the number of lots. The agreement must be registered on title.
- The subdivision is by a public authority or utility service provider to create a lot for a utility installation.

35.07-4 Buildings and works

15/09/2008
VC49

A permit is required to construct or carry out any of the following:

- A building or works associated with a use in Section 2 of Clause 35.07-1. This does not apply to:
  - An alteration or extension to an existing dwelling provided the floor area of the alteration or extension is not more than the area specified in a schedule to this zone or, if no area is specified, 50 square metres. Any area specified must be more than 50 square metres.
  - An out-building associated with an existing dwelling provided the floor area of the out-building is not more than the area specified in a schedule to this zone or, if no area is specified, 50 square metres. Any area specified must be more than 50 square metres.
  - An alteration or extension to an existing building used for agriculture provided the floor area of the alteration or extension is not more than the area specified in the schedule to this zone or, if no area is specified, 100 square metres. Any area specified must be more than 100 square metres. The building must not be used to keep, board, breed or train animals.
  - A rainwater tank.
- Earthworks specified in a schedule to this zone, if on land specified in a schedule.
- A building which is within any of the following setbacks:
  - The setback from a Road Zone Category 1 or land in a Public Acquisition Overlay to be acquired for a road, Category 1 specified in a schedule to this zone or, if no setback is specified, 50 metres.
  - The setback from any other road or boundary specified in a schedule to this zone.
  - The setback from a dwelling not in the same ownership specified in a schedule to this zone.
  - 100 metres from a waterway, wetlands or designated flood plain.

35.07-5 Application requirements for dwellings

19/01/2006
VC37

An application to use a lot for a dwelling must be accompanied by a written statement which explains how the proposed dwelling responds to the decision guidelines for dwellings in the zone.

35.07-6 Decision guidelines

19/01/2006
VC37

Before deciding on an application to use or subdivide land, construct a building or construct or carry out works, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

General issues

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- Any Regional Catchment Strategy and associated plan applying to the land.
- The capability of the land to accommodate the proposed use or development, including the disposal of effluent.
- How the use or development relates to sustainable land management.
- Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.

Agricultural issues

- Whether the use or development will support and enhance agricultural production.
- Whether the use or development will permanently remove land from agricultural production.
- The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.
- The capacity of the site to sustain the agricultural use.
- The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure.
- Any integrated land management plan prepared for the site.

Dwelling issues

- Whether the dwelling will result in the loss or fragmentation of productive agricultural land.
- Whether the dwelling is reasonably required for the operation of the agricultural activity conducted on the land.
- Whether the dwelling will be adversely affected by agricultural activities on adjacent and nearby land due to dust, noise, odour, use of chemicals and farm machinery, traffic and hours of operation.
- Whether the dwelling will adversely affect the operation and expansion of adjoining and nearby agricultural uses.
- The potential for the proposal to lead to a concentration or proliferation of dwellings in the area and the impact of this on the use of the land for agriculture.

Environmental issues

- The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality.
- The impact of the use or development on the flora and fauna on the site and its surrounds.
- The need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area.
- The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.

Design and siting issues

- The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.
- The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.
- The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.

- The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities.
- Whether the use and development will require traffic management measures.

35.07-7 Advertising signs

19/01/2006
VC37

Advertising sign requirements are at Clause 52.05. This zone is in Category 4.

Notes: *Refer to the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement, for strategies and policies which may affect the use and development of land.*

Check whether an overlay also applies to the land.

Other requirements may also apply. These can be found at Particular Provisions.

15/09/2008
VC49

SCHEDULE TO THE FARMING ZONE

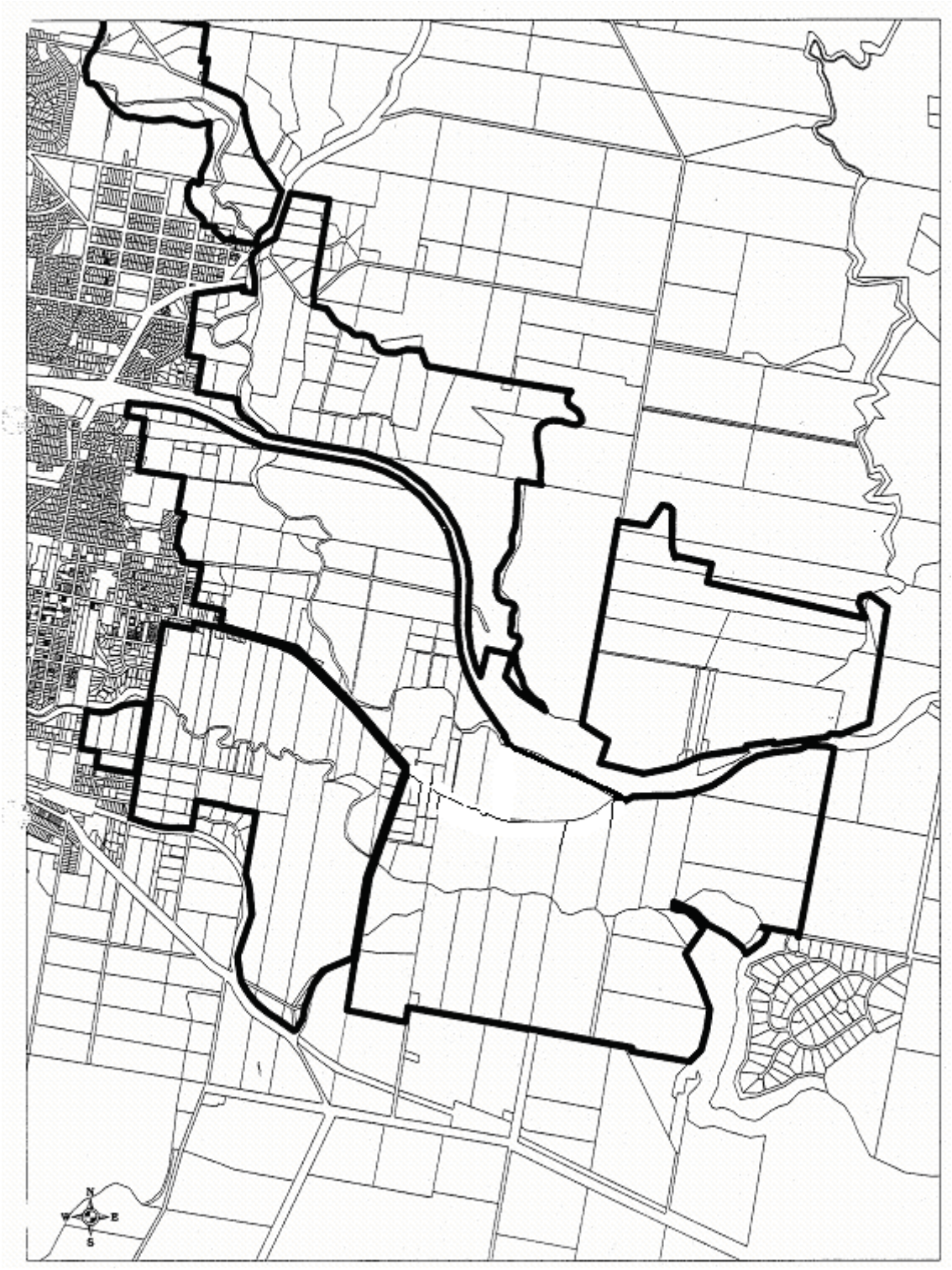
Shown on the planning scheme map as **FZ**

	Land	Area/Dimensions/Distance
Minimum subdivision area (hectares).	Land shown on *Map 1 to the schedule to the Farming Zone* (Sheets 1, 2 and 3) attached to this schedule.	15 hectares
	All other land	100 hectares
Minimum area for which no permit is required to use land for a dwelling (hectares).	Land shown on *Map 1 to the schedule to the Farming Zone* (Sheets 1, 2 and 3) attached to this schedule.	15 hectares
	All other land	40 hectares
Maximum area for which no permit is required to use land for timber production (hectares).	None specified	
Maximum floor area for which no permit is required to alter or extend an existing dwelling (square metres).	None specified	
Maximum floor area for which no permit is required to construct an out-building associated with a dwelling (square metres)	None specified	
Maximum floor area for which no permit is required to alter or extend an existing building used for agriculture (square metres).	None specified	
Minimum setback from a road (metres).	A Road Zone Category 1 or land in a Public Acquisition Overlay to be acquired for a road, Category 1	100 metres
	A Road Zone Category 2 or land in a Public Acquisition Overlay to be acquired for a road, Category 2	40 metres
	Any other road	20 metres

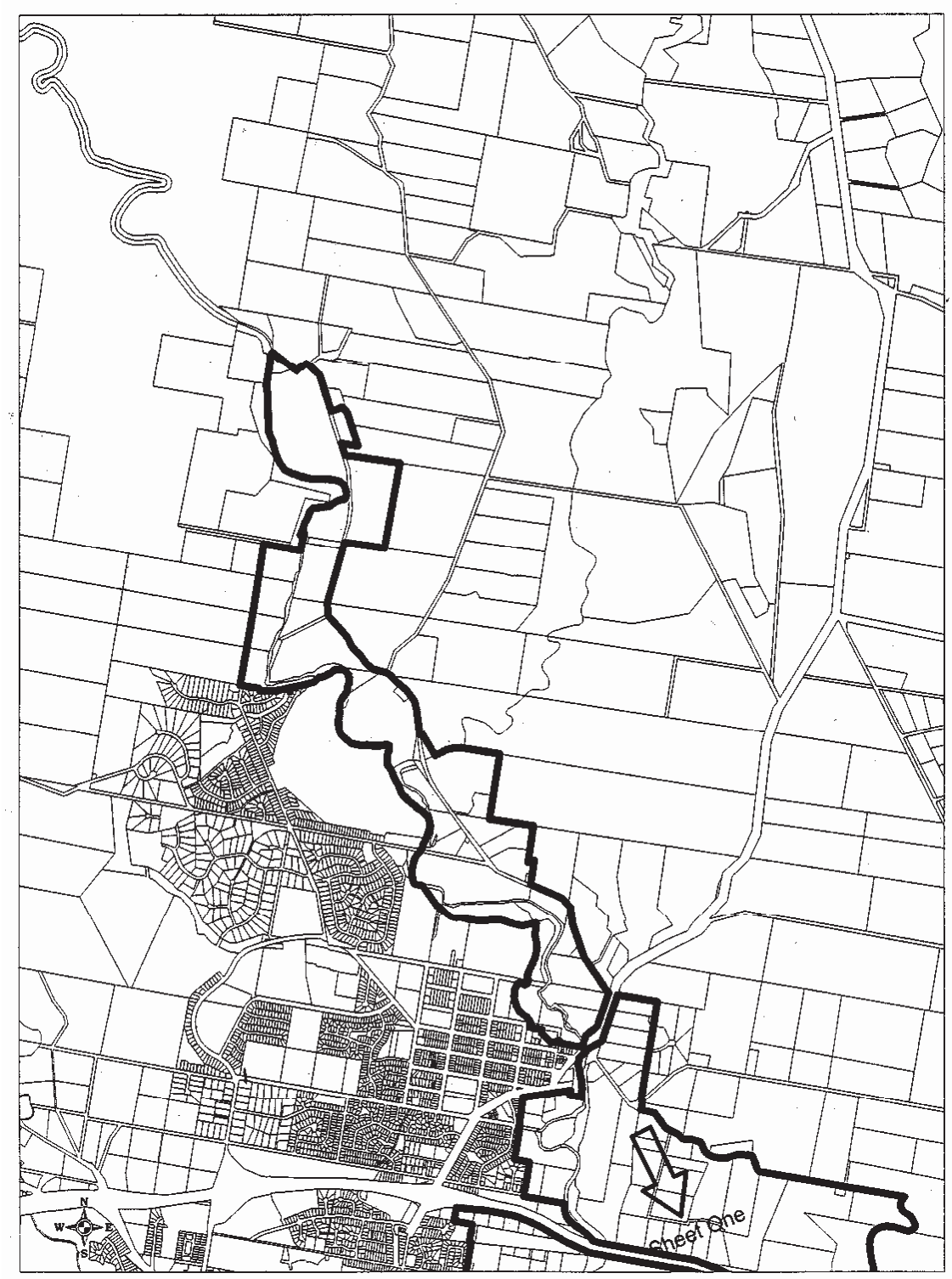
	Land	Area/Dimensions/Distance
Minimum setback from a boundary (metres).	Any other boundary	5 metres
Minimum setback from a dwelling not in the same ownership (metres).	Any dwelling not in the same ownership	100 metres

Permit requirement for earthworks	Land
Earthworks which change the rate of flow or the discharge point of water across a property boundary.	All land
Earthworks which increase the discharge of saline groundwater.	All land

Map 1 to the Schedule to the Farming Zone – Sheet 1



Map 1 to the Schedule to the Farming Zone – Sheet 2



Map 1 to the Schedule to the Farming Zone – Sheet 3

Property Report from **www.land.vic.gov.au** on 10 January 2012 03:13 PM

Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Lot and Plan Number: This site has 4 parcels. See table below.
Standard Parcel Identifier (SPI): See table below.
Local Government (Council): MOORABOOL **Council Property Number:** 124720
Directory Reference: VicRoads 77 E4

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply.

Further information about the building control system and building in bushfire prone areas can be found on the Building Commission website www.buildingcommission.com.au

Parcel Details

Lot/Plan or Crown Description	SPI
Lot 1 TP845669	1\TP845669
Lot 2 TP845669	2\TP845669
Lot 3 TP845669	3\TP845669
Lot 4 TP845669	4\TP845669

State Electorates

Legislative Council: WESTERN VICTORIA (2005)
Legislative Assembly: BALLARAT EAST (2001)

Utilities

Regional Urban Water Business: Central Highlands Water
Rural Water Business: Southern Rural Water
Melbourne Water: inside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE

Planning Overlays: DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Land .vic.gov.au

Planning scheme data last updated on 22 December 2011.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

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For details of surrounding properties, use this service to get the Reports for properties of interest

To view planning zones, overlay and heritage information in an interactive format visit Planning Maps Online

For other information about planning in Victoria visit www.dpcd.vic.gov.au/planning

Heritage Register data last updated on 6 January 2012.

This report is NOT a **Heritage Certificate** issued pursuant to Section 50 of the Heritage Act 1995. It does not show places which may be under consideration for inclusion in the Victorian Heritage Register.

For more information on the **Victorian Heritage Register** go to Victorian Heritage Database

Other information about the heritage status of this property, how to obtain a Heritage Certificate, and any heritage approvals that may be required, may be obtained from Heritage Victoria

Area Map

Department of
Planning and
Community Development

Planning Property Report

From www.dpcd.vic.gov.au/planning on 10 January 2012 03:26 PM

Lot and Plan Number: Lot 1 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
This parcel is one of 4 parcels comprising the property.
For full parcel details get the free Basic Property report at Property Reports
Local Government (Council): MOORABOOL **Council Property Number:** 124720 (Part)
Directory Reference: VicRoads 77 E4

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 - Business 1
- B2Z - Business 2
- B3Z - Business 3
- B4Z - Business 4
- B5Z - Business 5
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GWAZ - Green Wedge A
- GWZ - Green Wedge
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- IN2Z - Industrial 2
- IN3Z - Industrial 3
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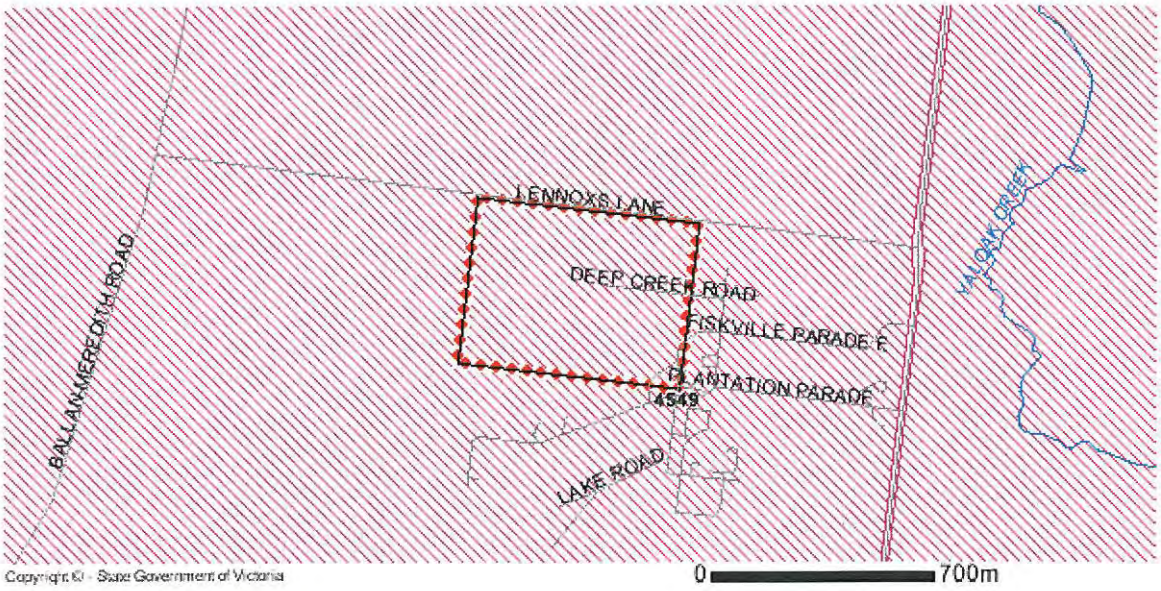
- MUZ - Mixed Use
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- R1Z - Residential 1
- R2Z - Residential 2
- R3Z - Residential 3
- RAZ - Rural Activity
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlays

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)

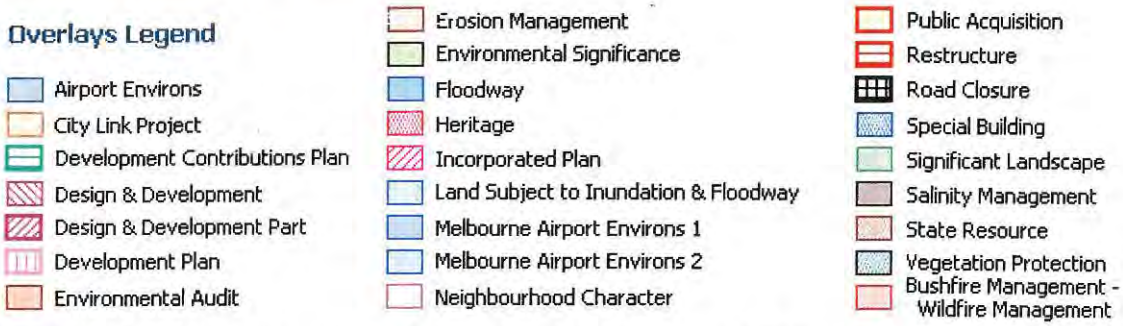


ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Planning Overlays Legend

Overlays Legend



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 22 December 2011.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State, local, particular and general provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting Planning Schemes Online

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Department of
Planning and
Community Development

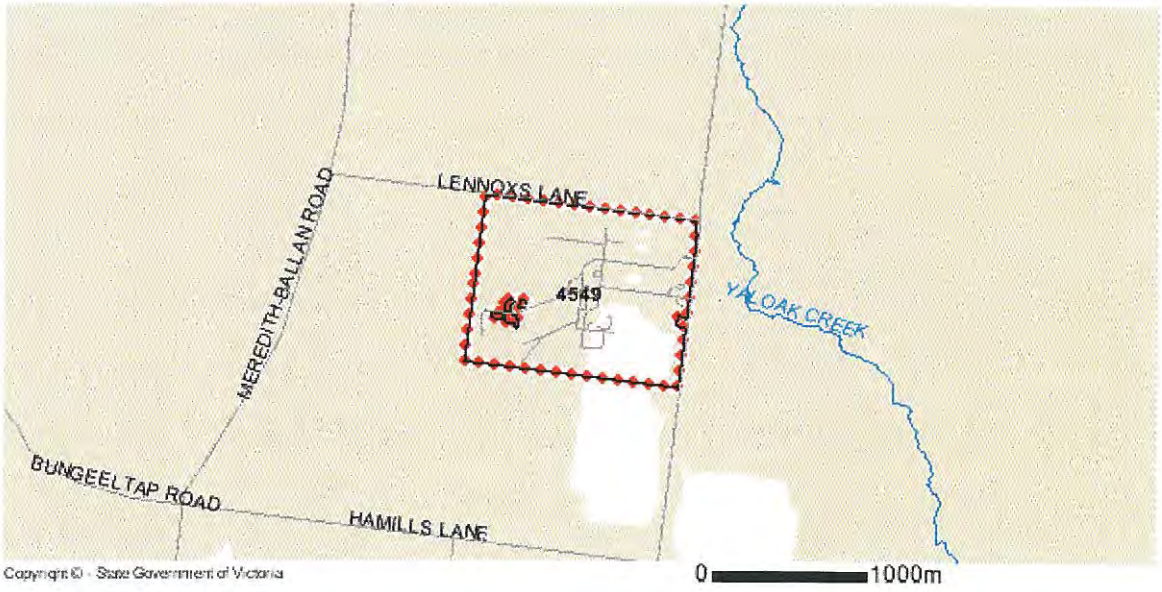
Designated Bushfire Prone Areas

from www.dpcd.vic.gov.au/planning on 10 January 2012 03:27 PM

Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Lot and Plan Number: Lot 1 TP845669
This property has a total of 4 parcels.
For full parcel details get the free Basic Property report at Property Reports
Local Government (Council): MOORABOOL **Council Property Number:** 124720
Directory Reference: VicRoads 77 E4

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply.

Designated Bushfire Prone Area Map



Bushfire Prone Area Legend Bushfire Prone Area

Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011.

The Building Regulations 2006 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed via the Bushfire Prone Areas Map Service or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Building Commission website www.buildingcommission.com.au

Copies of the Building Act and Building Regulations are available from www.legislation.vic.gov.au

For Planning Scheme Provisions in bushfire areas visit Planning Schemes Online

For Planning Scheme Provisions for this property return to the GetReports list and select the Planning Property Report.

Department of
Planning and
Community Development

Planning Property Report

From **www.dpcd.vic.gov.au/planning** on 10 January 2012 03:25 PM

Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Lot and Plan Number: Lot 1 TP845669
This property has a total of 4 parcels.
For full parcel details get the free Basic Property report at Property Reports
Local Government (Council): MOORABOOL **Council Property Number:** 124720
Directory Reference: VicRoads 77 E4

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

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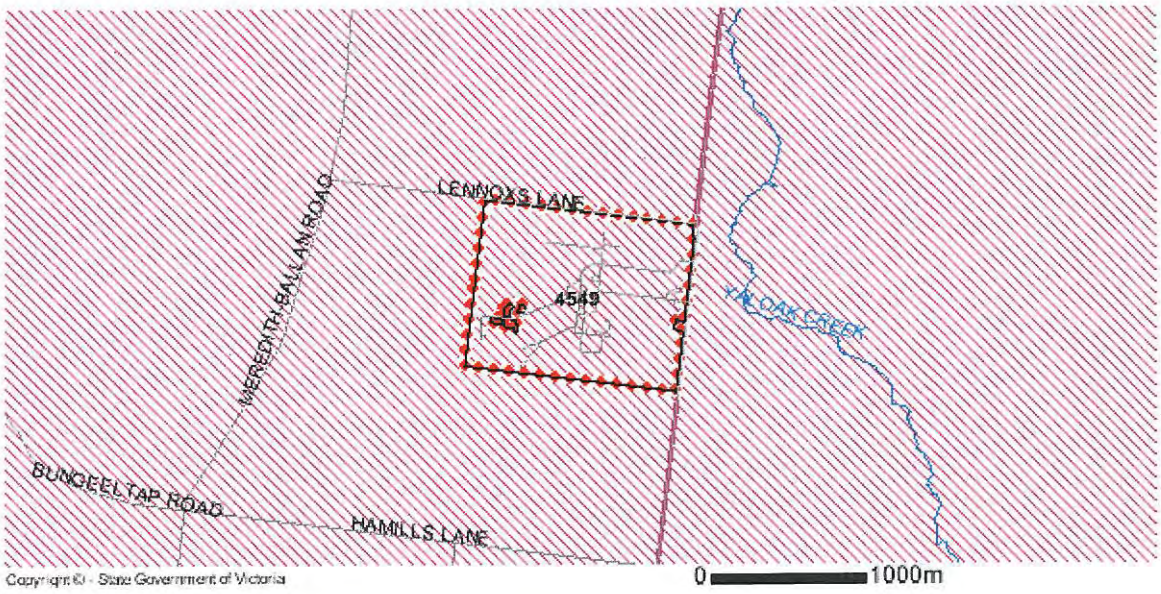
- Urban Growth Boundary

Planning Overlays

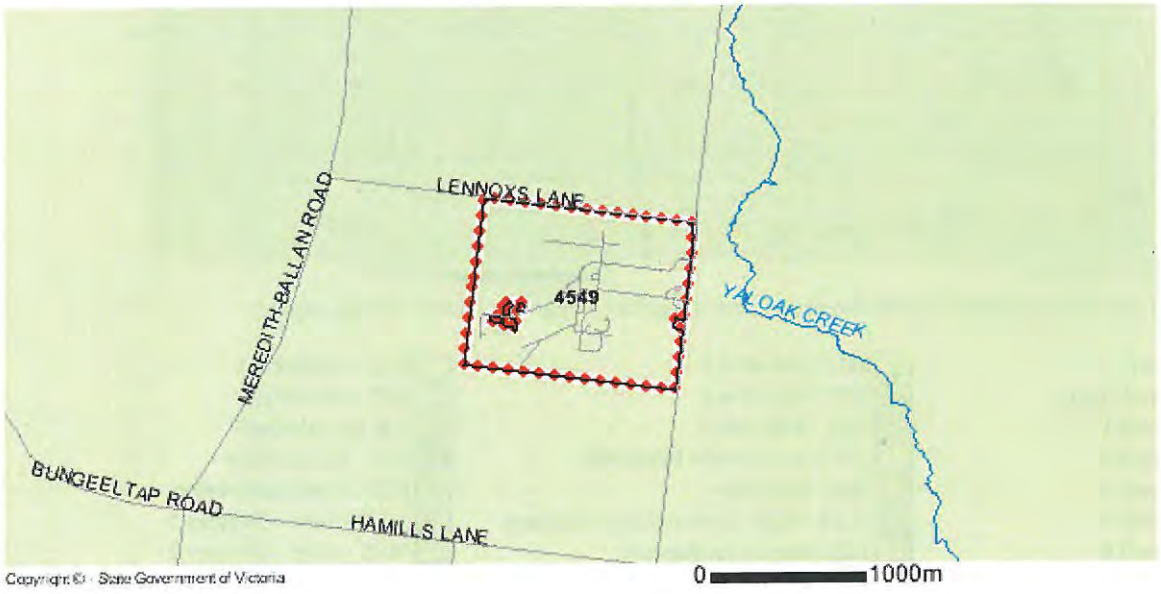
DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)



ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

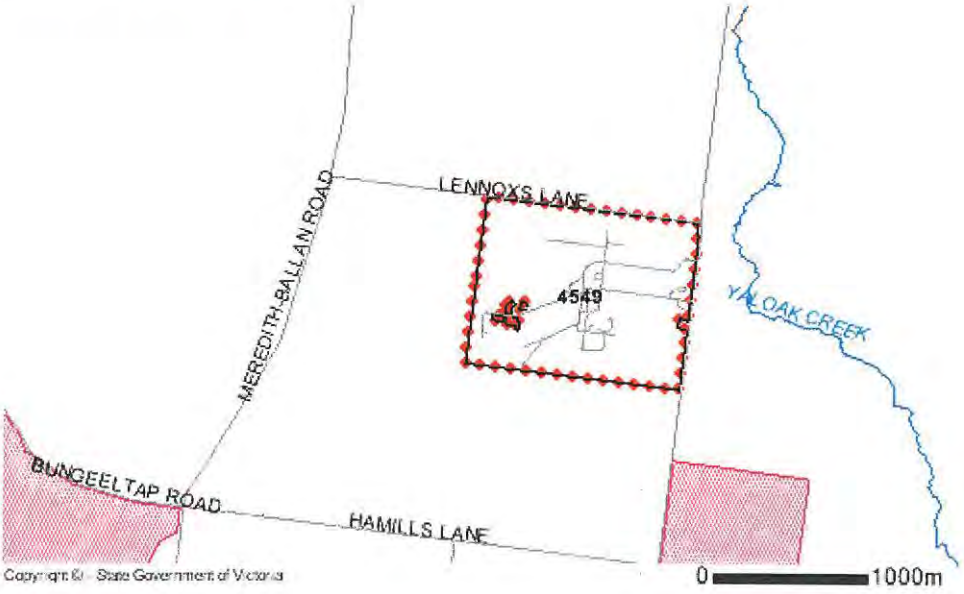


Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

HERITAGE OVERLAY (HO)



Overlays Legend

- Airport Environs
- City Link Project
- Development Contributions Plan
- Design & Development
- Design & Development Part
- Development Plan
- Environmental Audit
- Erosion Management
- Environmental Significance
- Floodway
- Heritage
- Incorporated Plan
- Land Subject to Inundation & Floodway
- Melbourne Airport Environs 1
- Melbourne Airport Environs 2
- Neighbourhood Character
- Public Acquisition
- Restructure
- Road Closure
- Special Building
- Significant Landscape
- Salinity Management
- State Resource
- Vegetation Protection
- Bushfire Management - Wildfire Management

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 22 December 2011.

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Property Report from www.land.vic.gov.au on 10 January 2012 03:13 PM

Lot and Plan Number: Lot 1 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Standard Parcel Identifier (SPI): 1\TP845669
Local Government (Council): MOORABOOL **Council Property Number:** 124720 (Part)
Directory Reference: VicRoads 77 E4
Note: This parcel is part of a property. For property details get the free Basic Property Report at Property Reports

This parcel is in a designated bushfire prone area.
Special bushfire construction requirements apply.

Further information about the building control system and building in bushfire prone areas can be found on the Building Commission website www.buildingcommission.com.au

Parcel Details

This is 1 parcel of 4 parcels comprising the property.The parcel searched for is marked with an * in the table below.

Lot/Plan or Crown Description	SPI
*Lot 1 TP845669	1\TP845669
Lot 2 TP845669	2\TP845669
Lot 3 TP845669	3\TP845669
Lot 4 TP845669	4\TP845669

State Electorates

Legislative Council: WESTERN VICTORIA (2005)
Legislative Assembly: BALLARAT EAST (2001)

Utilities

Regional Urban Water Business: Central Highlands Water
Rural Water Business: Southern Rural Water
Melbourne Water: outside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE
Planning Overlays: DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Land .vic.gov.au

Planning scheme data last updated on 22 December 2011.

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Area Map

Planning Property Report

From www.dpcd.vic.gov.au/planning on 10 January 2012 03:26 PM

Lot and Plan Number: Lot 1 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
This parcel is one of 4 parcels comprising the property.
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Local Government (Council): MOORABOOL **Council Property Number:** 124720 (Part)
Directory Reference: VicRoads 77 E4

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

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- GWAZ - Green Wedge A
- GWZ - Green Wedge
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- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
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- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
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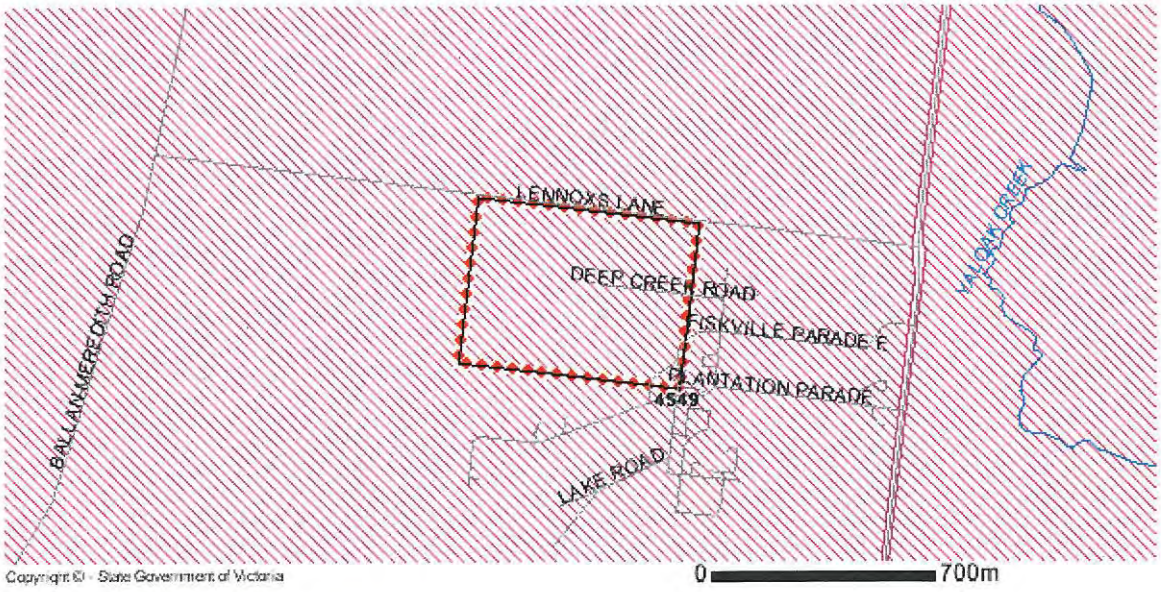
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlays

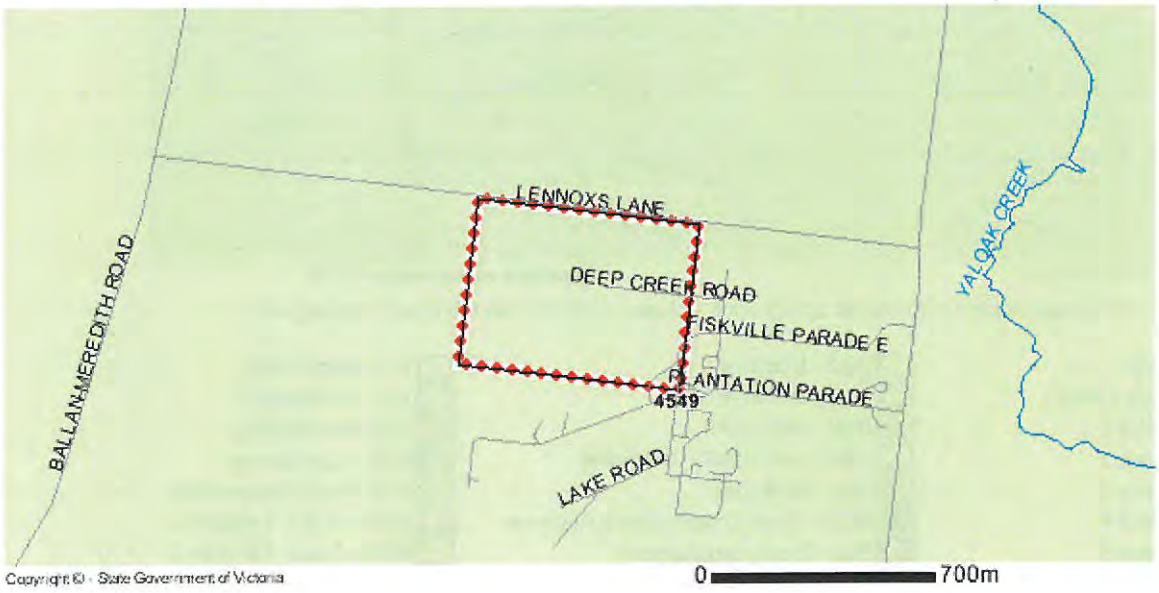
DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)



ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Planning Overlays Legend

Overlays Legend

- Airport Environs
- City Link Project
- Development Contributions Plan
- Design & Development
- Design & Development Part
- Development Plan
- Environmental Audit
- Erosion Management
- Environmental Significance
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- Melbourne Airport Environs 1
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- Road Closure
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- Significant Landscape
- Salinity Management
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- Vegetation Protection
- Bushfire Management - Wildfire Management

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Further Planning Information

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Land.vic.gov.au

Property Report from www.land.vic.gov.au on 10 January 2012 03:13 PM

Lot and Plan Number: Lot 3 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Standard Parcel Identifier (SPI): 3\TP845669
Local Government (Council): MOORABOOL **Council Property Number:** 124720 (Part)
Directory Reference: VicRoads 77 E4
Note: This parcel is part of a property. For property details get the free Basic Property Report at Property Reports

This parcel is in a designated bushfire prone area.
Special bushfire construction requirements apply.

Further information about the building control system and building in bushfire prone areas can be found on the Building Commission website www.buildingcommission.com.au

Parcel Details

This is 1 parcel of 4 parcels comprising the property.The parcel searched for is marked with an * in the table below.

Lot/Plan or Crown Description	SPI
Lot 1 TP845669	1\TP845669
Lot 2 TP845669	2\TP845669
*Lot 3 TP845669	3\TP845669
Lot 4 TP845669	4\TP845669

State Electorates

Legislative Council: WESTERN VICTORIA (2005)
Legislative Assembly: BALLARAT EAST (2001)

Utilities

Regional Urban Water Business: Central Highlands Water
Rural Water Business: Southern Rural Water
Melbourne Water: inside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

Planning Zone Summary

Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE
Planning Overlays: DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Land
.vic.gov.au

Planning scheme data last updated on 22 December 2011.

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Heritage Register data last updated on 6 January 2012.

This report is NOT a **Heritage Certificate** issued pursuant to Section 50 of the Heritage Act 1995. It does not show places which may be under consideration for inclusion in the Victorian Heritage Register.

For more information on the **Victorian Heritage Register** go to Victorian Heritage Database

Other information about the heritage status of this property, how to obtain a Heritage Certificate, and any heritage approvals that may be required, may be obtained from Heritage Victoria

Area Map

Planning Property Report

From **www.dpcd.vic.gov.au/planning** on 10 January 2012 03:27 PM

Lot and Plan Number: Lot 3 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
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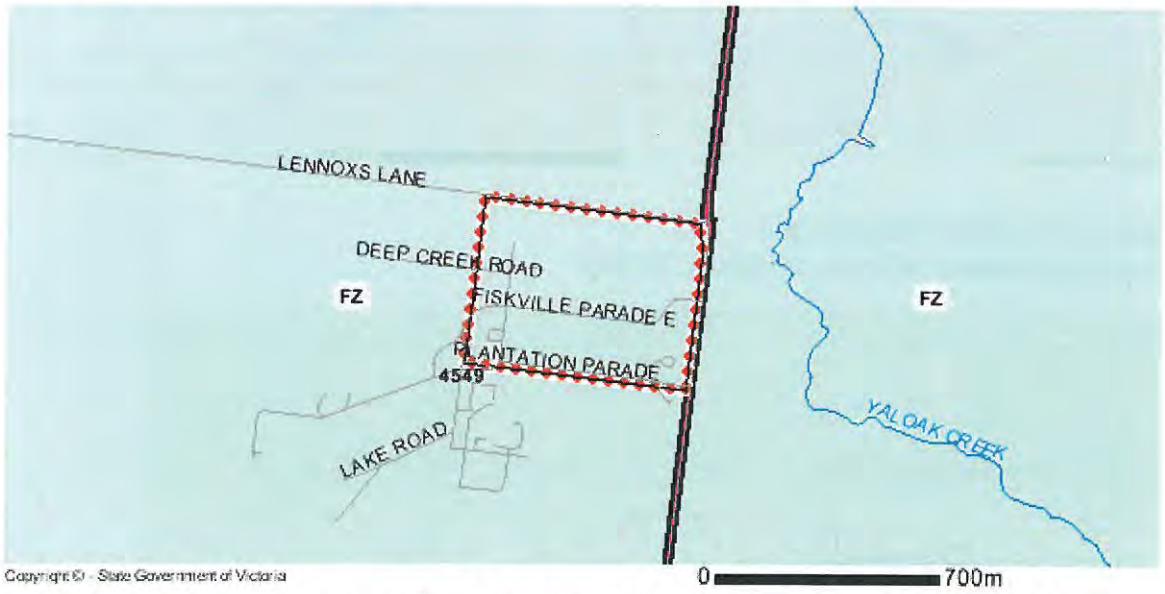
Directory Reference: VicRoads 77 E4

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 - Business 1
- B2Z - Business 2
- B3Z - Business 3
- B4Z - Business 4
- B5Z - Business 5
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GWAZ - Green Wedge A
- GWZ - Green Wedge
- IN1Z - Industrial 1
- IN2Z - Industrial 2
- IN3Z - Industrial 3
- LDRZ - Low Density Residential
- MUZ - Mixed Use
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- 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
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- R2Z - Residential 2
- R3Z - Residential 3
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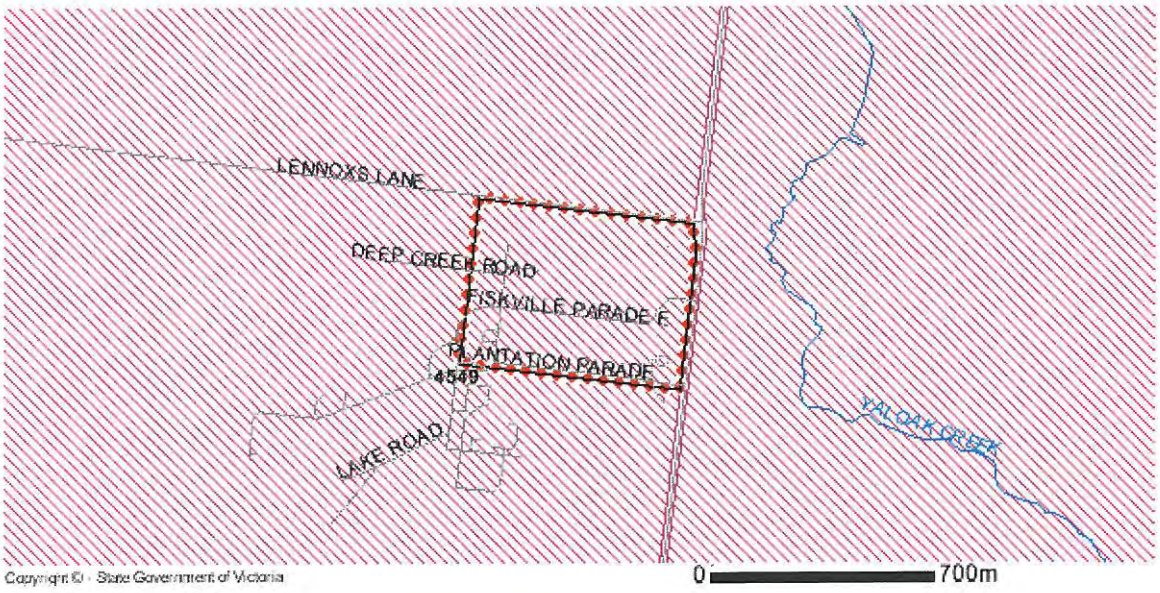
- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
- RDZ2 - Road - Category 2
- RLZ - Rural Living
- RUZ - Rural
- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

Planning Overlays

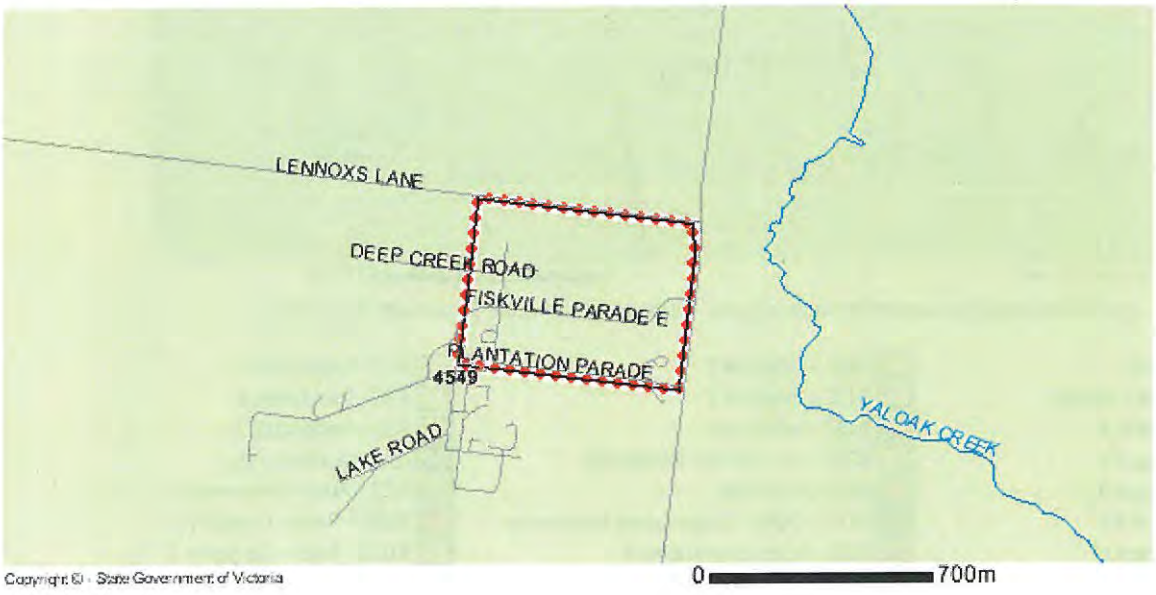
DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)



ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)



Planning Overlays Legend

Overlays Legend

- Airport Environs
- City Link Project
- Development Contributions Plan
- Design & Development
- Design & Development Part
- Development Plan
- Environmental Audit
- Erosion Management
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Further Planning Information

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Property Report from www.land.vic.gov.au on 10 January 2012 03:14 PM

Lot and Plan Number: Lot 4 TP845669
Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
Standard Parcel Identifier (SPI): 4\TP845669
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Directory Reference: VicRoads 77 E4
Note: This parcel is part of a property. For property details get the free Basic Property Report at Property Reports

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State Electorates

Legislative Council: WESTERN VICTORIA (2005)
Legislative Assembly: BALLARAT EAST (2001)

Utilities

Regional Urban Water Business: Central Highlands Water
Rural Water Business: Southern Rural Water
Melbourne Water: inside drainage boundary
Power Distributor: POWERCOR (Information about choosing an electricity retailer)

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Planning Zone: FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE
Planning Overlays: DESIGN AND DEVELOPMENT OVERLAY (DDO)
DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
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Land .vic.gov.au

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Area Map

Planning Property Report

From www.dpcd.vic.gov.au/planning on 10 January 2012 03:27 PM

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Address: 4549 GEELONG-BALLAN ROAD FISKVILLE 3342
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Directory Reference: VicRoads 77 E4

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FARMING ZONE (FZ)
SCHEDULE TO THE FARMING ZONE

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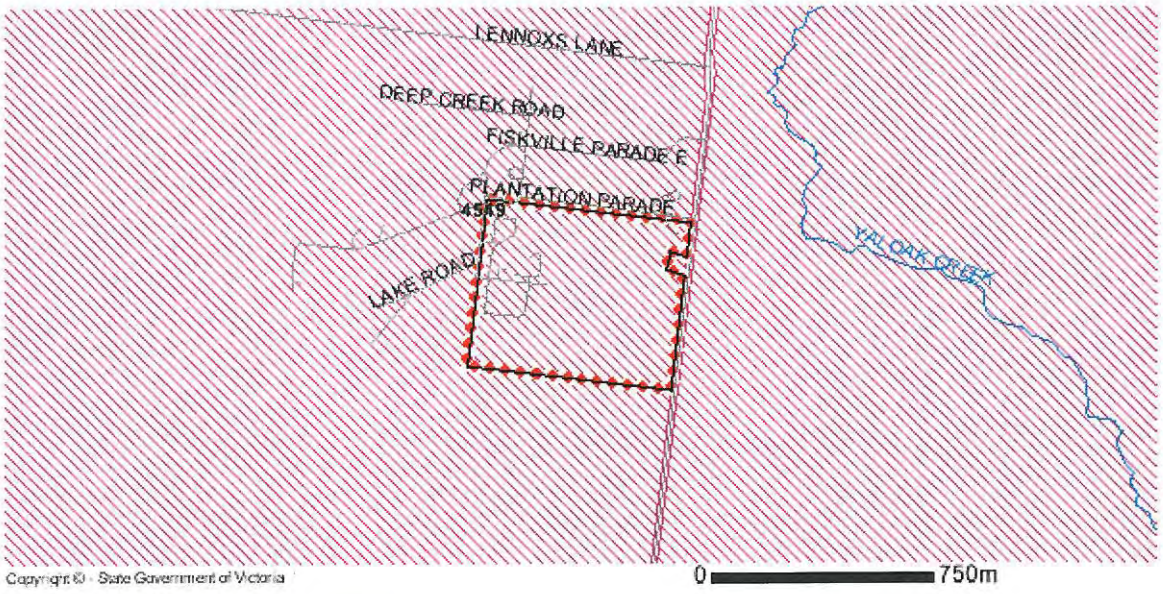
- Urban Growth Boundary

Planning Overlays

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 2 (DDO2)



ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 1 (ESO1)

Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

HERITAGE OVERLAY (HO)

Overlays Legend

- Airport Environs
- City Link Project
- Development Contributions Plan
- Design & Development
- Design & Development Part
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117613201 - CFA Training College, PSA
Groundwater Bores within 6 km of CFA, Fiskville

Bore id	Drill Date (yr/m/d)	Company Name	Usage	Easting	Northing	Distance from site (km)	Direction from site
302811	19191231	Department of Manufacturing & Industry Development		259975	5823250	5.8	
106570	19391231	Department of Manufacturing & Industry Development	Groundwater Investigation	254000	5829212	3.4	nw
302812	19830602	Department of Manufacturing & Industry Development		257235	5822146	4.5	
302819	19830902	Department of Manufacturing & Industry Development		257256	5822281	4.4	
302754	19221231	Department of Manufacturing & Industry Development		249093	5824984	5.7	
53382	19790223	Private Individual/Corporation	Irrigation	255267	5822847	3.0	se
53384	19820519	Private Individual/Corporation	Domestic water supply	255512	5821784	4.1	se
302815	19830901	Department of Manufacturing & Industry Development		257278	5822309	4.3	
302814	19830811	Department of Manufacturing & Industry Development		257334	5822329	4.4	
53385	19830209	Private Individual/Corporation	Stock/Poultry water supply	253912	5822934	3.0	sw
302813	19830722	Department of Manufacturing & Industry Development		257235	5822146	4.5	
302818	19830829	Department of Manufacturing & Industry Development		257316	5822300	4.4	
302816	19830816	Department of Manufacturing & Industry Development		257334	5822329	4.4	
53383	19820517	Private Individual/Corporation	Domestic water supply	255012	5821284	4.6	se
302817	19830823	Department of Manufacturing & Industry Development		257316	5822300	4.4	
53381	19391231	Department of Manufacturing & Industry Development	Groundwater Investigation	252408	5821428	5.0	
53380	19391231	Department of Manufacturing & Industry Development	Groundwater Investigation	252649	5821544	4.8	
106573	19830302	Private Individual/Corporation	Stock/Poultry water supply	252412	5826234	2.4	nw
106571	19391231	Department of Manufacturing & Industry Development	Groundwater Investigation	254342	5824363	1.5	sw

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CARMS No. Municipality -- ALL -- Search

Issue Type -- ALL -- Locality -- ALL --

Order By Date Address

Search Found: 7

Issue	CARMs No.	Status	Municipality	Locality	Address	Date Completed
STATEMENT	68236-1	Available	MOORABOOL SHIRE COUNCIL	MADDINGLEY	LOT 4 MEIKLE STREET	8/11/2011
CERTIFICATE	68111-1	Available	MOORABOOL SHIRE COUNCIL	MADDINGLEY	BACCHUS MARSH BALLIANG ROAD	13/04/2011
STATEMENT	44944-1	Available	MOORABOOL SHIRE COUNCIL	BACCHUS MARSH	BACCHUS MARSH SEWERAGE TREATMENT PLANT THE AVENUE OF HONOUR ROAD	24/07/2003
CERTIFICATE	17008-1	Available	MOORABOOL SHIRE COUNCIL	BACCHUS MARSH	CNR WITTICK & CLARK STS	24/01/1992
CERTIFICATE	17007-1	Available	MOORABOOL SHIRE COUNCIL	BACCHUS MARSH	2 MADDINGLEY ROAD	31/08/1991
CERTIFICATE	16997-1	Available	MOORABOOL SHIRE COUNCIL	BACCHUS MARSH	PCA 18,28 & 29 CA 16 & 17 SECT 1 PARISH OF PARWAN	11/06/1991
CERTIFICATE	17551-1	N/A	MOORABOOL SHIRE COUNCIL	BACCHUS MARSH	BALLIANG ROAD	10/05/1991

Priority Sites Register

Date Generated 27/01/2012

BACKGROUND

EPA has a key responsibility in protecting beneficial uses of land. Many of these uses are regulated or controlled through a range of measures to prevent contamination of land and groundwater. Land contaminated by former waste disposal, industrial and similar activities is frequently discovered during changes to land use - for example, from industrial to residential use. In most cases these can be managed at the time that the change of land use occurs. Some sites however, present a potential risk to human health or to the environment and must be dealt with as a priority. Such sites are typically subject to clean-up and/or management under EPA directions.

WHAT ARE PRIORITY SITES?

Priority Sites are sites for which EPA 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 Environment Protection Act 1970. Typically these are sites where pollution of land and/or groundwater presents a potential risk to human health or to the environment. The condition of these sites is not compatible with the current or approved use of the site without active management to reduce the risk to human health and the environment. Such management can include clean-up, monitoring and/or institutional controls.

The Priority Sites Register does not list sites managed by voluntary agreements or sites subject to management by planning controls (eg. sites managed in accordance with a section 173 agreement under the Planning and Environment Act 1987). Land purchasers should be aware of these limitations and make their own enquiries. A site is listed on the Priority Sites Register when EPA issues a Clean-up Notice or a Pollution Abatement Notice (relevant to land and/or groundwater). A notice is a means by which EPA formalises requirements to manage pollution. Sites are removed from the Priority Sites Register once all conditions of a Notice have been complied with. This is formalised through a Notice of Revocation pursuant to section 60B of the Act.

FURTHER INFORMATION

Additional information is available from:
EPA Information Centre
200 Victoria Street
Carlton VIC 3053
Tel: 03 9695 2722 Fax: 03 9695 2610
Media Enquiries: 03 9695 2704
EPA internet site: www.epa.vic.gov.au

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Ararat Rural City Council	ARARAT	169 ELIZABETH ST	Current Industrial Site. Requires assessment and/or clean up.
Ararat Rural City Council	ARARAT	26 GRANO ST	Former Industrial Site. Requires assessment and/or clean up.
Ararat Rural City Council	ARARAT	MCLELLAN ST	Railway yard. Requires assessment and/or clean up.
Ballarat City Council	BALLARAT	1003 HUMFFRAY ST SOUTH	Former Industrial Site. Requires assessment and/or clean up.
Ballarat City Council	BALLARAT	BALLARAT AERODROME VOLUME 6747 FOLIO 250	Current Industrial Site. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Ballarat City Council	BALLARAT	CANADIAN GULLY RESERVE, GEELONG RD	Historical deposit of mine tailings. Requires assessment and/or clean up.
Ballarat City Council	DELACOMBE	1201-1209 LATROBE ST & 4 HEINZ RD	Current Industrial Site. Requires assessment and/or clean up.
Ballarat City Council	DURHAM LEAD	CROWN ALLOTMENTS 133B & 133E PARISH OF BUNINYONG & CROWN LAND RD EAST PORTION SOUTH OF ALLOTMENT 133B & SOUTH OF ALLOTMENT 133E	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Ballarat City Council	MOUNT CLEAR	WHITEHORSE RD	Former Landfill. Requires on-going management.
Ballarat City Council	WARRENHEIP	LOT 2 SUBDIVISION PLAN PS434445P, BALLARAT-BURRUMBEET RD	Accidental spill/leak (non-industrial site). Requires on-going management.
Ballarat City Council	WENDOUREE	40 GREGORY ST WEST	Former Industrial Site. Requires assessment and/or clean up.
Banyule City Council	GREENSBOROUGH	131 GRIMSHAW ST	Current Service Station. Requires assessment and/or clean up.
Bass Coast Shire Council	WONTHAGGI	C/A 15 SECTION 58 CAMERON ST	Former Landfill. Requires assessment and/or clean up.
Bayside City Council	BRIGHTON	316-322 NEW ST	Former Service Station. Requires assessment and/or clean up.
Bayside City Council	BRIGHTON	601 HAMPTON ST	Current Service Station. Requires on-going management.
Bayside City Council	CHELTENHAM	18 HAMLET ST	Current Industrial Site. Requires on-going management.
Benalla Rural City Council	TATONG	1694 BENALLA-TATONG RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Brimbank City Council	BROOKLYN	40-60 MCDONALD RD	Former Landfill. Requires on-going management.
Brimbank City Council	BROOKLYN	550 GEELONG RD	Former Industrial Site. Requires assessment and/or clean up.
Brimbank City Council	BROOKLYN	594 GEELONG RD (CORNER MCDONALD RD)	Former Landfill. Requires on-going management.
Brimbank City Council	BROOKLYN	69 BUNTING RD	Solid inert waste has been dumped at the site. Requires assessment and/or clean up.
Brimbank City Council	BROOKLYN	BUNTING RD	Former Landfill. Requires on-going management.
Brimbank City Council	DEER PARK	765 BALLARAT RD	Current Industrial Site. Requires assessment and/or clean up.
Brimbank City Council	KEILOR DOWNS	GREEN GULLY RD	Former Landfill. Requires on-going management.
Brimbank City Council	SUNSHINE	47 MCINTYRE RD	Former Industrial Site. Requires on-going management.
Brimbank City Council	SUNSHINE	CARRINGTON RESERVE, HULETT ST	Former Landfill. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Brimbank City Council	SUNSHINE NORTH	51 MCINTYRE RD	Current Industrial Site. Requires assessment and/or clean up.
Brimbank City Council	SUNSHINE NORTH	56 SPALDING AV	Current Industrial Site. Requires assessment and/or clean up.
Brimbank City Council	SUNSHINE NORTH	DUKE ST	Waste Acid Sulfate Soils. Requires on-going management.
Brimbank City Council	SUNSHINE WEST	64 SPALDING AV	Current Industrial Site. Requires assessment and/or clean up.
Brimbank City Council	SYDENHAM	FORMER SYDENHAM QUARRY, SYDENHAM RD	Former Landfill. Requires assessment and/or clean up.
Buloke Shire Council	BIRCHIP	BIRCHIP-CORACK RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Buloke Shire Council	WYCHEPROOF	36-40 CAMP ST	Current petroleum storage site. Requires on-going management.
Campaspe Shire Council	BAMAWM	LOT 2 PLAN OF SUBDIVISION 544316M PARISH OF TORRUMBURRY MITIAMO-ECHUCA RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Campaspe Shire Council	ECHUCA	ECHUCA LANDFILL ECHUCA-KYABRAM RD	Former Landfill. Requires on-going management.
Campaspe Shire Council	KYABRAM	GRAHAM RD	Former Landfill. Requires on-going management.
Cardinia Shire Council	NAR NAR GOON	FIVE MILE RD	Former Landfill. Requires on-going management.
Cardinia Shire Council	PAKENHAM SOUTH	35 HALL RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Casey City Council	CRANBOURNE	LOT 7, 9, 10, 11 & 12 STEVENSONS RD	Former Landfill. Requires on-going management.
Casey City Council	NARRE WARREN NORTH	QUARRY RD	Former Landfill. Requires on-going management.
Casey City Council	PEARCEDALE	145 CRAIGS LA	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Central Goldfields Shire Council	CARISBROOK	POTTS LA	Former Landfill. Requires on-going management.
Central Goldfields Shire Council	DUNOLLY	43 RAILWAY RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Central Goldfields Shire Council	MARYBOROUGH	12 MADMANS LA FLAGSTAFF	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Central Goldfields Shire Council	MARYBOROUGH	24 MADMANS LA FLAGSTAFF	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Colac-Otway Shire Council	COLAC	BRUCE ST	Former Landfill. Requires on-going management.
Colac-Otway Shire Council	COROROOKE	CROWN ALLOTMENTS 23C-23L FACTORY RD	Current Industrial Site. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Colac-Otway Shire Council	MARENGO	ROBERTS RD	Former Landfill. Requires on-going management.
Corangamite Shire Council	GLENORMISTON	TERANG-MORTLAKE RD	Former Landfill. Requires on-going management.
Darebin City Council	NORTHCOTE	24 LEINSTER GV	Current Industrial Site. Requires assessment and/or clean up.
Darebin City Council	NORTHCOTE	CNR CLIFTON ST & WALES ST	Former Landfill. Requires on-going management.
Darebin City Council	PRESTON	140 HIGH ST	Former Industrial Site. Requires assessment and/or clean up.
Darebin City Council	PRESTON	194-202 BELL ST	Former Industrial Site. Requires assessment and/or clean up.
Darebin City Council	PRESTON	3 NEWMAN ST	Former Industrial Site. Requires assessment and/or clean up.
Darebin City Council	PRESTON	62 ALBERT ST	Current Industrial Site. Requires on-going management.
Darebin City Council	PRESTON	67-79 HIGH ST	Former Service Station. Requires assessment and/or clean up.
Darebin City Council	RESERVOIR	LOT 87 NEWLANDS RD	Former Landfill. Requires on-going management.
East Gippsland Shire Council	BAIRNSDALE	201 MAIN ST	Former Service Station. Requires assessment and/or clean up.
East Gippsland Shire Council	BAIRNSDALE	201-205 MAIN ST	Former Service Station. Requires assessment and/or clean up.
East Gippsland Shire Council	BAIRNSDALE	205 MAIN ST	Former Service Station. Requires assessment and/or clean up.
East Gippsland Shire Council	ORBOST	44-50 SALSIBURY ST	Former Service Station. Requires assessment and/or clean up.
East Gippsland Shire Council	WY YUNG	25 MITCHELL RIVER FLATS	Illegal dumping. Requires assessment and/or clean up.
Frankston City Council	FRANKSTON	3 ROSELLA ST	Former Industrial Site. Requires assessment and/or clean up.
Frankston City Council	FRANKSTON NORTH	PARISH OF FRANKSTON C/A 33C	Former Landfill. Requires on-going management.
Glen Eira City Council	CAULFIELD SOUTH	371 HAWTHORN RD	Former Service Station. Requires assessment and/or clean up.
Glen Eira City Council	CAULFIELD SOUTH	818 GLEN HUNTLY RD	Former Service Station. Requires assessment and/or clean up.
Glenelg Shire Council	PORTLAND	210 CAPE NELSON RD	Current Landfill. Requires on-going management.
Golden Plains Shire Council	SMYTHESDALE	BMG BORAL GRAVEL PITS 1380 GLENELG HWY	Current Landfill. Requires on-going management.
Greater Bendigo City Council	BENDIGO	MOBIL DEPOT 49 SANDHURST RD	Former petroleum storage site. Requires assessment and/or clean up.
Greater Bendigo City Council	CALIFORNIA GULLY	45 SANDHURST RD	Current Service Station. Requires assessment and/or clean up.
Greater Bendigo City Council	LOCKWOOD	74 HAZELDENES RD	Land and/or groundwater impacted by intensive animal industry. Requires assessment and/or clean up.
Greater Bendigo City Council	MAIDEN GULLY	195 - 221 MARONG RD	Historical deposit of mine tailings. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Greater Bendigo City Council	MARONG	79 & 99 FOREST DR	Current Industrial Site. Requires on-going management.
Greater Dandenong City Council	BANGHOLME	790-790A FRANKSTON DENDENONG RD	Solid inert waste has been dumped at the site. Requires assessment and/or clean up.
Greater Dandenong City Council	DANDENONG	230-232 FRANKSTON-DANDENONG RD	Current Service Station. Requires assessment and/or clean up.
Greater Dandenong City Council	DANDENONG	GREENS RD	Former Industrial Site. Requires assessment and/or clean up.
Greater Dandenong City Council	DANDENONG SOUTH	20 CAHILL ST	Former Industrial Site. Requires assessment and/or clean up.
Greater Dandenong City Council	LYNDHURST	125 COLEMANS RD	Former Landfill. Requires assessment and/or clean up.
Greater Dandenong City Council	SPRINGVALE	310A SPRINGVALE RD	Former Service Station. Requires on-going management.
Greater Dandenong City Council	SPRINGVALE	917 PRINCES HWY	Former Industrial Site. Requires assessment and/or clean up.
Greater Dandenong City Council	SPRINGVALE SOUTH	CLARKE RD	Former Landfill. Requires on-going management.
Greater Dandenong City Council	SPRINGVALE SOUTH	FORMER SPRING VALLEY LANDFILL, EASTERN SIDE OF CLARKE RD	Former Landfill. Requires on-going management.
Greater Geelong City Council	BALLAN	6511 WESTERN FWY (LOT 1 PLAN TP8462E)	Former Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	BELMONT	180-182 BARWON HEADS RD	Former Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	CLIFTON SPRINGS	15 PARKWAY PL	Former petroleum storage site. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	1500-1580 BIDDLECOMBE AV	Current Landfill. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	246-258 PRINCES HWY	Current petroleum storage site. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	391-395 PRINCES HWY	Former Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	83B PURNELL RD	Current Service Station. Requires on-going management.
Greater Geelong City Council	CORIO	BP DEPOT, SOUTH EAST, CNR OF HARPUR RD & PRINCES HWY	Former Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	SHELL REFINERY, REFINERY RD	Current Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	CORIO	SHELL REFINERY, REFINERY RD	Current petroleum storage site. Requires on-going management.
Greater Geelong City Council	DRYSDALE	97 HIGH ST	Current Service Station. Requires on-going management.
Greater Geelong City Council	GEELONG	CNR NORTH SHORE RD & PRINCES HWY	Current Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	GEELONG EAST	GEELONG GUN CLUB, EASTERN BOTANICAL GARDENS	Gun, pistol or rifle range. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Greater Geelong City Council	GEELONG NORTH	1-39 ROSENEATH ST	Former chemical storage facilty. Requires assessment and/or clean up.
Greater Geelong City Council	GEELONG SOUTH	1-9 BARWON TCE	Former Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	GEELONG WEST	151-153 CHURCH ST	Former Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	HIGHTON	18 NORTH VALLEY RD	Current Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	LARA	PRINCES HWY (12 KILOMETRE & 15 KILOMETRE MARK)	Accidental spill/leak (non-industrial site). Requires assessment and/or clean up.
Greater Geelong City Council	MANIFOLD HEIGHTS	35-37 SHANNON AV	Current Service Station. Requires assessment and/or clean up.
Greater Geelong City Council	MOOLAP	132-160 POINT HENRY RD	Current Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	NORLANE	PRINCES HWY	Former Industrial Site. Requires assessment and/or clean up.
Greater Geelong City Council	PORTARLINGTON	46 FENWICK ST	Current petroleum storage site. Requires assessment and/or clean up.
Greater Shepparton City Council	COSGROVE	LOT 1 PLAN OF SUBDIVISION 404181S	Former Landfill. Requires on-going management.
Greater Shepparton City Council	KIALLA WEST	7358 GOULBURN VALLEY HWY	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Greater Shepparton City Council	PINE LODGE SOUTH	205 QUARRY RD	Former Industrial Site. Requires assessment and/or clean up.
Greater Shepparton City Council	PINE LODGE SOUTH	205 QUARRY RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Greater Shepparton City Council	SHEPPARTON NORTH	280 DALDY RD (LOT 1 TP232993)	Former Industrial Site. Requires assessment and/or clean up.
Hepburn Shire Council	CRESWICK	20 CLUNES RD	Current Service Station. Requires on-going management.
Hepburn Shire Council	CRESWICK	OFF LUTTET ST CRESWICK C/A 45A PARISH OF CRESWICK COUNTY OF TALBOT	Former Landfill. Requires on-going management.
Hepburn Shire Council	MOUNT BECKWORTH	1670 OLD BALLART RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Hobsons Bay City Council	ALTONA	401-435 KORORoit CREEK RD	Current chemical storage facilty. Requires assessment and/or clean up.
Hobsons Bay City Council	ALTONA	541-583 KORORoit CREEK RD	Current chemical storage facilty. Requires assessment and/or clean up.
Hobsons Bay City Council	ALTONA	611 KORORoit CREEK RD	Current Industrial Site. Requires assessment and/or clean up.
Hobsons Bay City Council	ALTONA	ELFIELD MEADOWS ESTATE DEFINED BY VOLUME 10426 FOLIO 035 & VOLUME 10369 FOLIO 278	Waste Acid Sulfate Soils. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Hobsons Bay City Council	ALTONA	FORMER ALTONA LANDFILL, QUEEN ST	Former Landfill. Requires on-going management.
Hobsons Bay City Council	ALTONA MEADOWS	306-316 QUEEN ST	Current Service Station. Requires assessment and/or clean up.
Hobsons Bay City Council	ALTONA NORTH	ALTONA NORTH LANDFILL SITE 55 MCARTHURS RD	Former Landfill. Requires on-going management.
Hobsons Bay City Council	ALTONA NORTH	KYLE RD	Former Landfill. Requires on-going management.
Hobsons Bay City Council	NEWPORT	CALTEX NEWPORT TERMINAL 411 DOUGLAS PDE	Current Industrial Site. Requires assessment and/or clean up.
Hobsons Bay City Council	NEWPORT	SHELL, BURLEIGH ST	Current petroleum storage site. Requires assessment and/or clean up.
Hobsons Bay City Council	NEWPORT	UNDERGROUND SECTION OF PETROLEUM PIPELINES THAT RUN UNDER CHAMPION RD	Current Industrial Site. Requires assessment and/or clean up.
Hobsons Bay City Council	SOUTH KINGSVILLE	22 NEW ST	Former Landfill. Requires assessment and/or clean up.
Hobsons Bay City Council	SOUTH KINGSVILLE	38-48 BLACKSHAWS RD	Former Industrial Site. Requires on-going management.
Hobsons Bay City Council	SPOTSWOOD	18-24 DRAKE ST	Current petroleum storage site. Requires assessment and/or clean up.
Hobsons Bay City Council	SPOTSWOOD	42 SIMCOCK AV	Former Industrial Site. Requires assessment and/or clean up.
Hobsons Bay City Council	SPOTSWOOD	SPOTSWOOD DEPOT 512-578 MELBOURNE RD	Railway yard. Requires assessment and/or clean up.
Hobsons Bay City Council	WILLIAMSTOWN	BA PAGE DRUMS 12 SEAVIEW PDE	Current Industrial Site. Requires on-going management.
Hobsons Bay City Council	YARRAVILLE	YARRAVILLE TERMINAL, FRANCIS ST	Current petroleum storage site. Requires assessment and/or clean up.
Hume City Council	BULLA	570 WILDWOOD RD	Solid inert waste has been dumped at the site. Requires on-going management.
Hume City Council	CAMPBELLFIELD	1735 SYDNEY RD	Current Industrial Site. Requires assessment and/or clean up.
Hume City Council	CAMPBELLFIELD	MAHONEYS RD	Former Landfill. Requires on-going management.
Hume City Council	CRAIGIEBURN	CRAIGIEBURN RD	Former Landfill. Requires on-going management.
Hume City Council	DIGGERS REST	30 DUNCANS LA	Solid inert waste has been dumped at the site. Requires assessment and/or clean up.
Hume City Council	DIGGERS REST	50 EDWARDS RD	Illegal dumping. Requires assessment and/or clean up.
Hume City Council	GREENVALE	WOODLANDS HISTORIC PARK	Illegal dumping. Requires on-going management.
Hume City Council	SOMERTON	CLIFFORDS RD	Former Industrial Site. Requires assessment and/or clean up.
Hume City Council	TULLAMARINE	WESTERN AV	Former Landfill. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Indigo Shire Council	WAHGUNYAH	CROWN ALLOTMENT 5C SECTION A PARISH OF CARLYLE	Illegal dumping. Requires assessment and/or clean up.
Kingston City Council	CHELSEA	476-482 NEPEAN HWY	Former Service Station. Requires assessment and/or clean up.
Kingston City Council	CHELSEA	FORMER CHELSEA LANDFILL MULKARRA DR	Former Landfill. Requires on-going management.
Kingston City Council	CHELSEA	SCOTCH PDE	Former Landfill. Requires on-going management.
Kingston City Council	CLAYTON SOUTH	654-718 CLAYTON RD	Current Landfill. Requires assessment and/or clean up.
Kingston City Council	CLAYTON SOUTH	CNR CLAYTON RD & RYANS RD	Former Landfill. Requires on-going management.
Kingston City Council	CLAYTON SOUTH	FRASER RD	Current Landfill. Requires on-going management.
Kingston City Council	CLAYTON SOUTH	LOT 8 ELDER ST	Former Landfill. Requires on-going management.
Kingston City Council	CLAYTON SOUTH	RYANS RD	Former Landfill. Requires on-going management.
Kingston City Council	DINGLEY VILLAGE	370-418 OLD DANDENONG RD	Current Landfill. Requires on-going management.
Kingston City Council	MOORABBIN	1/10 EBDEN ST	Former Industrial Site. Requires on-going management.
Kingston City Council	MOORABBIN	105-115 COCHRANES RD	Current Industrial Site. Requires assessment and/or clean up.
Kingston City Council	MORDIALLOC	78-86 WHITE ST	Former Industrial Site. Requires assessment and/or clean up.
Knox City Council	BAYSWATER	836 MOUNTAIN HWY	Current Industrial Site. Requires assessment and/or clean up.
Knox City Council	ROWVILLE	82 BERGINS RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Knox City Council	WANTIRNA SOUTH	LLEWELLYN PARK CATHIES LA WEST OF HELPMANN ST	Former Landfill. Requires on-going management.
Latrobe City Council	MORWELL	TRARALGON WEST RD	Current Industrial Site. Requires on-going management.
Latrobe City Council	TRARALGON	LOY YANG B 3/4 BENCH BARTONS LA	Ash pond with a Groundwater Attenuation Zone. Requires on-going management.
Latrobe City Council	TRARALGON	LOY YANG SWITCHYARD BARTONS LA	Ash pond with a Groundwater Attenuation Zone. Requires on-going management.
Loddon Shire Council	NEWBRIDGE	3256 BRIDGEWATER - MALDON RD	Current petroleum storage site. Requires assessment and/or clean up.
Macedon Ranges Shire Council	BULLENGAROOK	HOBBS RD	Former Landfill. Requires on-going management.
Macedon Ranges Shire Council	KYNETON	REDESDALE RD	Former Landfill. Requires on-going management.
Maribyrnong City Council	BROOKLYN	FORMER JAMES HARDIE LANDFILL, HARDIE RD	Former Landfill. Requires on-going management.
Maribyrnong City Council	YARRAVILLE	1-3 HIGH ST	Former Industrial Site. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Maribyrnong City Council	YARRAVILLE	221A & 221B WHITEHALL ST	Former Industrial Site. Requires on-going management.
Maribyrnong City Council	YARRAVILLE	281-295 WHITEHALL ST	Former Industrial Site. Requires assessment and/or clean up.
Maribyrnong City Council	YARRAVILLE	281-295 WHITEHALL ST	Former Industrial Site. Requires on-going management.
Maribyrnong City Council	YARRAVILLE	2A FRANCIS ST	Current Industrial Site. Requires assessment and/or clean up.
Maribyrnong City Council	FOOTSCRAY	FARNSWORTH AV	Former Landfill. Requires on-going management.
Maribyrnong City Council	MAIDSTONE	9-15 WILLIAMSON RD	Former Industrial Site. Requires assessment and/or clean up.
Maribyrnong City Council	WEST FOOTSCRAY	1-19 GRAINGERS RD	Current Industrial Site. Requires assessment and/or clean up.
Maribyrnong City Council	WEST FOOTSCRAY	SOMERVILLE RD	Former Industrial Site. Requires assessment and/or clean up.
Maroondah City Council	CROYDON	CNR MT DANDENONG RD & ANZAC ST	Former Service Station. Requires on-going management.
Maroondah City Council	RINGWOOD	385-389 CANTERBURY RD	Current Service Station. Requires on-going management.
Maroondah City Council	RINGWOOD EAST	18 MOUNT DANDENONG RD	Current Service Station. Requires assessment and/or clean up.
Melbourne City Council	WEST MELBOURNE	LOT 8 DOCK LINK RD	Railway yard. Requires assessment and/or clean up.
Melton Shire Council	DIGGERS REST	250 DUNCANS LA	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Melton Shire Council	MELTON	FORMER MELTON SHIRE LANDFILL, FERRIS RD	Former Landfill. Requires on-going management.
Melton Shire Council	MOUNT COTTRELL	MT COTTRELL RESERVE 180 FAULKNERS RD	Solid inert waste has been dumped at the site. Requires assessment and/or clean up.
Melton Shire Council	RAVENHALL	53-61 REBECCA DR	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Melton Shire Council	RAVENHALL	53-61 REBECCA DR	Industrial waste has been dumped at the site. Requires on-going management.
Mildura Rural City Council	MERBEIN	GAME ST	Current Industrial Site. Requires assessment and/or clean up.
Mildura Rural City Council	MILDURA	CALTEX DEPOT 42 NINTH ST	Current Service Station. Requires assessment and/or clean up.
Mildura Rural City Council	MILDURA	ETIWANDA AV	Former Landfill. Requires on-going management.
Mildura Rural City Council	MILDURA	KOORLONG RD	Former Landfill. Requires on-going management.
Mitchell Shire Council	BROADFORD	HIGH ST	Former Landfill. Requires on-going management.
Mitchell Shire Council	NORTHWOOD	1630 NORTHWOOD RD	Solid inert waste has been dumped at the site. Requires assessment and/or clean up.
Mitchell Shire Council	SEYMOUR	117 WIMBLE ST	Current Industrial Site. Requires assessment and/or clean up.

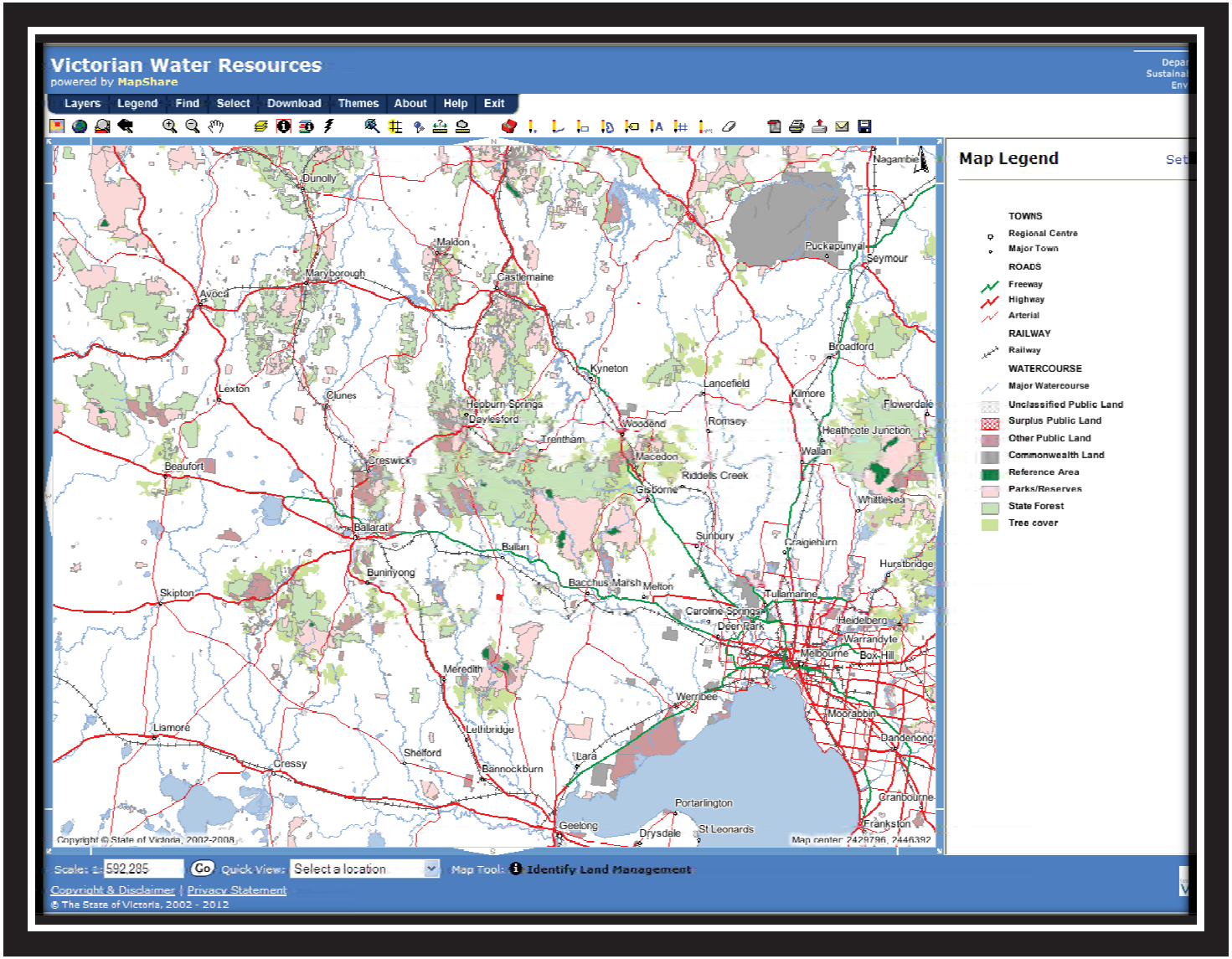
MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Mitchell Shire Council	SEYMOUR	69 ANZAC AV	Former Industrial Site. Requires assessment and/or clean up.
Moira Shire Council	NUMURKAH	ALLOTMENT 1 SECTION 46 (RAILWAY PLACE)	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Moira Shire Council	NUMURKAH	PARISH OF KATUNGA C/A 14 SECT D NARING RD	Former Landfill. Requires on-going management.
Moira Shire Council	YARRAWONGA	81 CHANNEL RD	Former Landfill. Requires on-going management.
Monash City Council	CLAYTON	1555-1615 CENTRE RD	Current Industrial Site. Requires assessment and/or clean up.
Monash City Council	GLEN WAVERLEY	310 SPRINGVALE RD	Current Industrial Site. Requires assessment and/or clean up.
Monash City Council	OAKLEIGH	1386-1388 DANDENONG RD	Current Service Station. Requires assessment and/or clean up.
Moonee Valley City Council	ASCOT VALE	421-431 MT ALEXANDER RD	Former Service Station. Requires assessment and/or clean up.
Moonee Valley City Council	ASCOT VALE	SOUTH EAST CNR MT ALEXANDER RD & WARATAH ST	Current Service Station. Requires assessment and/or clean up.
Moonee Valley City Council	MOONEE PONDS	783-795 MT ALEXANDER RD	Former Service Station. Requires assessment and/or clean up.
Moorabool Shire Council	BACCHUS MARSH	EAST MADDINGLEY RD	Current Landfill. Requires on-going management.
Moorabool Shire Council	BACCHUS MARSH	END OF HALLETTS WAY	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Moorabool Shire Council	MADDINGLEY	NORTH SIDE OF KERRS RD	Former Landfill. Requires on-going management.
Moorabool Shire Council	MOUNT EGERTON	CNR YENDON-EGERTON RD & BALLAN-EGERTON RD	Former Landfill. Requires on-going management.
Moorabool Shire Council	ROWSLEY	C/A 5E SECTION 13 PARISH OFGORROCKBURKGAP COUNTYOF GRANT VOLUME 7283 FOLIO 402	Gun, pistol or rifle range. Requires on-going management.
Moreland City Council	BRUNSWICK	225 BARKLY ST	Former Industrial Site. Requires assessment and/or clean up.
Moreland City Council	BRUNSWICK	227 BARKLY ST	Former Industrial Site. Requires assessment and/or clean up.
Moreland City Council	BRUNSWICK EAST	88 NICHOLSON ST	Former Service Station. Requires assessment and/or clean up.
Moreland City Council	COBURG NORTH	173-199 ELIZABETH ST	Former Industrial Site. Requires assessment and/or clean up.
Moreland City Council	COBURG NORTH	46 NEWLANDS RD	Current Service Station. Requires assessment and/or clean up.
Moreland City Council	COBURG NORTH	737-757 SYDNEY RD	Former Service Station. Requires assessment and/or clean up.
Moreland City Council	PASCOE VALE	512-514 PASCOE VALE RD	Current Service Station. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Mornington Peninsula Shire Council	CRIB POINT	2 LENS ST	Former Landfill. Requires on-going management.
Mornington Peninsula Shire Council	CRIB POINT	THE ESPLANADE	Former Industrial Site. Requires on-going management.
Mornington Peninsula Shire Council	MORNINGTON	25 MAYNE AV	Former Landfill. Requires assessment and/or clean up.
Mornington Peninsula Shire Council	MOUNT ELIZA	254 & 450 MOOROODUC HWY	Former Landfill. Requires on-going management.
Mornington Peninsula Shire Council	RED HILL	87 ARTHURS SEAT RD	Current Service Station. Requires assessment and/or clean up.
Mornington Peninsula Shire Council	ROSEBUD WEST	119 TRUEMANS RD	Former Landfill. Requires on-going management.
Mornington Peninsula Shire Council	RYE	CNR POINT NEPEAN RD & WEIR ST	Current Service Station. Requires on-going management.
Mornington Peninsula Shire Council	SOMERVILLE	100 TYABB-TOORADIN RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Mornington Peninsula Shire Council	SOMERVILLE	182 ERAMOSA RD EAST	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Moyne Shire Council	ALLANSFORD	5331 GREAT OCEAN RD	Current Industrial Site. Requires on-going management.
Moyne Shire Council	MAILORS FLAT	LOT 2 PLAN OF SUBDIVISION 128242 PRIMMERS RD (VOLUME 05782 FOLIO 356)	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Moyne Shire Council	PORT FAIRY	BADHAMS LA	Former Landfill. Requires on-going management.
Murrindindi Shire Council	GHIN GHIN	67 HOMEWOOD-GHIN GHIN RD (CROWN ALLOTMENT 167B PARISH OF YEA) & 6452 GOULBURN VALLEY HWY (LOT 2 ON PLAN OF SUBDIVISION 215820C)	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Nillumbik Shire Council	DIAMOND CREEK	50 FRASER ST	Historical deposit of mine tailings. Requires assessment and/or clean up.
Nillumbik Shire Council	KANGAROO GROUND	GRAHAM RD	Former Landfill. Requires on-going management.
Nillumbik Shire Council	PANTON HILL	165 MOTSCHALLS RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Nillumbik Shire Council	PANTON HILL	165 MOTSCHALLS RD	Current Industrial Site. Requires on-going management.
Northern Grampians Shire Council	STAWELL	25-39 HORSHAM RD	Former Industrial Site. Requires on-going management.
Port Phillip City Council	ELWOOD	54A MARINE PDE	Current Service Station. Requires assessment and/or clean up.
Port Phillip City Council	SOUTH MELBOURNE	82 MONTAGUE ST	Former Industrial Site. Requires assessment and/or clean up.
South Gippsland Shire Council	FOSTER	SOUTH GIPPSLAND HWY	Former Landfill. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Southern Grampians Shire Council	HAMILTON	358 GLENELG HWY	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Strathbogie Shire Council	EUROA	2 CHARLES ST	Industrial waste has been dumped at the site. Requires on-going management.
Strathbogie Shire Council	NAGAMBIE	1040 MCDONALDS RD	Land and/or groundwater impacted by intensive animal industry. Requires assessment and/or clean up.
Strathbogie Shire Council	NAGAMBIE	ALLOTMENT 19 PARISH OF BUNGANAIL KIRWANS BRIDGE-LONGWOOD RD	Current Industrial Site. Requires on-going management.
Strathbogie Shire Council	TABILK	ALLOT. 16 TABILK-MONEA RD	Current Industrial Site. Requires on-going management.
Strathbogie Shire Council	VIOLET TOWN	154 HIGH ST	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Surf Coast Shire Council	WINCHELSEA	114 TREBECK CT	Illegal dumping. Requires assessment and/or clean up.
Swan Hill Rural City Council	SWAN HILL	3 HASTINGS ST	Current petroleum storage site. Requires assessment and/or clean up.
Swan Hill Rural City Council	SWAN HILL	HAPPY VALLEY TRACK HAPPY VALLEY (CA 2A (PART OF) 2B & 2C PARRISH OF BUMBANG	Illegal dumping. Requires assessment and/or clean up.
Swan Hill Rural City Council	SWAN HILL	CNR HASTINGS ST & NARETHA ST	Current petroleum storage site. Requires on-going management.
Swan Hill Rural City Council	TOL TOL	3216 MURRAY VALLEY HWY	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Towong Shire Council	BETHANGA	MARTINS RD	Former Landfill. Requires on-going management.
Wangaratta Rural City Council	WANGARATTA	29-35 ROWAN ST	Former Service Station. Requires assessment and/or clean up.
Warrnambool City Council	ALLANSFORD	137 ZIEGLER PDE	Contaminated soil is retained and managed on-site. Requires assessment and/or clean up.
Warrnambool City Council	WARRNAMBOOL	BRAITHWAITE ST	Former Landfill. Requires on-going management.
Wellington Shire Council	COWWARR	PART C/A 41 PARISH OF TOONGABBIE NTH CERT OF TITLE VOL 8713 FOLIO 830	Former Landfill. Requires assessment and/or clean up.
Wellington Shire Council	MAFFRA	57 JOHNSON ST	Current Industrial Site. Requires assessment and/or clean up.
Wellington Shire Council	PORT ALBERT	PORT ALBERT SEABANK CARAVAN PARK, OLD PORT RD	Current Industrial Site. Requires on-going management.
Wellington Shire Council	SALE	35 MCGHEE ST	Former Industrial Site. Requires assessment and/or clean up.
Wellington Shire Council	YARRAM	OFF YARRAM-TRARALGON RD	Former Landfill. Requires on-going management.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Whitehorse City Council	BLACKBURN	2-4 CENTRAL RD	Former Service Station. Requires assessment and/or clean up.
Whitehorse City Council	BLACKBURN	21 BLACKBURN RD	Current Service Station. Requires on-going management.
Whitehorse City Council	BLACKBURN	24 BLACKBURN RD	Former Service Station. Requires assessment and/or clean up.
Whitehorse City Council	BOX HILL	14 FEDERATION ST	Former Landfill. Requires on-going management.
Whittlesea City Council	EPPING	500 COOPER ST	Former Landfill. Requires on-going management.
Whittlesea City Council	KEON PARK	6-8 DUNSTANS CT	Former Industrial Site. Requires assessment and/or clean up.
Whittlesea City Council	THOMASTOWN	342 SETTLEMENT RD	Former Service Station. Requires assessment and/or clean up.
Whittlesea City Council	THOMASTOWN	51 HIGH ST	Current Industrial Site. Requires assessment and/or clean up.
Whittlesea City Council	THOMASTOWN	97-113 TRAWALLA AV	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Wodonga Rural City Council	WODONGA	11 KENDALL ST	Current Industrial Site. Requires assessment and/or clean up.
Wodonga Rural City Council	WODONGA	CARROLLS LA (LOT 5 PS345280)	Illegal dumping. Requires assessment and/or clean up.
Wodonga Rural City Council	WODONGA	CASTLE CREEK RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Wyndham City Council	LAVERTON NORTH	103-109 PIPE RD	Current Industrial Site. Requires assessment and/or clean up.
Wyndham City Council	LAVERTON NORTH	170 FITZGERALD RD	Current Industrial Site. Requires on-going management.
Wyndham City Council	LAVERTON NORTH	19 LITTLE BOUNDARY RD	Current Industrial Site. Requires assessment and/or clean up.
Wyndham City Council	LAVERTON NORTH	87-105 PIPE RD	Current Industrial Site. Requires assessment and/or clean up.
Wyndham City Council	LAVERTON NORTH	LEAKES RD	Former Industrial Site. Requires assessment and/or clean up.
Wyndham City Council	LITTLE RIVER	925 BULBAN RD	Illegal dumping. Requires assessment and/or clean up.
Wyndham City Council	QUANDONG	1225 BALLAN RD 3784198	Illegal dumping. Requires assessment and/or clean up.
Wyndham City Council	TRUGANINA	99 PALMERS RD	Solid inert waste has been dumped at the site. Requires on-going management.
Yarra City Council	FITZROY NORTH	184-186 ST GEORGES RD	Former Service Station. Requires on-going management.
Yarra City Council	RICHMOND	1-21 KENT ST & 10-24 BUCKINGHAM ST	Former Industrial Site. Requires on-going management.
Yarra City Council	RICHMOND	3-21A KENT ST 1/4-14/4 LITTLE BUCKINGHAM ST & 8-28 BUCKINGHAM ST	Former Industrial Site. Requires on-going management.
Yarra Ranges Shire Council	BELGRAVE	2-14 MONBULK RD	Current petroleum storage site. Requires assessment and/or clean up.

MUNICIPALITY	LOCALITY	ADDRESS	ISSUE
Yarra Ranges Shire Council	GRUYERE	108 KILLARA RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.
Yarra Ranges Shire Council	KILSYTH	LOT 1 76 FUSSELL RD	Former Industrial Site. Requires assessment and/or clean up.
Yarra Ranges Shire Council	KILSYTH	LOT 2 76 FUSSELL RD	Former Industrial Site. Requires assessment and/or clean up.
Yarriambiack Shire Council	WARRACKNABEAL	13 SCHULTZS RD	Industrial waste has been dumped at the site. Requires assessment and/or clean up.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Other Public Land
Commonwealth Land
Reference Area
Parks/Reserves
State Forest
Tree cover
Dunolly
Maldon
Maryborough
Castlemaine
Avoca
Puckapunyal
Seymour
Nagambie
Broadford
Kyneton
Lexton
Clunes
Lancefield
Kilmore
Flowerdale
Daylesford
Woodend
Romsey
Heathcote Junction
Trentham
Macedon
Wallan
Creswick
Beaufort
Riddells Creek
Gisborne
Whittlesea
Ballarat
Sunbury
Craigieburn
Bulla
Hurstbridge
Bunninyong
Bacchus Marsh
Melton
Skipton
Tullamarine
Caroline Springs
Deer Park
Heidelberg
Warrandyte
Melbourne
Box Hill
Meredith
Werribee
Moorabbin
Liamore
Lethbridge
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Geelong
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APPENDIX C

Figures

CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

SITE LOCATION

LEGEND

Approximate Site Boundary

0 500 1,000 2,000 3,000 4,000 5,000 metres

SCALE (at A3) **1:125,000**

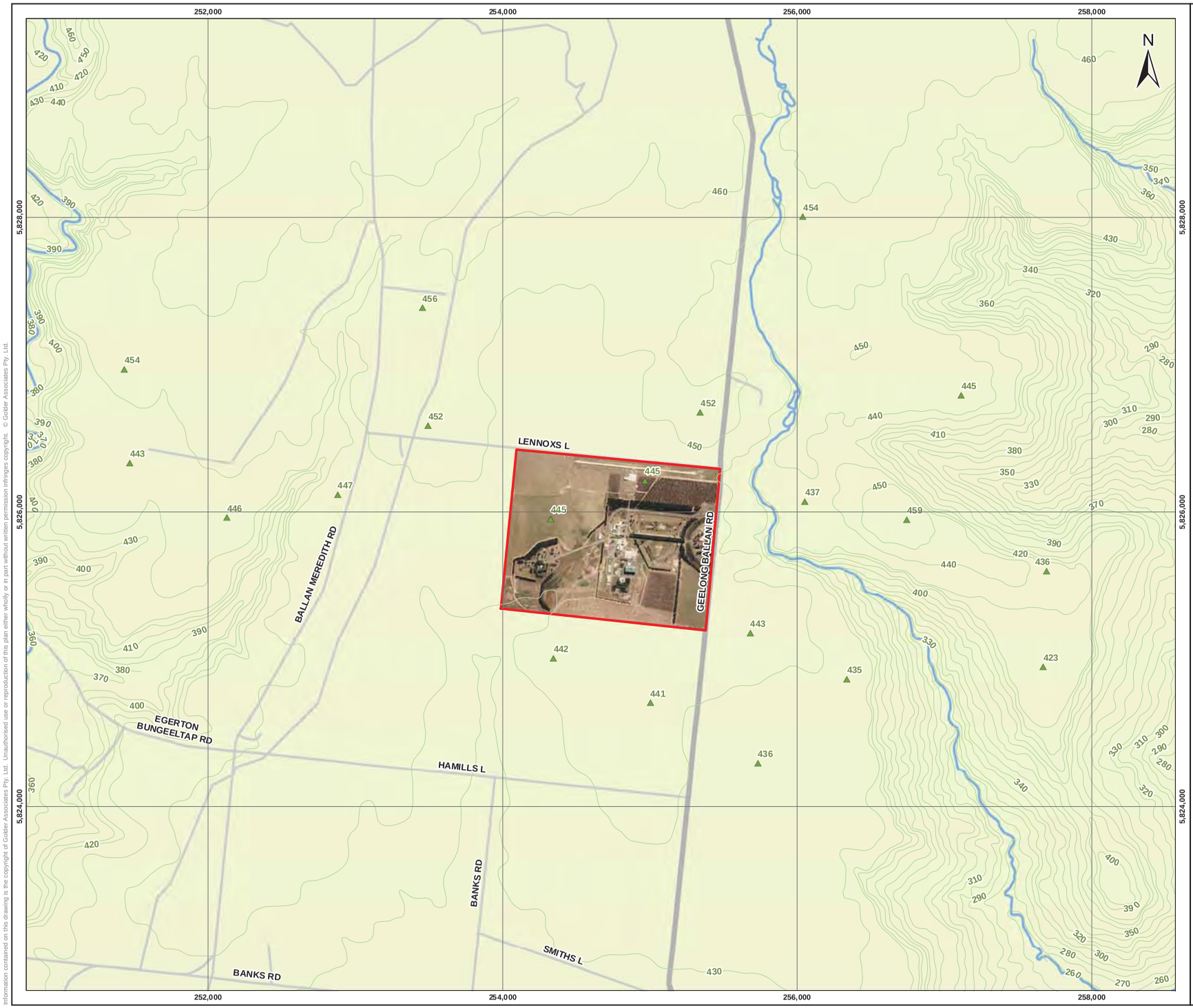
DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **117613201**
DATE: **13 JUN 2012**
DRAWN: **KRM**
CHECKED: **PM**

FIGURE 1

Golder Associates

File Location: J:\Env\2011\117613201 - CFA Fiskville Investigation\Technical Doc\GIS\Project\117613201_002_R_F0001_Rev0.mxd



CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

SITE TOPOGRAPHY

LEGEND

- Elevation Spot Heights (m AHD)
- 10m Elevation Contour (m AHD)
- River
- Main Road
- Street
- Land
- Approximate Site Boundary

0 100 200 400 600 800 1,000 metres

SCALE (at A3) 1:25,000

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **117613201**
DATE: **13 JUN 2012**
DRAWN: **KRM**
CHECKED: **PM**

FIGURE 2

Golder Associates

File Location: J:\Env\2011\117613201 - CFA Fiskville Investigation\Technical Doc\GIS\Project\117613201_002_R_F0002_Rev0.mxd

CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

CURRENT SITE LAYOUT

LEGEND

- Petroleum Facility / Tank
- Petroleum Facility / Tank Area
- Drain
- Stream / Waterway
- Running Path
- Dam
- Lake
- Interceptor
- Sewerage Treatment Plant
- Fire Training Prop
- Fire Training Area
- Building Footprints

COPYRIGHT

0 25 50 100 150 200 250 metres

SCALE (at A3) 1:5,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: KRM / AL
CHECKED: PM

FIGURE 3

Golder Associates

File Location: J:\Env\2011\117613201 - CFA Fiskville Investigation\Technical Doc\GIS\Project\117613201_002_R_F0003_Rev0.mxd

CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

1985 SITE LAYOUT

LEGEND

- Stream / Waterway
- Staining
- Lake
- Dam
- Sewerage Treatment Plant
- Fire Training Prop
- Fire Training Area
- Building Footprints

0 25 50 100 150 200 250 metres

SCALE (at A3) 1:5,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: **117613201**
DATE: **13 JUN 2012**
DRAWN: **KRM / JPH**
CHECKED: **PM**

FIGURE 4

Golder Associates

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CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

1990'S SITE LAYOUT

LEGEND

- Stream / Waterway
- Lake
- Dam
- Sewerage Treatment Plant
- Fire Training Props
- Fire Training Area
- Building Footprints

COPYRIGHT

Aerial Image sourced from Photo Mapping Services
Photo dated 1998 and georeferenced by Golder Associates

0 25 50 100 150 200 250 metres

SCALE (at A3) 1:5,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: KRM / JPH
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FIGURE 5

Golder Associates

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CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

1990'S SAMPLE LOCATION PLAN

LEGEND

1990 Investigation Locations (Coffey)

- Groundwater Monitoring Well
- Sediment Sample
- Surface Water Sample
- Coffey Test Pit Sampling Area
- Rio Tinto Soil Composting Area

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0 20 40 80 120 160 200 metres

SCALE (at A3) 1:4,000

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: KRM
CHECKED: PM

FIGURE 6

Golder Associates

CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

POTENTIAL SOURCE OF CONTAMINATION

LEGEND

Potential Source of Contamination

0 25 50 100 150 200 250 metres

SCALE (at A3) 1:5,500

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: JPH / KRM
CHECKED: PM

FIGURE 7

Golder Associates

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CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

2012 SAMPLE LOCATION PLAN

LEGEND

2012 Investigation Locations

- Borehole
- Hand Auger Sample
- Sediment Sample
- Surface Water Sample
- Tree Core Sample
- **Stockpile Composite Sample**

2012 Sampling Location Areas

- Soil Sampling Area
- Surface Water and Sediment Sampling Area
- Tree Core Sampling Area

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Aerial Image Supplied by Photo Mapping Services. Photo dated March 2010

0 20 40 80 120 160 200 metres

SCALE (at A3) 1:4,000

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: JPH / KRM
CHECKED: PM

FIGURE 8

Golder Associates

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CFA TRAINING COLLEGE, FISKVILLE - PRELIMINARY SITE ASSESSMENT

INDEPENDENT FISKVILLE INVESTIGATION

GROUND PENETRATING RADAR INVESTIGATION AREAS

LEGEND

2012 Investigation Locations

- Borehole
- Hand Auger Sample
- Sediment Sample
- Surface Water Sample
- Tree Core Sample
- Ground Penetration Test Vertices
- GPRIA

1 Drum burial area (south of the airstrip)

2 Drum burial area (north of admin building)

3 Drum burial area (east of admin building)

X and Y coordinates displayed in GDA94 MGAZ55

0 10 20 40 60 80 100 metres

SCALE (at A3) 1:2,000

DATUM GDA 94, PROJECTION MGA Zone 55

PROJECT: 117613201
DATE: 13 JUN 2012
DRAWN: KRM
CHECKED: BED

FIGURE 9

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File Location: J:\Env\2011\117613201 - CFA Fiskville Investigation\Technical Doc\GIS\Project\117613201_002_R_F0009_Rev0.mxd

APPENDIX D

Historical Information

1.0 HISTORICAL INFORMATION REVIEW

A review of historical site information was undertaken to assess the potential for historical uses or activities at the Site which may have adversely impacted on the contamination status. Historical site information reviewed included certificates of title, historical photographs, key correspondence, anecdotal information obtained from CFA employees, previous assessment reports and other publically available records. A summary of the historical information which was reviewed as part of this PSA is provided in the following section.

1.1 Previous Ownership

Information relating to ownership of the Site was obtained from historical certificates of title and is summarised in Table 1. Based on reviewed information the Site is currently described on Lots 1, 2, 3 and 4 on Title Plan 845669K on Volume 03535 Folio 516. The site was previously part of:

- Crown Allotment 2, Section 15 Parish of Yaloak;
- Crown Allotments 3 and 8, Section 16 Parish of Yaloak;
- Crown Allotment 9, Section 16, Parish of Yaloak.

Copies of the certificates of title are presented in Appendix B.

The CFA has owned the Site as sole proprietor since 1982 (although it began operations at the Site in 1972), prior to that it was owned by the individual land owners listed in Table 1.

Overseas Telecommunications (Australia) Commission (OTC) owned the Site prior to CFA and operated a long range radio communication station on the Site. OTC inherited the Site in 1948 from Amalgamated Wireless (Australasia) Ltd (AWA), as part of the Act of Parliament (1946) which charged OTC with the responsibility for overseeing international telecommunications in Australia. AWA had originally purchased the Site in 1925 and operated a long range radio communication station on the Site.

Table 1: Certificates of Title Information

Certificate of Title	Date	Registered Proprietor
Vol. 03538 Fol. 516	21/12/1982	Country Fire Authority
Vol. 3390 Fol. 2157364	5/8/1948	Overseas Telecommunications (Australia) Commission.
Vol. 3390 Fol. 121375	5/5/1925	Amalgamated Wireless (Australasia) Ltd.
Vol. 3390 Fol. 971789	6/11/1920	George William Stead
Vol. 3390 Fol. 667672	11/10/1911	James Isaac Watson
Vol. 3538 Fol. 707516	02/10/1911	William Frederick Coltman and Frederick Edward Sides
Vol. 3538 Fol. 279412	29/01/1910	Edward Brown

1.2 Aerial Photo Review

An aerial photograph review was undertaken to assess the potential for historical uses or activities at the Site and surrounding areas which may have adversely impacted on the Site's contamination status. Aerial photographs were obtained for review from the DSE dating back to 1970. Copies of the aerial photographs are presented in Appendix C. The site layout in 1985 is presented in Figure 4 – 1985 Site Layout in Appendix I. The site layout in 1990 is presented in Figure 5 – 1990 Site Layout in Appendix C.

A summary of the historical information relating to the Site and surrounding areas based on a review of the aerial photos is provided in Table 2.

Table 2: Aerial Photography 1970 - 2010

Date	Photo details	Description
24 February 1970	Vic 2383 Run 6 Frame 169 Fiskville	**Site Observations:** The building currently used as the Canteen and the houses currently used for temporary accommodation are visible in the eastern portion of the Site. The Training Centre is visible in the centre of the Site and two buildings are located directly west of the Training Centre. A road known as 'Plantation Parade' connects the Canteen Building and the Training Centre. A residential building is visible in the south western portion of site adjacent to Lake Fiskville. Remnants of the AWA radio aerials and towers are visible in the eastern portion of the Site. **Site Surroundings Observations:** A house is visible immediately south of the south. Agricultural land is located to the north, east and west of the Site.
9 December 1977	Vic 3241 Run 6, Frame 228 Fiskville	**Site Observations:** The buildings visible in 1970 are still evident. Several more buildings have been built in the area of the Canteen, including what advice from CFA personnel suggests are school buildings. Debris and materials which may include chemical drums are located directly west of the Training Centre. The initial stages of the Outdoor Fire Training Area (FTA) have been developed to the south of the Training Centre; the Fire Attack Building, Amenities Building and Storage Buildings and a concrete pad are visible. Areas of staining on open ground are evident to the south of the concrete pad. Advice from CFA personnel suggests this stained open ground is the original FLP. A dam which is now referred to as Dam 1 is visible to the south of the FLP. Two (2) areas of staining are also evident to the east the FLP, which are inferred to be the Fire Training Pits (Sludge Pits). A mound which anecdotal information suggests is a historical landfill used by OTC, is visible to the south west of Lake Fiskville. Four residential buildings are visible in the south western portion of site. An airstrip is visible along the western site boundary and a new road which is parallel to 'Plantation Parade' is also visible. **Site Surroundings Observations:** No visible changes to surrounding land use.
29 January 1985	Vic 3926 Run 6, Frame 068 Fiskville	**Site Observations:** The buildings visible in 1977 are still evident. Two additional buildings are visible immediately adjacent to the Training Centre. The inferred maintenance shed and sewage treatment tank are visible west of the Training Centre. The sewerage treatment tank is located in the area where materials were stored in 1977; however these materials are no longer evident. A dam is visible to the east of the Training Centre. The Outdoor FTA has been developed further; an additional building is visible south of the concrete pad and the area now known as the 'Prop Storage Area' appears to have been developed as materials are visible within this area. The areas of staining on the inferred FLP and Fire Training Pits are still evident. A circular tank, which advice from CFA personnel suggests is a training prop is visible north of the Fire Training Pits. Additional residential buildings and an inferred new landfill are visible in the south western portion of the Site. The current airstrip is visible along the northern site boundary. Trees have been planted in the northern and eastern areas of the Site and additional roads are visible throughout the Site. **Site Surroundings Observations:** No visible changes to surrounding land use.
16 February	Vic 4322	**Site Observations:** The buildings visible in 1985 are still evident; however the

Date	Photo details	Description
1990	Run 6, Frame 134 Fiskville	buildings immediately west of the Training Centre had been replaced with four inferred classroom buildings. The Administration Building is now visible to north of the Training Centre and two additional maintenance/storage buildings are visible west of the Training Centre. The Outdoor FTA appears to be under development. There are inferred scoria road sub-grade outlines and current design of Dams 1 and 2 are now visible. The Fire Training Pits are covered with scoria. The areas of staining on the FLP are still evident. Four additional inferred residential buildings are visible adjacent to the western site boundary. A total of 14 residential buildings are now visible in the south western portion of the Site. The Hanger Building and concrete pad is now visible at the northern site boundary. Three (3) trenches inferred to be the 'Drum Burial Area' are visible southwest of the Hanger Building. **Site Surroundings Observations:** No visible changes to surrounding land use.
2 November 1998	UPG 235, Run 21, Frame 056 Fiskville	**Site Observations:** The buildings visible in 1990 are still evident. The Outdoor FTA has been further developed; the FLP appears to have a scoria surfacing and additional fire training props on concrete pads are visible to the south and west of Dam 1. The Amenities Building adjacent to Dam 2 is visible and Dam 3 has been developed. The inferred VUT buildings (2 No.) are also visible southeast of Dam 1. LPG ASTs are also visible in the Pad Area. Soil stockpiles inferred to be the Rio Tinto Soil Composting Area are visible east of Dam 2. The inferred 'Drum Burial Area' is still visible southwest of the Hanger Building. **Site Surroundings Observations:** No visible changes to surrounding land use.
10 January 2002	UPG 338, Run 15, Frame 170-172 Fiskville	**Site Observations:** The buildings visible in 1998 are still evident. The Outdoor FTA has been further developed to include a large concrete pad with several props in the area previously known as the FLP. A triple phase interceptor is visible adjacent to Dam 1 and diesel and petrol ASTs are visible south of the Prop Storage Area. **Site Surroundings Observations:** No visible changes to surrounding land use.
12 December 2005 – 23 March 2006	VicMap Digital Imagery, Melbourne NW 15 cm, Fiskville	**Site Observations:** The buildings visible in 2000 are still evident. The Outdoor FTA has been further developed; the VUT building has been replaced by a larger building and the Urban Training Area has been in created south west of Dam 2. Dam 4 is now visible to the west of Dam 3. Gum trees have been planted in the northern portion of the Site. **Site Surroundings Observations:** No visible changes to surrounding land use.
23 February – 25 March 2010	VicMap Digital Imagery, Bacchus Marsh 50cm	**Site Observations:** The buildings and features visible in 2005 are still evident. A 4WD area is visible in the western portion of the Outdoor FTA. **Site Surroundings Observations:** No visible changes to surrounding land use.

1.3 Oblique Photo Review

An oblique photograph review was also undertaken to assess the potential for historical uses or activities at the Site which may have adversely impacted on the Site contamination status. Oblique photos were obtained for review from the Independent Fiskville Investigation team dating back to circa 1985.

Copies of the oblique photographs are presented in Appendix I.

A summary of the historical information relating to the Site based on a review of the oblique photos is provided in Table 3. The exact dates of the photos are unknown; the dates given below have been inferred by comparison with the aerial photos reviewed in Section 1.2.

Table 3: Oblique Photos 1985 - 1989

Date	Photo details	Description
Circa 1985	Photo #1	The oblique photo shows a northerly view of the Training Centre and Outdoor FTA. The sewage treatment system and material and debris are visible west of the Training Centre. In the Outdoor FTA the Fire Attack Building, Amenities Building, FLP, Fire Training Pits, fire training props and several storage buildings are visible. The FLP appears to have gravel surfacing and staining is evident around several of fire training props. Staining is also evident around the inferred Flammable Mixing Area to the south of the green storage building and also around the Fire Training Pits and tank. Liquid is visible in the Fire Training Pits. An open drain which is inferred to collect surface water runoff from the FLP is visible to the east of the FLP. This drain appears to flow into Dam 1 which is visible to the south of the FLP. Drums and materials are visible in the area now known as the Prop Storage Area.
Circa 1985	Photo #2	The oblique photo shows an easterly view of the Training Centre and Outdoor FTA. It is inferred that this photo was taken on the same day as Photo #1. The maintenance workshop is visible west of the Training Centre. Liquid and staining is visible on open ground southeast of the Fire Training Pits. Numerous drums and several ASTS are visible in the Prop Storage Area.
Circa 1985	Photo #3	The oblique photo shows a north-easterly view of the Training Centre and Outdoor FTA. It is inferred that this photo was taken circa 1985 but on a different date to Photo #1 and #2. The structures and materials visible in Photo 1 & 2 are still evident. The only notable difference in this photo is that Dam 1 appears to be full with water.
Circa 1989	Photo #4	The oblique photo shows a south-easterly view of the Training Centre and Outdoor FTA. Four classrooms have been built to the west of the Training Centre. A pile of logs are evident to the north of the classrooms. The layout of the Outdoor FTA appears to be generally unchanged since 1985. An LPG AST and control booth are evident to the east of the Fire Attack Building. Overhead services are evident immediately east of the Fire Training Pits. Dam 1 appears to be overflowing in a south-easterly direction.
Circa 1989	Photo #5	The oblique photo shows a north-westerly view of the Training Centre and Outdoor FTA. It is inferred that this photo was taken on the same date as Photo #4. The sewerage treatment tank and two maintenance/storage buildings are visible west of the Training Centre. The Administration Building is now visible to north of the Training Centre Staining is evident around drums and props in the centre of the FLP. The LPG AST appears to be connected to a number of props in the FTA.

1.4 Key Correspondence

A review of available correspondence relating to the Site was undertaken and key correspondence is summarised in Table 4. All correspondence was obtained from the Independent Fiskville Investigation Team.

Table 4: Key Correspondence

Date	Description
9 May 1996	**Subject: *Pad water pollution at Fiskville*** The letter contains a brief overview of environmental issues relating to Dam 1 in the Outdoor FTA. The following key points were raised: ▪ Dam 1 supplies the water used for a safety line; ▪ A form of hydrocarbon product was visible in water coming from the safety line used and it was observed running back into Dam 1; ▪ Fuel product is burnt off Dam 1; ▪ Petrol was used for the purpose of igniting the hydrocarbon sludge (in Dam 1). A series of photo's were attached to the letter which showed petrol being added to the Dam 1 and ignited. A fire developed on the surface of Dam 1 and continued to burn for approximately 4 hours; ▪ People have an extremely high risk of ingesting water from Dam 1 during drills on the FLP and Gas Pads. Under certain conditions students are drenched with this water; ▪ Risk of water from Dam 1 getting into the Barwon Water Catchment Area, taking into consideration the rainfall levels in the area; ▪ There is a rush to get the new interceptor system in place to meet Dangerous Good Regulations and reduce environmental impact. However if the proposed water treatment system was constructed it may be a waste funds as an interceptor system was not designed to handle the flow of fuel that was placed into the props; and ▪ Recommendation to close the FLP and implement a long term strategy for the environmental and financial benefit of Fiskville.
13 September 1996	***Response to Site Contamination Report*** The letter is response a site audit report from the EPA (dated 21 August 1996 and summarised in Section 2.0) and provided confirmation of their verbal discussion. The letter states the following: ▪ As per a suggestion by the EPA, four (4) deep groundwater bores and four (4) shallow groundwater bore were installed onsite; and ▪ Flammable liquids training has ceased with only minor fires of straw and pallets being allowed. This process will also be concluded by mid November and the necessary clean up of the FLP will commence. **Sewage Treatment Plant** Problems with the Sewage Treatment Plant were identified 18 months ago and since then the following has been carried out: ▪ Installation of earthen spoon drain alongside the plant to catch runoff and re-pipe into final treatment stage; ▪ Water samples were assessed by Central Highland Water to ensure they were not allowing contaminants into the water course. Eighteen months ago there was blue algae bloom in the water course and it was treated with copper sulphate. The water was retested on two occasions with no reoccurrence; ▪ A specialist consultant verified the plant is capable of treating effluent and

Date	Description
	can cope with maximum usage; ▪ Plant had concrete spoon drain installed around the base of the tank to ensure no runoff between the tank and drain; ▪ All solids are capture in holding tanks and emptied yearly as a minimum but are checked biannually; and ▪ The earthen spoon drain is checked weekly or more regularly in periods of heavy rainfall to ensure there is no run-off; and ▪ Welcome assistance in arranging for the Sewage Treatment Plant to be licensed at the earliest convenience. **<u>Landfill</u>** The following items are raised regarding the landfill: ▪ In the past the landfill was used to bury scrapings from the old FLP, this process and the dumping of any items has ceased. This procedure was implemented two to three months ago and the only exception to this is the dumping of grass clippings and garden pruning; ▪ Any items from the FLP i.e. plastic off-cuts, burnt scraps from the fire building or pallets will be disposed of through our waste collection contractor; and ▪ Will not pursue the licensing of the landfill as procedures now ban the use of this area.
27 November 1996	***Final Environmental Report*** The memorandum (memo) refers to the Coffey and CRA Environmental Site Assessment (ESA) reports published between August and November 1996. (These reports are summarised in Section 2.0). The memo states that the results of the ESA indicate that there is no contamination to the groundwater table. The memo makes reference to the proposed remediation strategy plan for the FLP The memo also refers to proposed upgrades for the FLP which include: ▪ Laying of gas pipelines and control booths for both LPG and flammable liquid; ▪ Donations of props; and ▪ Sourcing an appropriate catchment/filtration systems (as opposed to the triple interceptor), which is suitable for hydrocarbons but also residues from foam products as they seem to be greatest cause of contamination in Dam 1. ▪ The use of a new fuel called TEKFLAME which has several benefits including more intense fire, significant smoke reduction and improved waste water (95% reduction in aromatics).
23 June 1997	**Flammable Liquids Pad Re-Instatement** CFA noted that the fuel reticulation system has not been utilised for approximately 12 months following fears of contamination to the local and surrounding area's water system. The letter states the fuel reticulation system has been reinstalled and comprises of the following unleaded petrol and diesel equipment: ▪ Fuel inlets (2 No.); ▪ ASTs (2 No.); ▪ Fuel bowsers (2 No.);

Date	Description
	▪ Fuel/water delivery lines (12 No.); and ▪ A water inlet fed from towns mains CFA states the ASTS and bowsers have been inspected by an independent company, Petroleum Environmental Services Pty Ltd and the whole fuel reticulation system was successfully integrity tested by Brown's Valve Services Pty Ltd. The CFA outline the revised design of four training props in the FLP. They states that fuel is introduced to the four props via underground pipe work. The volume of fuel utilised by the props has been reduced and any unburnt fuel will be contained in concrete pits prior to disposal by an authorised contactor. If run-off does occur from the props it would be captured in an initial pond upstream of the interceptors, where it would be totally burnt away. A copy of the FLP procedures is attached to the letter.
15 October 1997	**Upcoming Development of FLP** The facsimile (fax) outlines that proposed layout for the FLP redevelopment and the provision of LPG, in conjunction with flammable liquids to a number of props. It is stated that props would be supplied with LPG from the existing storage facility of 3 x 7.5 kL ASTs located near the LPG pad.
16 October 1997	**Contamination Levels – Fiskville Dams** The fax provides a comparison of BODs, Suspended Solids, Oil and Grease concentrations in Dam 1, Dam 2 and Lake Fiskville (Dam 3) prior to and post the installation of an aerator in Dam 1. They report that concentrations have reduced substantially since the installation of the system. It is reported that Dam 1 would still have some residual run-off from the FLP. It is reported that the suspended solids level in Lake Fiskville indicates fouling probably from water birds but is possibly an indication of blue green algae bloom and that copper sulphate will be added to this area in the next week.
8 December 1997	**FLP – Water Treatment System** The fax provides a project scope for the design and construction of an appropriate interceptor/separator to replace the existing interceptor for the FLP. The CFA state that objective of the project is to have a water catchment system that protects the CFA from contamination and possible breaches of EPA and other legal requirements and to have a water treatment facility that allows the CFA to become self sufficient in their water supply.
23 December 1997	**Flammable Liquids Contamination – Update** The memo refers to the results they have achieved over the last 12 months in reducing the high level of contamination on the FLP. The memo states that water test results show the levels are now acceptable world standard release levels. The memo states that water from Dam 1 can be legally discharged and used to flood irrigate the property or allow to flow into the Barwon River Catchment. They have chosen to utilise the water in the soil composting programme that commences on 5th January 1998.