# 421 Upper Heidelberg Road, Ivanhoe

## Environmental Site Assessment

Development Victoria



**Reference: 754-MELGE309933**

8 September 2023

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**Report reference number: 754-MELGE309933**

8September 2023

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### Restriction on Disclosure and Use of Data

This report should be read in conjunction with the attached ‘Important information about your Tetra Tech Coffey report’

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# ACRONYMS/ABBREVIATIONS

| Acronyms/Abbreviations | Definition |
|---|---|
| ACM | Asbestos Containing Material |
| AF | Asbestos Fines |
| BGS | Below Ground Surface |
| COPC | Contaminants of Potential Concern |
| CSM | Conceptual Site Model |
| CUSFARP | Clean up so far as reasonably practicable |
| DPO | Development Plan Overlay |
| DTP | Victorian Department of Transport and Planning |
| DtM | Duty to Manage Contaminated Land |
| DtN | Duty to Notify of Contaminated Land |
| EIL | Ecological Investigation Level |
| EMP | Environmental Management Plan |
| EP Act | Environment Protection Act (2017) (unless otherwise specified) |
| EPA | Environment Protection Authority (Victoria) |
| ERS | Environment Reference Standard |
| ESL | Ecological Screening Level |
| FA | Fibrous Asbestos |
| GED | General Environmental Duty |
| HIL | Health Investigation Level |
| HSL | Health Screening Level |
| IL | Investigation Levels |
| µg/L | Micrograms per Litre |
| mg/L | Milligrams per Litre |
| NEPM | National Environment Protection (Assessment of Site Contamination) Measure |
| PPN30 | Planning Practice Note 30 – Potentially contaminated land |
| PID | Photo ionisation detector |
| SoEA | Statement of Environmental Audit |
| SOP | Standard Operating Procedures |
| TDS | Total Dissolved Solids |
| TPH | Total Petroleum Hydrocarbon |
| VOC | Volatile Organic Compound |
| WA DoH | Government of Western Australia, Department of Health |

# 1. INTRODUCTION

Development Victoria engaged Tetra Tech Coffey Pty Ltd (Tetra Tech Coffey) to undertake a combined environmental and geotechnical site investigation at 421 Upper Heidelberg Road, Ivanhoe (the site).

This report constitutes the Environmental Site Assessment (ESA) and includes review of previous environmental assessment at the site and the results of site investigations undertaken as part of the current scope.

The report has been prepared to assist Development Victoria in meeting the requirements of *Development Plan Overlay – Schedule 7 (DPO7)* to clause 43.04 of the City of Banyule Planning Scheme.

The geotechnical scope of works undertaken as part of the site investigation is presented in Tetra Tech Coffey (2023) *Preliminary Geotechnical Investigation Report. Ref: 754-MELGE309933AB.* 24th March 2023.

# 2. BACKGROUND

The site has a total area of approximately 7,000 $m^2$ and is bound by Banksia Street and Bell Street to the north, Upper Heidelberg Road to the east, Foster Street to the south and residential land uses to the west.

The majority of the site comprises a disused 30 ML water storage tank (Yarra Valley Water Reservoir) that was operated by the previous site owner Yarra Valley Water (YVW). The water tank was constructed in the mid to late 1950s and was decommissioned (disconnected from the water supply network in 2004).

Tetra Tech Coffey understand that Development Victoria have purchased the site and intend to redevelop the land for a mixed high-density (multi-storey) residential and commercial land use including basement car parking.

The land is zoned as Residential Growth Zone under the City of Banyule Planning Scheme and is subject to a specific Development Plan Overlay – Schedule 7 (DPO7) to clause 43.04. The requirements of DPO7 (4.0) include that:

"*A development plan must include the following requirements:*

- *An environmental site assessment report:*
    - *Prepared by a suitably qualified and experienced environmental professional. The assessment must make reference to the Department of Sustainability and Environment, General Practice Note - Potentially Contaminated Land, June 2005 and include:*
        - *A description of previous land uses and activities on the land.*
        - *An assessment of the level, nature and distribution of any contamination within, or in close proximity to, the land, if required).*
        - *Details of any provisions, recommendations and requirements (including but not limited to, clean up, construction, ongoing maintenance or monitoring) required to effectively address and manage any contamination within the land (if required).*

- *Should the environmental assessment reveal that an environmental audit of the site is necessary, before a sensitive use commences or before the construction or carrying out of buildings or works in association with a sensitive use commences, the applicant must provide either:*
  - *A certificate of environmental audit in accordance with Part IXD of the Environmental Protection Act 1970[1], or*
  - *An environmental auditor appointed under the Environment Protection Act 1970[1] must make a statement in accordance with Part IXD of that Act that the environmental conditions of that land are suitable for the sensitive use."*

Tetra Tech Coffey have previously undertaken environmental assessment works at the site, comprising the following:

- Coffey Environments Australia Pty Ltd (2007). *Preliminary Site Assessment.* Ref ENVIABTF08621AA. 18 October 2007.
- Coffey Environments Australia Pty Ltd (2015) *Environmental Site Assessment Review*. Ref ENAUABTF20345AA. 2 December 2015.
- Coffey Services Australia Pty Ltd (2021) *Environmental Investigation 421 Upper Heidelberg Road, Ivanhoe, Victoria: Preliminary Advice*. Ref: 754-MELEN274411-L01-Rev02. 9 April 2021.

The findings of the assessment previously undertaken by Tetra Tech Coffey indicate that the site was generally considered to have a low potential for contamination. However, the presence of bonded suspected asbestos containing materials (ACM) in the form of cement sheet debris was identified on the surface in the north and northwest of the site (adjacent former Telstra communications tower) in 2007 and 2021.

In addition to the works undertaken by Tetra Tech Coffey, a statutory environmental audit was previously completed by Nick Withers of Golder Associates at *Lot 2 – Corner of Upper Heidelberg Road and Forster Street Ivanhoe*[2] in the southeast portion of the site (current playground and basketball court area) in April 1997 and March 1999.

The proposed redevelopment of the site will necessitate the demolition of the existing (disused) water tank which will be a significant undertaking. In advance of these works occurring, Development Victoria requested that Tetra Tech Coffey undertake an environmental and geotechnical investigation to better understand ground conditions at the site to inform the design for the proposed redevelopment and meet the requirements of the DPO Schedule (DPO7).

# 3. OBJECTIVES

The objective of this ESA was to reduce the uncertainty associated with the potential for contamination to exist at the site to assist Development Victoria to meet the requirements of the DPO7 and inform environmental requirements for the proposed redevelopment.

[1] The Environment Protection Act (1970) has been superseded by the Environment Protection Act (2017) so it would not be possible to undertake an environmental audit under the old Act. Similarly, the DSE General Practice Note - Potentially Contaminated Land, June 2005 has been superseded by Planning Practice Note 30 (PPN30) *Potentially Contaminated Land* (DELWP 2021).

Tetra Tech Coffey considers that the requirements of the DPO in the planning scheme (Schedule 07 to Clause 43.04) would likely remain the same but would be implemented to be reflective of the updated Environment Protection Act (2017).

[2] Southeast corner of current Lot 1 and Lot 2 (PS822300).

# 4. SCOPE OF WORKS

To achieve the objectives, the following scope of works was undertaken during the assessment.

- Desktop review of the completed environmental audit and previous assessment data.
- Site inspection to assess the current site condition and potential presence and extent of ACM.
- Soil sampling completed in conjunction with geotechnical investigations including drilling of 3 boreholes to a depth of 15 meters below ground surface (mbgs) and laboratory analysis of selected soil samples.
- Sampling of one existing groundwater monitoring well.
- Preparation of this environmental site assessment report.

# 5. SITE INFORMATION

General site information based on review of the historical assessment reports (Coffey 2015) is presented in Table 5-1 below, a site plan is provided in Figure 1 to Figure 3 in **Appendix A**.

**Table 5-1 Site Information Summary**

| Item | Description |
|---|---|
| **Site Address** | 421 Upper Heidelberg Road, Ivanhoe, Victoria<br>The site is accessed via Forster Street to the south |
| **Site Area** | 6,999 $m^2$ |
| **Current Site Owner / Occupier** | Development Victoria |
| **Lot/Plan number and Current Zoning** | The site comprises Lot 1 and Lot 2 on plan number PS822300. Lot 2 is located at 12 Forster Street, Ivanhoe (south west portion of the site) comprising future open space land use.<br>The site is zoned under the City of Banyule planning scheme as Residential Growth Zone (Lot 1) and Public Park and Recreation Zone (Lot 2).<br>DPO7 (refer Section 2) only relates to Lot 1.<br>A copy of the planning property reports are provided in **Appendix C**.<br>Current zoning at the site is outlined in Figure 3 (Appendix A). |
| **Current site use** | The majority of the site is disused / vacant and is taken up by a disused 30ML water storage tank and associated infrastructure. The south eastern portion of the site comprises a current public park and playground (Banksia Island Reserve). |
| **Surrounding land uses** | Surrounding land uses have been summarised below;<br>• **North:** Banksia Street and Bell Street to the north, with commercial land uses to the north east including the Austin Hospital.<br>• **East:** Across Upper Heidelberg Road and Banksia Street is the Austin Hospital and residential land uses (south east).<br>• **South:** The site is bound to the south by Forster Street with residential land uses beyond.<br>• **West:** Access laneway with residential properties beyond. |
| **Topography** | The site is situated near the top of a hill with an elevation approximately 98 m above sea level. The site slopes slightly to the southwest, with an approximate gradient of 1:50 but is relatively flat (appears to have been cut into the side of the hill). |

| Item | Description |
|---|---|
| **Geology** | Review of the published 1:250,000 scale Melbourne geological map indicates that the site is supposedly underlain by tertiary age fluvial deposits of the Brighton Group comprising gravel, sand, and silt. The proximity of the site to the geological boundary of Quaternary age Silurian suggests that the Brighton Group materials are anticipated to be underlain with Silurian age Melbourne Formation comprising sandstone and siltstone. |
| **Regional Aquifer** | Review of the Victorian Department of Environment, Land, Water and Planning (DELWP) Groundwater Resource Report (updated 11/01/2019) for the area indicated that the site is underlain by the Upper Tertiary Aquifer (fluvial) aquifer comprising sand, gravel and clay (present to ~11 m bgs) and the Melbourne Formation (basement) aquifer comprising sedimentary (fractured rock): Sandstone, siltstone, mudstone, shale. Igneous (fractured rock): includes volcanics, granites, granodiorites.<br>The expected salinity of the regional aquifer was likely to be in the range of 1,001 - 3,500 milligrams per litre (mg/L) total dissolved solids (TDS). The groundwater based on the above TDS would therefore be classified under Segment B of the Environment Protection Act (2017) Environment Reference Standard, Gazette no. S245, May 2021 (ERS).<br>For Segment B groundwater, the following environmental values require protection:<br>• Water dependent ecosystems and species;<br>• Potable Mineral Water Supply;<br>• Agriculture and irrigation (irrigation);<br>• Agriculture and irrigation (stock watering);<br>• Industrial and commercial;<br>• Water-based recreation (primary contact recreation);<br>• Traditional Owner cultural values;<br>• Buildings and structures; and<br>• Geothermal properties. |
| **Expected Depth to Groundwater** | Expected depth to groundwater of 20-50 m bgs. |
| **Groundwater Receptors and Regional Flow Direction** | The closest local surface water bodies are Salt Creek, approximately 1.3 km east of the site, which flows into the Yarra River, located 1.5 km east of the site; and Darebin Creek, located approximately 1.9 km west of the site.<br>Groundwater at the site would be expected to ultimately discharge to the Yarra River with groundwater flow to the east / southeast.<br>Based on review of Federation University Visualising Victoria's Groundwater Database (vvg.org.au) at the time of assessment a total of 50 registered groundwater bores were located within a 2km radius of the site. The closest listed extractive use of groundwater to the site was bore WRK990583, located ~1.5 km to the east (potentially down gradient) listed for domestic and stock use.<br>Review of the EPA (19/11/2021) Groundwater Quality Restricted Use Zones (GQRUZ) database indicated that no GQRUZ were located within a 1 km radius of the site. |

## 5.1 PROPOSED SITE REDEVELOPMENT

The proposed design of the site redevelopment is at a preliminary stage only. Tetra Tech Coffey understand that the proposed mixed high-density (multi-storey) residential and commercial land use may incorporate at least a single level basement across the development footprint which encompasses the entire site area, with the exception of a proposed public open space area in the south-west of the site (Lot 2). The development may include a 12-level structure/structures.

# 6. SITE HISTORY SUMMARY

A review of available site history information was previously undertaken by Tetra Tech Coffey as part of the 2007 and 2015 assessments. This information is presented in the following section, supplemented with review of publicly available information and is summarised chronologically in Table 6-1 below.

**Table 6-1 Site History Summary**

| Year | Details |
|---|---|
| **1880 - 1910** | The site and surrounding land was privately owned by various landholders, including a sheep farmer and grazier |
| **1910** | A portion of this land which now largely covers the site was purchased by Melbourne Metropolitan Board of Works |
| **1911** | A 1,000,000 Gallon reservoir was constructed in the south eastern corner of the site, formerly extending over the current playground area and the southern portion of the current tank. YVW historical plans indicate that the former tank extended approximately 2 m below natural ground surface, and was mounded at the edges to a height of approximately 2 m above natural ground surface. This tank can be seen in the 1951 aerial photographs. |
| **1957** | The Melbourne Metropolitan Board of Works purchased a portion of land from the residential property to the north of the site. |
| **Mid 1950's** | The former tank constructed in 1911 was demolished, and by 1959 the current tank was constructed and HAD commenced operation. A workshop/storage area building, and office/house was constructed in the southeastern portion of the site in conjunction with the new tank, positioned in the area now occupied by the playground. This new tank and residential properties can be seen in the 1968 aerial photograph. |
| **1993** | The land to the immediate north of the site was subdivided and cleared for the construction of the Bell Street – Banksia Street link (Upper Heidelberg Road underpass). |
| **1996** | The site was sub-divided into two lots on the plan of subdivision PS349641N with Lot 2 being the existing playground and basketball court reserve. The reservoir workshop/storage area and office/house formerly located on the playground area was demolished between 1996 and 1998. |
| **1998 – 2000** | The public park in the southeastern corner of the site (including children's playground) was constructed. As part of the site redevelopment and environmental audit of this portion of the site (refer Section 6.2) remediation works (soil excavation and disposal) were undertaken in the location of the former workshop/storage area. |
| **2004** | YVW ceased operation of the reservoir facility. Mains water was diverted from the reservoir and associated infrastructure through two velocity-reducing valves in the far south of the site (south of the settling tower) in 2005. |
| **2017** | Review of available aerial photography (Google Earth) appears to indicate that the northernmost of the three small Telstra communication tower buildings in the northwest of the site was demolished in February 2017 |
| **2022 – Current** | The Telstra communications tower in the northwest of the site appears to have been demolished at some time between November 2022 and Tetra Tech Coffey undertaking this assessment. Information subsequently provided by Development Victoria indicated that the communications tower was demolished on the 22nd December 2022.<br>With the exception of the demolition of the communications tower and associated outbuildings the site condition has remained relatively unchanged since 2005. |

## 6.1 YARRA VALLEY WATER INFORMATION

Discussions with a YVW representative during the 2007 and 2015 assessments yielded the following information:

- The tower located in the south of the site, known as the “settling tower”, was used to generate water pressure for the distribution of water to the surrounding area. Now decommissioned and not in use.
- The velocity-reducing infrastructure located south east of the settling tower, was still in operation.

The following points were not able to be validated from the 2007 review, however are considered relevant information.

- From the land gifted to Banyule City Council (for the purposes of a public park)
  The basketball court located in the adjoining playground (off-site) has been built over the foundations of the former reservoir workshop/storage area building. Pipe fittings, maintenance equipment and petroleum storage drums were formerly stored within this workshop.
- From the land housing the Telstra tower
  - Stockpiles of imported fill material were stored to the rear of the site, in the location of the telecommunications facility. These stockpiles of soil were sourced from excavated material around broken pipes and areas requiring underground maintenance around the district.
  - Steel pipes were formerly stored on railway sleepers in the rear yard, in the vicinity of the telecommunications facility, and on a concrete slab located near the south western wall of the tank.

## 6.2 COMPLETED ENVIRONMENTAL AUDITS

Review of the EPA list of completed environmental audits identified three audits completed within a 1km radius from the site. A summary of the environmental audit information is provided in Table 6-2 below.

**Table 6-2 Summary of Nearby Completed Environmental Audits**

| Environmental Audit Details | Information |
|---|---|
| **Site Address:**<br>Lot 2, Corner of Heidelberg Road and Forster Street, Heidelberg<br>(Southeast corner of current Lot 1 and Lot 2 (PS822300))<br>**Distance to site:**<br>**On-site**<br>**CARMS ID:**<br>31620-1<br>**Environmental Auditor:**<br>Mr N.J. Withers<br>**Completed:**<br>April 1997 | The audit (undertaken on behalf of Yarra Valley Water as part of the divestment of the land) found the property consisted of an office building, a garage, storage shed, bitumen paved driveway and landscaped garden areas. Minor earthworks had occurred in associated with the construction of the office. Surface staining was observed in the storage shed.<br>Possible contaminants included: petroleum-based products, paints, solvents associated with the storage shed stored in 20L containers and heavy metals and PAHs associated with general activities at the site or with any fill.<br>A soil investigation was completed in April 1996 (CMP&F) in support of the audit where 6 hand auger samples were collected and composited into 4 samples. Nickel, chromium and zinc concentrations exceeded the environmental investigation limits in the first half meter of the soil.<br>Soils left after the demolition of the storage shed and excavation of soils contaminated with TPH were remediated by scraping the impacted material and disposing offsite (volume not provided) and validating the remaining soil. A total of eight validation samples were collected and analysed for TPH. All samples were below the limit of reporting and the staining observed was a result of heavy fraction oils consistent with the products stored in the shed.<br>Groundwater was not assessed as it was not considered to be necessary at the time due to the level of contamination identified and depth to groundwater.<br>It was concluded the soils at the site present negligible health risk to human health for residential use, except at BH5 where a cadmium concentration of 21 mg/kg was reported. Given the isolated nature of the cadmium exceedances it was considered that the site was a low risk.<br>A Statement of Audit was issued for the site stating that the land was suitable for a proposed public open space use, residential and commercial use. |

| Environmental Audit Details | Information |
|---|---|
| **Site Address:**<br>Lot 2, Corner of Heidelberg Road and Forster Street, Heidelberg<br>(Southeast corner of current Lot 1 and Lot 2 (PS822300))<br>**Distance to site:**<br>**CARMS ID:** 31620-2<br>**Environmental Auditor:**<br>Mr Nick Withers<br>**Completed:**<br>March 1999 | A second environmental audit was undertaken for the same land parcel (Lot 2) as the 1997 environmental audit. The environmental audit was undertaken on behalf of Banyule City Council to assess the suitability of the land for a public open space use including children's playground. No reference was provided in the audit report as to why a second audit was undertaken for the same land parcel and proposed use.<br>The audit noted that the site had several localised areas of imported grey basalt gravel fill (crushed rock) predominantly in areas of former roadway.<br>Potential contaminants of concern identified included: PAH, heavy metals, OCPs, TPH. chlorinated hydrocarbons.<br>Remediation works were undertaken during the audit including the excavation and off-site disposal of 41 $m^3$ of soil contaminated with low level cadmium from the north-east corner of the site (identified during the previous audit), followed by validation of the excavation. Tetra Tech Coffey notes that the maximum cadmium concentration reported was less than the current NEPM HILs for the proposed land use.<br>Nickel and total chromium concentration above the adopted assessment criteria were identified in imported crushed rock material.<br>The land at the site was considered suitable for the use as a children's playground and public open space, and a Statement of Environmental Audit was issued. |
| **Site Address:**<br>**37 to 63 Bell Street, Ivanhoe**<br>**Distance to site:**<br>**80m north-east**<br>**CARMS ID:**<br>**73766-1**<br>**Environmental Auditor:**<br>**Brad Simmons**<br>**Completed:**<br>**December 2015** | The audit found that due to the presence of contaminated fill and natural soils, the site was not suitable for low density residential; unrestricted high density; recreational/open space; or unrestricted commercial/industrial uses. Groundwater underlying the site reported concentrations of selenium, chloride, fluoride, sodium and sulphate above the water quality guidelines with respect to one or more of the extractive environmental values for groundwater. The site was not considered to be the source of groundwater contamination and likely to be associated with natural/background water quality based on off-site groundwater data and on-site soil data. |
| **Site Address:**<br>96 Hawdon St, Hedelberg<br>**Distance to site:**<br>**870m east**<br>**CARMS ID**:<br>61712-2<br>**Environmental Auditor:**<br>Andrew Nunn<br>**Completed:**<br>**1 February 2008** | The audit found that the property was part brass foundry and part residential since the 1950's. Potentially contaminating activities included foundry works which include a waste oil UST and heating oil pit, imported fill, and pest control.<br>Clean up works at the site comprised the removal of a waste oil UST and approximately 10 $m^3$ of visibly impacted hydrocarbon contaminated soils, 286$m^3$ of heavy metal and hydrocarbon contaminated soil.<br>Investigations indicated that the watertable aquifer at the site is confined and as such there is a low potential for soil contaminants to reach the groundwater system at the site. The results of analytical testing of the groundwater indicated that the groundwater contaminants are representative of background conditions and are not related to the historical use of the site.<br>A Statement of Environmental Audit was issued. |
| **Site Address:**<br>392 Waterdale Rd, Heidelberg Heights<br>**Distance to site:**<br>985m North-west<br>**CARMS ID:**<br>42064-1<br>**Environmental Auditor:** | The audit found that the property was a single storey residence but was historically a vehicle (truck) depot. Two disused underground fuel tanks (5,000 L capacity each) were identified. Some hydrocarbon contaminated soil and tank bedding material was present around the tanks but was removed from the site to a licensed landfill. No groundwater investigation was undertaken on the site. |

| Environmental Audit Details | Information |
|---|---|
| Jonathan Ashton Crockett<br>**Completed:**<br>July 2000 | |

## 6.3 EPA PRIORITY SITES REGISTER

The site was not listed on or in the vicinity of a site listed on the EPA Victoria Priority Sites Register.

## 6.4 EPA LICENSED ACTIVITIES AND WASTE MANAGEMENT FACILITIES / LANDFILLS

Tetra Tech Coffey undertook review of EPA Victoria records and the National Waste Management Database for licensed activities, waste management facilities and the EPA Victorian Landfill Register through the Victorian State Government Department of Energy, Environment and Climate Action (DEECA) (formerly DELWP) Victoria Unearthed website (apshare.vic.gov.au/victoriaunearthed).

No sites were listed on the EPA registers reviewed within a 1km radius of the site at the time of assessment.

## 6.5 PREVIOUS SITE INVESTIGATIONS

Tetra Tech Coffey undertook previous assessment at the site in 2007 and 2015 as outlined in the following reports:

- Coffey Environments Australia Pty Ltd (2007). *Preliminary Site Assessment.* Ref ENVIABTF08621AA. 18 October 2007.
- Coffey Environments Australia Pty Ltd (2015) *Environmental Site Assessment Review*. Ref ENAUABTF20345AA. 2 December 2015.

A summary of the previous assessment is provided below in Table 6-3.

Sampling locations and relevant site features are outlined in Figure 2 (**Appendix A**).

Copies of the reports are provided in **Appendix D**.

**Table 6-3 Summary of Previous Site Investigation**

| Report | Details |
|---|---|
| **Coffey, 2007** | Site history search revealed that the site had remained as a property largely covered by a reservoir tank since 1910, prior to which it was part of a larger property owned by various landholders including a sheep farmer and grazier. The original reservoir tank was replaced with the current larger tank in 1959, where additional infrastructure including a settling tower, workshop/storage area and office/house were built to the south of the site, and steel pipes and imported stockpiled material were stored to the west and north-west of the site.<br>The site was not listed on or in the vicinity of a site listed on the Victorian EPA Priority Site Registry.<br>Potentially contaminating activities included the past storage of petroleum drums along with maintenance equipment and pipe fittings within the former workshop to the south-east of the site (off-site, where the basketball court is currently located). SB2 was located as close as practicable to this location (and down-gradient), and no impact was observed in the test pit, nor detected in the surface sample analysed.<br>The presence of ACM in the form of bonded cement sheet debris was identified on the surface of the site in the vicinity of the Telstra tower. |

| Report | Details |
|---|---|
| | The results of the soil analyses indicated all samples tested reported concentrations below the adopted criteria, except for nickel, detected in concentrations above the adopted Ells in surface samples collected from SB1, SB4, SB5, SB6 and SB8. ·These results were consistent with the nickel concentrations normally found naturally in sites to the north and west of Melbourne, however it may also have the potential to be attributed to the fill encountered on site. Although potentially affecting plant growth, these concentrations were not considered to preclude the use of the site for residential purposes, as they did. not exceed the adopted human health-based criteria (HILs). |
| **Coffey, 2015** | A review of the results from the 2007 Preliminary ESA was completed using the latest legislation and guidance (NEPM 1999 as amended 2013).<br>Elevated concentrations of heavy metals (cobalt, copper, nickel, and zinc) were reported in soil during the 2007 assessment as exceeding the NEPM ecological investigation levels. There was a uniform spread of exceedances across the site, suggesting these metals may occur naturally at these concentrations. The soil conditions were consistent with those that would be considered suitable for residential land use (i.e. there were no exceedances of the adopted human health criteria).<br>ACM observed on the site surface during the 2007 assessment was not observed in 2015 (anecdotally was reportedly removed by YVW but no documentation was provided to Coffey for review).<br>Based on the guidance provided in the Planning Practice Note for Potentially Contaminated Land (DSE, 2005), the past uses of the site were considered as having a low potential for contamination. An environmental audit was not considered to be required for the site to be used for residential use; assuming the land zoning allowed that use. |

## 6.6 SUMMARY OF SITE HISTORY AND CONTAMINANTS OF POTENTIAL CONCERN

The site has operated for water storage (reservoir) since the early 1900s. Potential for contamination was generally considered likely to be restricted to potential (historical) importation of contaminated fill, ancillary storage and use of fuels/chemicals in the maintenance/workshop areas of the site (noting that these areas have previously been subject to environmental audit) and historical demolition of pre-1990s structures on-site (e.g. that may contain ACM and/or lead/zinc in paint).

An outline of the contaminants of potential concern which may be associated with the land uses identified in the desktop site history review is provided in Table 6-4 below.

This list should not be considered exhaustive (particularly with regard to off-site sources) but is a summary of the relevant land uses of concern based on review of the available information.

**Table 6-4 Potential Contaminants of Concern**

| Land Use | Description and Date of Land Use | Potential Contaminants of Concern |
|---|---|---|
| **On-site Sources of Contamination[(1)]** | | |
| **Ancillary storage of fuels/chemicals** | The former storage shed (located north of current basketball court area) present from the late 1950s to late 1990s reportedly contained small volumes (20L containers) of turpentine, petrol, oil and paint tins.<br><br>There is potential that use/storage of these chemicals may have lead to some localised contamination (staining was reported on floor and in surface soils underlying the shed by CMPS&F (1998)). | Heavy metals, TRH, BTEXN, PAHs, phenols, OCPs/OPPs and VOCs from on-site fuel and chemical storage |

| Land Use | Description and Date of Land Use | Potential Contaminants of Concern |
|---|---|---|
| | Tetra Tech Coffey note that this area of the site was previously subject to an environmental audit which included remediation (excavation of 3 x 3 m area to 0.5 m depth) of identified contamination. | |
| **Historical demolition on-site (pre 1990s structures) and/or importation of potentially contaminated fill (e.g. during original historical redevelopment)** | Given historical demolition works on-site (includes historical water tank in 1950s) there is potential for subsequent historical onsite burial of wastes and/or importation of potentially contaminated fill.<br><br>Fill may have been imported during historical land use and/or building construction. Stockpiles of imported soil were observed in the north of the site during the 2007 assessment. | Metals, PAH, TRH, asbestos containing materials (ACM), OCP/OPP (such as from historical timber treatment). |
| **Off-site Sources of Contamination** | | |
| **Austin Hospital** | The Austin Hospital (a site of significant scale) located across Upper Heidelberg Road, previously contained a briquette-fired boiler (up to 2004)[3]. There is potential that boiler ash may have been utilised as imported fill by surrounding land users historically.<br><br>The potential for groundwater contamination at the hospital site (if present) to impact the site is considered to be low given the location of the hospital is likely to be cross hydraulic gradient from the site. | Metals, TRH, BTEXN, PAHs |

1) Whilst not representative of contamination in accordance with the Environment Protection Act (2017) there is potential that the natural soils at the site (Brighton Group) may contain elevated concentrations of arsenic. This is a common occurrence in Brighton Group geology associated with the minerology of the soils (e.g. affinity to scavenge arsenic). Tetra Tech Coffey note that no elevated arsenic concentrations exceeding Fill Material criteria were reported during the assessment.

# 7. SITE INVESTIGATION METHODOLOGY

Assessment works at the site were undertaken in accordance with Coffey *Standard Operating Procedures* (SOP) and carried out with reference to the National Environment Protection (Assessment of Site Contamination) Measure (NEPM), National Environment Protection Council (NEPC) (1999 as amended in 2013).

Reference was also made to:

- Department of Energy, Environment and Climate Action (formerly Department of Environment, Land, Water and Planning, Planning Practice Note 30 (PPN30), *Potentially Contaminated Land* (July 2021).
- EPA Victoria Publication 669.1 – Groundwater Sampling Guidelines, (February 2022)
- New South Wales Environmental Protection Agency (NSW EPA) Contaminated Land Guidelines: *Sampling design part 1 - application (2022).*
- National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA), PFAS National Environmental Management Plan Version (NEMP 2.0) (January 2020).

[3] Austin Health (2009) *Sustainability Report*

- Standards Australia 2005, AS4482.1 – 2005 Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds (Standards Australia AS4482.1-2005).
- Standards Australia 1999, 4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances (Standards Australia AS4482.2-1999).

Field activities were completed by Tetra Tech Coffey in February 2022 and are summarised in Table 7-1 below.

**Table 7-1 Fieldwork Methodology**

| Activity | Details |
|---|---|
| **Date of fieldworks** | Drilling and soil sampling works were completed between 6 and 9 February 2023. Groundwater sampling was completed on 8 February 2023.<br>Site photographs are provided in **Appendix E**. |
| **Underground services location** | Prior to intrusive works, the locations of the underground utilities were identified by reviewing Before You Dig Australia (BDYA) service plans and engaging a Telstra accredited service locator. Borehole locations were then reviewed by the service locator for any presence of utilities. |
| **Drilling method** | Four soil bores were drilled in total with locations established to provide site coverage across the edges of the proposed basement footprint (within the constraints of reasonable access associated with the existing water tank).<br>Soil borea were drilled to a maximum depth of 15.5 m bgs . Each soil bore location was advanced using solid flight augers in soil and HQ3 coring techniques.<br>Drilling was undertaken by a licenced driller from Urban Drilling Pty Ltd using a track mounted Hanjin drilling rig (DB8). |
| **Soil logging** | Each borehole was logged, showing soil profiles, observations within the soil profile. Soil type classifications and descriptions are based on USCS and AS4482.1-2005.<br>Detailed soil sampling borehole logs and bore construction logs are provided in **Appendix F**. |
| **Soil sampling** | Selected soil samples were generally collected at 0.5 m intervals or where visual or olfactory signs of contamination and/or changes in lithology are observed.<br>One fragment of suspected ACM in the form of cement sheet debris was observed at the surface (S1) in the northwest of the site and was analysed for the /presence/absence of asbestos. |
| **Disposal of soil cuttings** | Soil cuttings were used to backfill the boreholes with soils reinstated in the same order that they were excavated so far as practicable. Where HQ3 coring (wash boring) techniques were utilised drillng spoil was placed into an IBC and transported off-site by the licensed driller for disposal. |
| **Well Gauging** | Prior to the collection of groundwater samples, the depth to groundwater and the potential presence and thickness of NAPL was assessed using a calibrated oil/water interface probe (IP). |
| **Groundwater Sampling** | Groundwater sampling at the site was undertaken for the existing groundwater monitoring bore understood to have historically been installed at the site by VicRoads. No information as to the bore construction, date of installation or groundwater quality was available at the time of assessment.<br>Prior to sampling, monitoring wells were purged using a micropurge low-flow pump system and dedicated LDPE tubing. The pump was set to intersect groundwater at the mid point of the water column (the screen interval was not known). Purging of the monitoring wells was |

| Activity | Details |
|---|---|
| | undertaken until groundwater parameters stabilised as measured with a calibrated water quality meter.<br>During groundwater purging and sampling standing water levels were continually monitored with a calibrated interface probe to assess drawdown.<br>Following the stabilisation of parameters groundwater was sampled using a micropurge pump in general accordance with EPA Victoria Publication 669.1, the PFAS NEMP and Coffey SOP.<br>Sample collection storage and transport was conducted according to Tetra Tech Coffey SOP. |
| **Quality control sampling** | One duplicate and triplicate pair collected per 20 primary samples per matrix type and analysed for PCOC.<br>One rinsate blank collected per day of sampling. Analysed for PCOC.<br>One trip blank collected per sample batch. Analysed for TRH $C_6$-$C_{10}$/BTEXN |
| **Decontamination procedure** | Non dedicated soil and groundwater sampling equipment was decontaminated with a phosphate free, laboratory grade, detergent (Decon 90) and rinsed with deionised water prior to use. |
| **Sample preservation** | Samples were transferred to the laboratory in supplied containers containing appropriate preservatives. Once collected, samples were immediately placed in chilled eskies for transport to a National Association of Testing Authority (NATA) laboratory. Chain-of-Custody documentation was submitted with the samples for transport to the laboratory. |
| **Sample holding times** | Sample holding times were generally within acceptable range (based on EPA Victoria Guidelines *Sampling and Analysis of Waters, Wastewaters, Soils and Wastes*, IWRG701, 2009) from collection to extraction. |
| **Laboratory analysis** | Primary samples were analysed by Eurofins and secondary samples by ALS. Both labs are accredited with the National Association of Testing Authorities (NATA) for all specified analysis.<br>Soil samples were typically analysed for a broad-based screen and the considered contaminants of potential concern, based review of the site history information and site setting. The adopted analytical suite included:<br>• Broad screen (EPA 1828 and PFAS) of analysis (~20% of all samples);<br>• Total recoverable hydrocarbons (TRH);<br>• Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);<br>• Polycylic aromatic hydrocarbons (PAHs) and phenols.<br>Groundwater samples were analysed for a broad suite of analysis including:<br>• Heavy metals;<br>• Volatile and semi-volatile organic compounds;<br>• TRH and BTEXN;<br>• Nitrogen species (ammonia and nitrate);<br>• Cyanide;<br>• PFAS; and<br>• pH and TDS |

# 8. REGULATORY FRAMEWORK

The Environment Protection Act (2017) came into effect in July 2021 and includes significant changes in the way that contaminated land is managed in Victoria.

The Environment Protection Act (2017) and the Environment Protection Regulations (2021) introduce a regulatory framework designed to prevent harm by eliminating or minimising risks of harm to human health and the environment.

Central to this framework are environmental duties, a set of proactive obligations on duty holders to minimise the potential risks of harm. These three key duties are:

- **General Environmental Duty (GED)**
    - The GED is established under Section 25 of the EP Act (2017) and requires that: "*A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable"*.
    - While the Duty to Manage is the primary obligation for addressing risks of harm from contamination, parties that engage in an activity that involves contaminated land must also comply with the GED. Where an activity involving contaminated land may give rise to a risk of harm, then the person engaging in that activity must minimise the risks of harm so far as is reasonably practicable. In this way the GED is not only relevant for management of risks during current activities / operations but also for legacy site contamination.
- **Duty to Manage Contaminated Land (DTM)**
    - Established under Section 39 of the EP Act (2017) the DTM requires that: "*A person in management or control of contaminated land must minimise risks of harm to human health and the environment from the contaminated land so far as reasonably practicable*".
    - A person can fulfil their duty based on what is known about contamination at the site, including the potential for contamination to be present, and when it is reasonable to expect a person (in management or control of the site) to have that knowledge. As knowledge on the potential for contamination increases, then the scope of a person's duty also increases, whether to assess risks or to manage them. For the DTM to exist a state of 'contaminated land' as defined by the EP Act (2017) must be present.
    - The required response to meet the DTM is proportionate to the level of risk associated with the contamination (i.e. in determining what is 'reasonably practicable'). Risks must be managed in accordance with the hierarchy of risk management (Section 6 of the EP Act).
- **Duty to Notify of Contaminated Land (DTN)**
    - Some circumstances of contamination must be reported to EPA under the duty to notify of contaminated land in accordance with Section 40 of the EP Act (2017). These circumstances are outlined in the Environment Protection Regulations (2021). The DTN complements the DTM and where notification to EPA is required this must include information on how the contamination will be managed.
    - It is not expected that a duty holder undertake an investigation solely for the purpose of determining the presence of notifiable contamination. It is the accumulation of knowledge of the site, and the knowledge arising from the DTM, that may result in the requirement to notify.

## Contaminated Land

The duty to manage applies to land (including groundwater/surface water and sediment) that is contaminated within the meaning of Section 35 of the EP Act (2017), which states:

*Land is contaminated if waste, a chemical substance or a prescribed substance is present on or under the surface of the land, and the waste, chemical substance or prescribed substance —*

*a) is present in a concentration above the background level; and*

*b) creates a risk of harm to human health or the environment.*

### Environment Reference Standard

The **environment reference standard (ERS)** is given effect under section 93 of the EP Act (2017). It sets out the **environmental values** of the ambient air, ambient sound, land and water environments that are sought to be achieved or maintained in Victoria and standards to support those values.

The ERS is not a compliance standard. Its primary function is to provide an environmental assessment and reporting benchmark. However, the EP Act (2017) specifically requires EPA and other regulatory authorities to consider the environmental values in the ERS in decision making processes.

The ERS acts as a benchmark and state of knowledge for assessing potential impacts on human health or the environment and evaluating the significance of these impacts in informing obligations under the GED and DTM. Standards for environmental values identified in the ERS comprise:

- **Indicators**, which are the parameters or markers used to assess whether environmental values are being achieved or maintained, or if they are threatened.
- **Objectives** are the assessment benchmarks. An objective is the character, level, load, concentration or amount of an indicator used to assess whether an environmental value (or several environmental values) is being achieved, maintained or threatened. Most objectives are scientifically derived quantitative assessment levels or a prescribed scientific basis for assessment.

The following sections outline the relevant environmental values, indicators and objectives adopted in this ESA to assess the potential risk of harm associated with contaminated land that may be present at the site.

## 8.1 LAND ENVIRONMENT

The EP Act (2017) requires that activities must be undertaken, and land must be managed, in a way that minimises the risks of harm to human health and the environment. As part of minimising such risks of harm, decision makers and duty holders may need to consider the impacts an activity or management action has on achieving or maintaining any environmental value in any element of the environment.

The ERS includes five environmental values that apply to Victoria's land environment (indicated in column 1 of Table 8-1 below). The ERS describes how the environmental values apply across the various land use categories. The land use setting (or proposed land use setting) will determine which environmental values need to be considered, and therefore what indicators and objective apply.

The relevant land use category for the site is high density sensitive (residential) use. The environmental values of land that apply, based on the proposed high density residential use are highlighted below in Table 8-1, with relevant indicators and objectives (in accordance with *Table 4.3: Indicators and objectives for the land environment* of the ERS) discussed in further detail in the following sections.

**Table 8-1 Environmental Values of Land**

| Environmental Values | | Land Use | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Parks & Reserves | Agricultural | Sensitive Use | | Recreation Open Space | Commercial | Industrial |
| | | | | High Density | Other | | | |
| Land dependent ecosystems and species | Natural Ecosystems | ✓ | | | | | | |
| | Modified Ecosystems | ✓ | ✓ | | ✓ | ✓ | | |
| | Highly Modified Ecosystems | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Human Health | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Buildings & Structures | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Aesthetics | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| Production of Food, Flora & Fibre | | ✓ | ✓ | | ✓ | | | |

* The above table is a reproduction of Table 4.2 Environmental values that apply to the land use categories as listed in the ERS (No. S245, Gazette 26/5/2021).

### 8.1.1 Land Dependent Ecosystems and Species (Highly Modified Ecosystems)

The protection of the environmental value 'land dependent ecosystems and species' was assessed with reference to the NEPM (1999 as amended 2013) Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs).

Based on the proposed residential use of the site, the urban residential and public open space land use EIL (80% level of protection) would be considered as the investigation level for the beneficial use of maintenance of ecosystems.

EILs were calculated on site specific values for pH (site average pH 7.5) and based on normalisation data for Australian soils (Schedule B5b NEPM 1999 as amended 2013) for aged contamination; cation exchange capacity (CEC) of 10 cmolc/kg dwt, organic carbon content (OC) of 1 %, based on a Victorian location and a high traffic volume.

For ESLs a 'coarse' soil type was adopted as a conservative assumption and based on the underlying geology.

#### Applicability of EILs

*EILs apply principally to contaminants in the top 2 m of soil at the finished surface/ground level which corresponds to the root zone and habitation zone of many species. In arid regions, where the predominant species may have greater root penetration, specific considerations may result in their application to 3 m depth'* (NEPM 1999 as amended 2013).

Considering the above and given that the proposed basement excavation (likely to beyond these depths), the site was considered to have limited ecological value.

### 8.1.2 Human Health

The protection of the beneficial use 'Human Health' was assessed with reference to the NEPM (1999 as amended 2013) Health Investigation Levels (HILs) and Health Screening Levels (HSLs).

The site is proposed for redevelopment to a high density residential land use. A high-density residential land use setting (HIL/HSL B *residential with minimal opportunities for soil access*) would be adopted for this land use. The protection of construction workers health (such as those involved in the site redevelopment) would be assessed under NEPM HIL D (commercial / industrial) values.

It is emphasised within the NEPM that the HILs are not intended for use as default remediation trigger or remediation target criteria, but are intended to prompt an appropriate site-specific assessment of risk when they are exceeded. This mechanism is given effect in the ERS (i.e. applicable indicator objective is established via risk assessment). However, it is considered reasonable in the first instance to use these investigations limits as default (tier 1) screening criteria, and only consider impacts more closely in the event of an investigation level being exceeded.

### 8.1.3 Buildings and Structures

The ERS indicators for the buildings and structures environmental value include: *pH, sulfate, chloride, redox potential, salinity or any chemical substance or waste that may have a detrimental impact on the structural integrity of buildings or other structures*. With the relevant objective that *land that is not corrosive to or otherwise adversely affecting the integrity of structures or building materials*.

Field observations and pH analytical results can be used to assess extreme conditions (such as acidity) that might undermine structures/buildings. To assess if soil on-site may exhibit these characteristics, reference has been made to Standards Australia AS2159-2009 Piling – Design and Installation (2009).

Tetra Tech Coffey note that no geotechnical assessment works have been undertaken as part of this investigation and assessment of the buildings and structures environmental value is limited to comparison with pH levels with AS2159 only. Further consideration of this environmental value is considered outside the scope of this assessment. Where relevant, consideration of the future design of buildings and structures at the site should be informed by appropriate geotechnical investigation.

### 8.1.4 Aesthetics

The ERS objective is "*land that is not offensive to the senses of human beings*".

There are currently no specific numeric aesthetic guidelines, however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.

It should be noted that aesthetics is not considered a relevant environmental value under the ERS for industrial use sites and as such has not been considered further in this assessment.

### 8.1.5 Asbestos Investigation Criteria

The NEPM provides a framework for the assessment of asbestos in soils, with reference to the Western Australian (WA) Department of Health (DOH) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated sites in Western Australia, (WA Guidelines), May 2009[4].

[4] The WA Guidelines were updated in August 2021.

The NEPM includes health screening levels (HSLs) for asbestos in soils for bonded ACM, and friable asbestos (fibrous asbestos/asbestos fines) respectively and provides comment on remediation and management options for asbestos in soils.

The NEPM HSLs for asbestos are based on scenario-specific likely exposure levels broadly comparable with the land use scenarios detailed in Section 5.1.2. Based on the proposed high density residential use of the site, the NEPM HSL 'B' of 0.04% (w/w asbestos) would be adopted.

For all designated land uses the NEPM HSL for FA and AF (friable asbestos) is 0.001% (w/w).

As general guidance, NEPM (1999 as amended 2013) states that:

"*The site-specific assessment of sites contaminated with asbestos in soil should be aimed at describing the nature and quantity of asbestos present in sufficient detail to enable a risk management plan to be developed for the current or proposed land use. The management plan should address potential scenarios for the relevant land use(s) whereby asbestos fibres may become airborne and pose a human health risk*.

The focus on the assessment of asbestos in soils as outlined in the NEPM and the WA guidelines is to adopt a weight-of-evidence approach with consideration given to factors such as the distribution of different fill types, the heterogeneity of the contamination and the uncertainty associated with the sampling methodology. The evaluation and discussion of results should consider any trends across the investigated area including variability and change in asbestos type and condition. For buried asbestos contamination, the impacted units should be identified and discussed separately.

Where there is an exceedance of the adopted criteria (HSLs), where asbestos is identified within soils at concentrations likely to be exceeding adopted criteria or locations where asbestos may be disturbed, further (tier 2) assessment of the potential risks should be undertaken or a conservative management approach implemented.

Depending on the site-specific circumstances and the proposed remediation approach, conservative management of presumed asbestos contamination may avoid the need for a detailed site investigation for asbestos.

If visible asbestos is present and it may be disturbed during work activities, it must be removed. In addition to the NEPM there is a requirement to comply with associated National/Victorian work health and safety legislation and guidance relating to asbestos and its removal including the following:

- Victorian Occupational Health & Safety Regulations, 2017 (22/2017);
- WorkSafe Victoria Compliance Codes: *Removing Asbestos in Workplaces, Edition No.2* December 2019, *Managing Asbestos in Workplaces*, *Edition No.2*, December 2019 and Guidance Note *Asbestos Contaminated Soil,* October 2010; and
- Safe Work Australia Codes of Practice *How to Manage and Control Asbestos In The Workplace,* August 2020 and *How To Safely Remove Asbestos*, August 2020.

### 8.1.6 Regulatory Framework for Waste Classification (Off-Site Disposal)

Management of any generated spoil is required to be undertaken in accordance with the *Principle of waste management hierarchy* in accordance with the EP Act (2017) with the following order of preference (so far as reasonably practicable): (a) avoidance; (b) reuse; (c) recycling; (d) recovery of energy; (e) containment; (f) waste disposal.

This includes a *Duty to investigate alternatives to waste disposal* for any person who has the management or control of priority waste.

Industrial waste is all waste from commercial, industrial or trade activities or from laboratories. Any party who produces industrial waste or is in management or control of industrial waste, must classify it in accordance with the EP Act (2017) and the Environment Protection Regulations (2021), as outlined in the following EPA Publications:

- EPA Publication 1968.1 (August 2021) *Guide to classifying industrial waste*.
- EPA Publication 1828.2 (March 2021) *Waste disposal categories – characteristics and thresholds*.
- EPA Publication 1827.2 (March 2021) *Waste classification assessment protocol*.

## 8.2 REGULATORY FRAMEWORK FOR GROUNDWATER ASSESSMENT

EPA considers that the protection of groundwater quality can be assessed through achieving and maintaining the environmental values set out in the ERS, with the aim of protecting human health and the environment from contamination of groundwater.

Part 5 (Water) of the ERS lists the environmental values of water environments in Victoria and describes the environmental quality that is needed to achieve and maintain these values. To do this, Part 5 includes three key components:

- **Segments**: These are areas or features of water environments that have common environmental conditions and natural characteristics. Segments share common environmental values, indicators and objectives.
- **Environmental values**: The values or uses of water environments that Victorians value and want to protect from pollution and waste. Environmental values depend on suitable quality water.
- **Indicators and objectives**: The physical, chemical and biological conditions that are characteristic of healthy water environments. These conditions can be used to determine or assess whether environmental values are being achieved, maintained or threatened.

The ERS defines a range of environmental values for specific segments of the groundwater environment, which are based on groundwater salinity (as total dissolved solids). This is because the salinity of groundwater affects its use and TDS is an effective way to classify and distinguish the environmental values relevant to groundwater.

In referring to the ERS to assess if a chemical substance may create a risk of harm, all reasonable uses (existing and potential) of groundwater and the ecological functioning of the location (including potential for offsite impacts) should be considered.

The groundwater quality indicators and objectives for most of the environmental values apply at any point in the aquifer from which groundwater could be abstracted for use via a bore or intersected by a structure. For the environmental value of ‘Water dependent ecosystems and species’, the objectives apply within the aquifer where groundwater dependent ecosystems or species are identified or at the point of discharge to surface water.

When considering the risks of harm from groundwater contamination, both existing and potential environmental values should be regarded:

- **‘Existing’ environmental values** are where there is an existing receptor (abstraction bore, spring or creek) in the vicinity of the site.
- **‘Potential’** environmental values are those that could be supported by the background groundwater quality. A potential environmental value is considered ‘likely’ in circumstances including, but not limited to, where:

- Groundwater is used for that environmental value in the same hydrogeological setting nearby
- The existing and likely future land uses, both at the site and in the vicinity of the site, are compatible with the environmental value.

Where groundwater has been contaminated the duty to manage requires the duty holder to minimise the risks of harm to human health and the environment from the contamination. Where it is not reasonably practicable to eliminate risk of harm (most preferable outcome in accordance with 'hierarchy' of selecting risk control measures), a site-specific risk assessment should be undertaken to determine the risk of harm to human health and the environment. The risk assessment should determine acceptable levels and identify risk control measures (including groundwater remediation) that may be required.

EPA provides guidance for the assessment and management of potentially polluted groundwater in Publication 2001 (July 2021) *Guidance for the cleanup and management of contaminated groundwater*.

### 8.2.1 Relevant Groundwater Segment and Environmental Values

The expected total dissolved solids (TDS) concentrations in groundwater range from 1,001 - 3,500 mg/L. This would classify groundwater underlying the site as Segment B groundwater in accordance with the ERS.

The protected environmental values applicable to Segment B groundwater include:

- Water dependent ecosystems and species;
- Potable Mineral Water Supply;
- Agriculture and irrigation (irrigation);
- Agriculture and irrigation (stock watering);
- Industrial and commercial;
- Water-based recreation (primary contact recreation);
- Traditional Owner cultural values;
- Buildings and structures; and
- Geothermal properties.

### 8.2.2 Likelihood of Environmental Values Being Realised

Based on the applicable environmental values for the groundwater segment, Tetra Tech Coffey undertook assessment of the likelihood of the values being realised (existing or potential) on-site and off-site. A summary of this information is provided below in Table 8-2 with beneficial uses likely to be realised denoted by a shaded cell.

**Table 8-2 Groundwater Environmental Values and Likelihood of Being Realised**

| Environmental Value | On-site | Off-site |
|---|---|---|
| **Water Dependant Ecosystems and Species** | **Unlikely use**<br>There are no onsite aquatic ecosystems. | **Existing use**<br>The closest potential surface water body receptor for groundwater discharge from the site is Salt Creek and the Yarra River, located approximately 1.5 km east of the site. Assuming groundwater is discharging to |

| Environmental Value | On-site | Off-site |
|---|---|---|
| | | this waterway the use can be considered to be existing. |
| **Agriculture & Irrigation (Irrigation and Stock Watering)** | **Unlikely use**<br>Based on the current use of the site (and location within an established residential area) it is unlikely that this extractive use would be realised now or in the future (particularly given the presence of a reticulated water supply). | **Possible use**<br>Based on the low yield of groundwater (MFA) and that the site and surrounds are located within an area where residential are the dominant land uses. The use of groundwater for irrigation and stock watering purposes was considered unlikely to be realised.<br>The closest listed extractive use of groundwater was WRK990583, located ~1.5 km to the east (potentially down gradient) listed for domestic and stock use. No other extractive uses of groundwater are listed between the site and the ecosystem receptor. |
| **Industrial and Commercial Use** | **Unlikely use**<br>Based on the proposed high density residential land use and presence of a low-cost reticulated water supply, it is considered unlikely that the underlying groundwater would be accessed for industrial use on-site. | **Unlikely use**<br>A reticulated water supply is accessible in the area; therefore, it is considered unlikely that the underlying groundwater would be accessed for industrial or commercial use.<br>Furthermore, the expected low yield of the MFA in the surrounding area would limit its feasibility for use as industrial or commercial water supply. |
| **Water Based Recreation (Primary Contact Recreational)** | **Unlikely use**<br>There are no natural onsite aquatic systems that may be used for recreational purposes.<br>Furthermore, given the accessible reticulated water system and the low yield of groundwater it is considered unlikely that groundwater would be extracted for recreational purposes such as filling swimming pools / spa. | **Possible use**<br>The closest potential receiving water body is considered to be the Salt Creek and the Yarra River, located approximately 1.5 km east of the site. While unlikely due to pollution of the creek from being located within inner (urban) Melbourne, it is possible that the Yarra River at the point of groundwater discharge may be used for recreational purposes such as swimming.<br>Given the accessible reticulated water system and the low yield of groundwater it is considered unlikely that groundwater would be extracted for recreational purposes such as filling swimming pools / spa. |
| **Traditional Owner Cultural Values** | **Unlikely use**<br>There are no natural onsite aquatic systems. The planning report does not indicate any areas of aboriginal cultural heritage. | **Possible use**<br>Review of the State Government of Victoria Department of Transport and Planning, VicPlan tool (v 2.4.4) indicated that the course of the Yarra River and surrounding land is listed as an *Area of Aboriginal Cultural Heritage Sensitivity* Under the Aboriginal Heritage Regulations 2018.<br>There is potential that the beneficial use of Traditional Owner Cultural Values may be realised at the point of groundwater discharge (Yarra River). |

| Environmental Value | On-site | Off-site |
|---|---|---|
| **Buildings and Structures** | **Possible use**<br>Based on the depth to groundwater (~9 m) and the proposed site redevelopment (single basement level) it is unlikely that basement structures would intersect groundwater. However where deeper basement excavations and for deep piled foundations there is potential for building structures (piles) to intersect groundwater. | **Possible use**<br>Based on the depth to groundwater there is potential for building structures (basements and piles) to intersect groundwater. |
| **Geothermal Properties** | **Unlikely use**<br>The site is not in a known location for exploitation of geothermal properties and the proposed development is not considering use of groundwater for geothermal properties. | **Unlikely use**<br>The area is not in a known location for exploitation of geothermal properties. |

## 8.2.3 Adopted Groundwater Assessment Criteria

The primary water quality objectives adopted for each of the applicable environmental values listed in Section 8.2.1 are outlined below in Table 8-3.

Adopted investigation levels for individual contaminants of concern are provided in the Tables section of this report (**Appendix B**).

**Table 8-3 Adopted Groundwater Assessment Criteria**

| Environmental Value | Adopted Investigation Levels |
|---|---|
| **Water Dependant Ecosystems and Species** | Regional groundwater discharge is likely to occur to the Yarra River, located approximately 1.5km east of the site.<br>Based the inferred point of discharge of groundwater from the site to the Yarra River the "*Central Foothills and Coastal Plains*" Segment of the ERS (2021) was adopted, which is defined as a *slightly to moderately modified water dependent ecosystem*.<br>The primary groundwater environmental values were those outlined for the *Central Foothills and Coastal Plains* segment in Division 3 of the ERS.<br>Where no criteria is listed within Division 3 of the ERS, the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality,* (ANZG, 2018) were adopted as the relevant groundwater quality objective.<br>In accordance with the level of protection recommendations for slightly to moderately modified ecosystems, the trigger values for 95% species protection were adopted. |
| **Agriculture & Irrigation (Stock Watering)** | The ANZECC (2000) *Livestock Water Quality Guidelines* were the primary groundwater quality objective.<br>Updated guidelines (ANZG 2018 Primary industries – livestock drinking water) were expected to be issued in early 2020 but were not available at the time of preparing this report. |

| Environmental Value | Adopted Investigation Levels |
|---|---|
| **Industrial and Commercial Use** | As groundwater quality guidelines for industrial and commercial water use are highly specific to the type of process, no groundwater quality guidelines for industrial and commercial water were adopted for this assessment. However, the beneficial use for industrial water use at the site would be considered to be sufficiently protected by consideration of other protected beneficial uses. |
| **Water Based Recreation (Primary Contact Recreational)** | The NHMRC Guidelines for Managing Risks in Recreational Water, February 2008 were the primary groundwater quality objective for chemical hazards and aesthetics.<br>The guidelines were applied based on the NHMRC, NRMMC (2011 as amended 20202) Australian Drinking Water Guidelines guideline data multiplied by a factor of 10 (consumption factor of 200 ml per day) where toxicity data was available. |
| **Traditional Owner Cultural Values** | No specific environmental quality objectives are provided in the ERS for the environmental value of Traditional Owner cultural values. It is recognised that the environmental quality objectives for other environmental values such as water-based recreation and water dependent ecosystems and their species go some way to protecting the cultural and spiritual values, including spiritual relationships, sacred sites and customary use.<br>These environmental values were assessed considering Indigenous cultural & spiritual values in water quality planning (May 2012) published by Water Quality Australia (Commonwealth of Australia, 2018) as outlined in ANZG and the ERS. Whilst it is acknowledged that the adopted point of groundwater discharge (Yarra River) may have value for these beneficial uses (see Table 9-2). Given that the absence of significant groundwater contamination and significant distance to the surface water body receptor, no stakeholder consultation with indigenous people and the wider community is deemed to be required. |
| **Buildings and Structures** | The ERS objective is that “Groundwater that is not corrosive to or otherwise adversely affecting structures or building”. Currently, there are no concentration-based groundwater quality guidelines for Buildings and Structures. Standards Australia AS2159-2009 Piling – Design and Installation (2009), which provides an exposure classification for concrete and steel piles (based on sulfate, chloride and pH concentrations) has been considered as the relevant water quality objective. |
| **Potable Mineral Water Supply and Geothermal Properties** | At the time of assessment, EPA Victoria advice was that potable mineral water supply can be discounted away from mineral spring districts. Consequently, the use of groundwater for potable mineral water supply was not considered relevant given that the site was not located in a mineral spring district (Department of Minerals and Energy (1981), Groundwater Resources Map, 1981, 1:1,000,000 scale).<br>The same would apply for the beneficial use of geothermal properties in that the site was not located within an area of known potential for geothermal energy resources. |
| **Risks to Human Health (Vapour Intrusion)** | The protection of the beneficial use “Human Health” via vapour intrusion was initially assessed with reference to the NEPM **Invalid source specified.** Health Screening Levels (HSLs) as the adopted ‘tier 1’ (screening) criteria. |

# 9. REGULATORY FRAMEWORK (PLANNING AND CONTAMINATED LAND)

The Environment Protection Act (2017) has also led to substantial changes in the planning framework implemented under the Planning and Environment Act (1987) that deals with planning and contaminated land.

The Victoria Planning Provisions were updated on the 1st July 2021 to incorporate changes under the EP Act (2017) and a revised Ministerial Direction No. 1 (MD No.1) – *Potentially Contaminated Land* (2021) was issued.

The Department of Environment, Land, Water and Planning (DELWP) released Planning Practice Note 30 *Potentially Contaminated Land* (PPN30) (2021)[5] to provide guidance to planning authorities and proponents on contaminated land and the planning process. A *planner's toolkit*[6] designed for planners working with potentially contaminated land has also been developed by EPA and DEWLP[7].

## 9.1 VICTORIA PLANNING PROVISIONS

Section 12 of the Planning and Environment Act 1987 *requires a planning authority, when preparing a planning scheme or planning scheme amendment to 'take into account any significant effects which it considers the scheme or amendment might have on the environment or which it considers the environment might have on any use or development envisaged in the scheme or amendment'*.

*Section 60 of the Planning and Environment Act 1987 requires a responsible authority, before deciding on a permit application, to consider 'any significant effects which the responsible authority considers the use or development may have on the environment or which the responsible authority considers the environment may have on the use or development'. Section 60 is applicable to potentially contaminated land, which may affect, or be affected by, use or development.* (PPN30, DEWLP 2021).

These requirements of the Act are considered in the formulation of the Victoria Planning Provision (and implemented through the planning scheme).

*Clause 65.01 of the VPP requires a responsible authority, before deciding on a permit application or approval of a plan to consider as appropriate 'Any significant effects the environment, including the contamination of land, may have on the use or development'*.

### VPP Section 13.04-1

A responsible planning authority must also consider contaminated and potentially contaminated land under Section 13.04-1 of the VPP.

#### *Objective*

*To ensure that contaminated and potentially contaminated land is used and developed safely.*

#### *Strategies*

*Ensure contaminated or potentially contaminated land is or will be suitable for the proposed use, prior to the commencement of any use or development.*

*Protect a sensitive use (residential use, childcare centre, kindergarten, pre-school centre, primary school, even if ancillary to another use), children's playground or secondary school from the effects of contamination.*

*Facilitate the remediation of contaminated land to make the land suitable for future intended use or development.*

[5] Replacing the DSE General Practice Note - Potentially Contaminated Land, June 2005 (which is referenced in DPO7 of the Banyule Planning Scheme)

[6] https://www.planning.vic.gov.au/policy-and-strategy/planning-for-environment-protection/toolkit

[7] Now Department of Transport and Planning (DTP) (at the time of reporting).

***Policy guideline***

*Consider as relevant the potential for contamination to impact the proposed use or development through an assessment that is proportionate to the risk, including:*

- *An assessment in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (National Environment Protection Council, 1999).*
- *A preliminary risk screen assessment or environmental audit under Part 8.3 of the Environment Protection Act 2017.*

In applying the planning scheme requirements, the planning authority must give consideration to MD No.1 and the NEPM.

### VPP Section 45.03 Environmental Audit Overlays

Environmental Audit Overlays (EAO) are dealt with under Section 45.03 of the VPP. An EAO applies whether or not a planning permit is required and requires that:

*"Before a sensitive use (residential use, child care centre, pre-school centre, primary school, secondary school or children's playground) commences or before the construction or carrying out of buildings and works in association with a sensitive use commences:*

- *A preliminary risk screen assessment statement in accordance with the Environment Protection Act 2017 must be issued stating that an environmental audit is not required for the use or the proposed use; or*
- *An environmental audit statement under Part 8.3 of the Environment Protection Act 2017 must be issued stating that the land is suitable for the use or proposed use."*

The VPP (Clause 73.01 General Terms) also defines *potentially contaminated land* (consistent with MD No.1).

## 9.1.1 City of Banyule Planning Scheme DPO7

The stie is zoned as Residential Growth Zone under the City of Banyule Planning Scheme and is subject to a specific Development Plan Overlay – Schedule 7 (DPO7) to clause 43.04. The requirements of DPO7 (4.0) include that:

"*A development plan must include the following requirements:*

- *An environmental site assessment report:*
    - *Prepared by a suitably qualified and experienced environmental professional. The assessment must make reference to the Department of Sustainability and Environment, General Practice Note - Potentially Contaminated Land, June 2005 and include:*
        - *A description of previous land uses and activities on the land.*
        - *An assessment of the level, nature and distribution of any contamination within, or in close proximity to, the land, if required).*
        - *Details of any provisions, recommendations and requirements (including but not limited to, clean up, construction, ongoing maintenance or monitoring) required to effectively address and manage any contamination within the land (if required).*
    - *Should the environmental assessment reveal that an environmental audit of the site is necessary, before a sensitive use commences or before the construction or carrying out of buildings or works in association with a sensitive use commences, the applicant must provide either:*

- *A certificate of environmental audit in accordance with Part IXD of the Environmental Protection Act 1970, or*
- *An environmental auditor appointed under the Environment Protection Act 1970[1] must make a statement in accordance with Part IXD of that Act that the environmental conditions of that land are suitable for the sensitive use."*

With regard to the reference to the Environment Protection Act (1970), Tetra Tech Coffey notes that this was superseded by the Environment Protection Act (2017) in July 2021. As such it would not be possible to undertake an environmental audit under the old Act.

Similarly, the DSE General Practice Note - Potentially Contaminated Land, June 2005 has been superseded by Planning Practice Note 30 (PPN30) Potentially Contaminated Land (DELWP 2021).

Tetra Tech Coffey considers that the requirements of the DPO in the planning scheme (Schedule 07 to Clause 43.04) would likely remain the same but would be implemented to be reflective of the current Environment Protection Act (2017).

## 9.2 MINISTERIAL DIRECTION NO.1

Ministerial Direction No.1 (2021) was made ensure that potentially contaminated land is suitable for a use which is proposed to be allowed under an amendment to a planning scheme and which could be significantly adversely affected by contamination.

In accordance with MD No.1 potentially contaminated land is defined as land:

*a) Used or known to have been used for industry or mining;*

*b) Used or known to have been used for the storage of chemicals, gas, waste or liquid fuel (other than minor above-ground storage that is ancillary to another use of the land); or*

*c) Where a known past or present activity or event (occurring on or off the land) may have caused contamination on the land.*

MD No.1 further requires that in preparing a planning scheme amendment which allows (whether or not subject to the grant of a permit) land to be used for a sensitive use[8], children's playground or secondary school a planning authority must:

*a) Satisfy itself whether or not the land, or parts of the land, are potentially contaminated;*

*b) Where it has determined that the land is not potentially contaminated, state the determination in the amendment Explanatory Report; and*

*c) Where it has determined the land, or parts of the land, are potentially contaminated, must state the determination in the amendment Explanatory Report and satisfy itself that the environmental conditions of that land are or will be suitable for that use.*

In accordance with the above requirements a planning authority must comply with one of the following:

*1) Before it gives a copy or notice of the amendment under Section 17, 18 or 19 of the Act a planning authority must ensure that an environmental auditor has issued a preliminary risk screen assessment statement stating that an environmental audit is not required for sensitive uses, children's playgrounds and secondary schools allowed by the amendment.*

*2) Before it gives a copy or notice of the amendment under Section 17, 18 or 19 of the Act a planning authority must ensure that an environmental auditor has issued an environmental audit*

[8] Residential use, childcare centre, kindergarten, pre-school centre, primary school, even if ancillary to another use

*statement stating that the land is suitable for sensitive uses, children's playgrounds and secondary schools allowed by the amendment.*

3) *Where a planning authority determines that complying with subclause (1) or (2) is difficult or inappropriate it may defer the requirements of those subclauses provided the requirements are included in the amendment through the application of an Environmental Audit Overlay or other appropriate measure.*

The Minister or Executive Director, State Planning Services, Department of Environment, Land Water and Planning may grant an exemption from the need to comply with MD. No.1. Where this is the case the Minister or Executive Director must consult with EPA.

## 9.3 MINISTERIAL DIRECTION NO.19

Under Ministerial Direction No. 19 (MD No.19), EPA advises planning and responsible authorities on planning policies and decisions where there is a potential impact on the environment, amenity and human health due to pollution and waste. This advice is made in accordance with the Planning and Environment Act 1987.

## 9.4 PLANNING PRACTICE NOTE 30

PPN30 (July 2021) replaced the *DSE General Practice Note - Potentially Contaminated Land, June 2005* (which is referenced in DPO7 of the Banyule Planning Scheme) and provides provide guidance for planners and proponents in relation to planning and potentially contaminated land.

As part of this guidance PPN30 identifies a methodology for planning authorities to identify:

1) Is land potentially contaminated?
2) What assessment is required?
3) Is the land suitable, or can it be made suitable for the proposed use?

PPN30 lists the types of land uses that may have the potential for contaminating land (landfill sites are identified as having a 'high potential' for contamination).

The recommended approach to assessing potentially contaminated land (as outlined in PPN30) is reproduced below in Figure 9-1.

| Planning Proposal | | Potential for Contamination | |
|---|---|---|---|
| | | High | Medium |
| **Uses defined in *Ministerial Direction No. 1*, the EAO, and clause 13.04-1S** | | | |
| · Sensitive uses: Residential use, childcare centre, kindergarten, pre- school centre, primary school, even if ancillary to another use.<br>· Children's playground<br>· Secondary school | New use, or buildings and works associated with a new use | A | B |
| | Buildings and works associated with an existing use | B | B |
| **Other land use** | | | |
| Open space<br>Agriculture<br>Retail or office<br>Industry or warehouse | New use, or buildings and works associated with a new or existing use | C | D |

| | Planning Scheme Amendment | Planning Permit Application |
|---|---|---|
| A | PRSA or audit option applies<br>Proceeding directly to an audit is recommended. | PRSA or audit option applies<br>Proceeding directly to an audit is recommended. |
| B | PRSA or audit option applies<br>PRSA to determine need for audit is recommended. | PRSA or audit option applies<br>PRSA to determine need for audit is recommended. |
| C | PSI to inform need for audit is recommended | PSI to inform need for audit is recommended |
| D | Planning authority to document consideration of potential for contamination to impact proposal | Responsible authority to document consideration of potential for contamination to impact proposal |

**Figure 9-1 PPN30 Recommended approach to assessing potentially contaminated land. (DELWP, 2021)**

# 10. SITE INVESTIGATION RESULTS

## 10.1 FIELD OBSERVATIONS

A generalised subsurface profile of the materials encountered during drilling of the boreholes is presented below in Table 10-1.

The presence of a single fragment of suspected ACM in the form of bonded cement sheet debris was observed on the site surface in the northwest of the site (vicinity of former Telstra tower structures and location of previously observed ACM at the site in 2007) and collected for laboratory analysis. A photograph of the potential ACM is provided below in Plate 10-1.

**Table 10-1 Generalised subsurface profile of the materials encountered in the boreholes**

| Unit number | Unit descriptive label | Depth to Top of Unit (m) | Thickness of unit (m) | Description of Material |
|---|---|---|---|---|
| 0 | Fill | 0 | 1.7- 6.25 | **SANDY CLAY: medium to** high plasticity, dark brown, orange brown, fine to coarse grained sand, with fine to coarse grained gravel, moist, stiff to very stiff.<br>**SAND:** fine to coarse grained, orange- brown with trace fine grained gravel, dry to moist, medium dense to dense.<br>**CONCRETE:** 150mm encountered in BH1 and BH1A at 4.0m depth suspected to be associated with tank footings and/or below ground infrastructure. |
| 1 | Brighton Group | 1.7-6.25 | 1.0 – 4.4 | **CLAYEY SAND/SANDY CLAY/SAND:** fine to coarse grained, red brown, orange brown, mottled pale grey, moist, dense to very dense/very stiff to hard. |
| 2 | Melbourne Formation | 2.5-9.5 | Not penetrated | **CLAY:** high plasticity, pale grey, red brown, mottled pale red, pale grey with fine grained sand, moist, very stiff to hard. Not encountered in BH1. |



**Plate 10-1: Photograph of suspected ACM on site surface (S1)**

## 10.2 SOIL ANALYTICAL RESULTS

Soil analytical results, including comparison to the adopted ecological and health-based assessment criteria, are presented in Table 1 in **Appendix B**. Laboratory certificates of analysis are provided in **Appendix G**.

For comparative purposes the results from the previous Coffey assessment (2007) were also compared against the adopted investigation levels and are included in Table 1 (**Appendix B**).

All contaminant concentrations reported in soil were less than the adopted ecological and health investigation levels.

## 10.3 PRELIMINARY SOIL WASTE CLASSIFICATION RESULTS

Soil analytical results, including comparison to waste classification criteria, are provided in Table 2 in **Appendix B**. Certified laboratory reports are included in **Appendix G**.

Contaminant concentrations reported in fill and natural soils during the current assessment were less than the upper limit for Fill Material criteria.

During the previous assessment (Coffey 2007), elevated concentrations of nickel (72 – 100 mg/kg) were reported in near surface fill soils in five locations (SB1, SB4, SB5, SB7, SB8) as exceeding the upper limit for Fill Material criteria.

## 10.4 ASBESTOS ANALYTICAL RESULTS

The single fragment of suspected ACM (bonded cement sheet debris) was submitted for asbestos identification analysis. Laboratory certificates of analysis are provided in **Appendix G**.

The results of the analysis indicated that the sample was positive for the presence of chrysotile (white) and amosite (brown) asbestos.

## 10.5 GROUNDWATER INVESTIGATION RESULTS

### 10.5.1 Groundwater Field Observations

Groundwater gauging data and stabilised water quality parameters are presented in **Appendix H** and summarised below in Table 10-2.

**Table 10-2 Groundwater Field Observations**

| Item | Description |
|---|---|
| **Monitoring Well Condition** | The monitoring well was observed to comprise a flush gattic construction and was located immediately to the northeast of the water tank (installed at the base of the tank). The monitoring well appeared to be in a good condition. |
| **Sheens and NAPL** | No non-aqueous phase liquids (NAPLs) or sheens were observed during the gauging of the onsite monitoring well. |
| **Odours** | No odours were noted during the sampling of the groundwater monitoring well, B901551I |
| **Groundwater gauging data** | Groundwater levels at B901551I were 9.074 m btoc with a total well depth of 14.587 mbtoc. |
| **Groundwater Field Parameters** | Stabilised groundwater field parameters collected during the sampling event included:<br>DO – 34.7% equivalent to approximately 3.22 mg/L.<br>EC – 335.6 µS/cm<br>pH – 6.50<br>Redox – 118.0<br>Temperature – 18.4ºC. |

### 10.5.2 Groundwater Analytical Results

Groundwater analytical results are compiled and presented on Table 3, **Appendix B**. Laboratory documentation is provided in **Appendix G**.

Exceedances for the water dependent ecosystems and species assessment criteria were reported for copper (0.005 mg/L), zinc (0.19 mg/L) and PFOS (0.03 ug/L).

## 10.6 DATA QUALITY ASSESSMENT

Tetra Tech Coffey has completed a review of the Quality Assurance (QA) steps and Quality Control (QC) results, according to the following documents.

- NEPC, National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council (2013).
- US EPA Guidance on Environmental Data Verification and Data Validation (2002).
- US EPA Contract Laboratory Program for Organic (1999) and Inorganic (2002) Data Review.

This included examining holding times, laboratory accreditation, sample preservation methods, a review of field quality control sample results and a review of laboratory quality control sample results.

Comparisons of the analytical results for inter / intra laboratory samples and blank samples are summarised in Table 1 and Table 2, **Error! Reference source not found.**. Laboratory Quality Control Reports are included in **Appendix G**.

Overall, it was considered that the field and laboratory quality procedures and results are acceptable for the purposes of interpreting and verifying the findings of this investigation.

A detailed discussion of analytical data quality is provided in **Appendix I**.

# 11. DISCUSSION

## 11.1 SOIL ASSESSMENT

As outlined in Section 6 the Environmental Values of land that need to be protected at the site under the ERS based on the ongoing industrial land use include:

- Land Dependent Ecosystems and Species (Highly Modified Ecosystems)
- Human Health;
- Buildings and Structures; and
- Aesthetics.

Discussion of the reported site (soil) contamination in the context of the objectives for the relevant Environmental Values is provided in the following section.

### 11.1.1 Land Dependent Ecosystems and Species (Highly Modified)

All contaminant concentrations reported in soil were less than the NEPM EILs adopted as the objective for the land dependent ecosystems and species environmental value.

### 11.1.2 Human Health

All contaminant concentrations reported in soil were less than the HILs that would be adopted for a high-density residential land use and the HILs relevant for protection of construction workers health during any site redevelopment works.

A single fragment of bonded ACM was found on the site surface in the northwest of the site during the assessment (subsequently removed during sampling). The bonded ACM was observed to be in generally good condition greater than 7 mm by 7mm in size. The potential for the generation of asbestos fines (AF) from the bonded ACM observed was considered to be low. No further ACM was identified on the site surface within subsurface soils.

The ACM was observed in the northwest of the site in proximity to the former Telstra communications tower and associated structures. This location is consistent with the location of previous ACM observed on the surface of the site as indicated in Figure 2.

While no ACM was observed within subsurface soils at the site and site investigation works have not identified significant anthropogenic material (building rubble) in fill, the potential for ACM should not be discounted given the historical demolition of pre-1990s structures on-site and potential for imported (contaminated) fill at the site. Assessment to date has generally comprised borehole investigation only, and this method of sampling can make ACM identification in soil difficult, given the limited soil profile visible.

Based on the results of the assessment, the environmental value of human health was considered unlikely to be adversely affected by the reported soil contamination following the proposed redevelopment, particularly given fill soils will likely be removed across the site as part of proposed basement construction works.

The potential presence of ACM should be considered (particularly in the northwest portion of the site) during any proposed earthworks at the site. Consideration should also be given to the potential for asbestos to be present in existing pre-1990s structures at the site and within underground services (e.g. water pipes and associated infrastructure).

Soil sampling has been undertaken providing broad spatial coverage across the site area (well in exceess of the sampling density proposed in AS4482.1) but is noted to exclude the area covered by the decommissioned but intact above-ground reservoir tank which covers a significant portion of the site area. Soil sampling underneath the tank is not possible until the tank has been demolished. The reservoir tank itself is not expected to be a source of contamination given that it has only stored potable water. Potential localised sources of contamination beneath the current reservoir tank would likely be limited to any residual fill from the historical demolition of the original 1911 water tank in the 1950s and any uncontrolled filling (e.g. potential importation of contaminated fill) that could have occurred to level the current tanks footprint. Contamination beneath the tank is considered unlikely as:

- The original tank also covered an area outside of tank footprints and no impacts in the fill associated with the original tank area has been observed; and
- It is unlikely that the reservoir tank was constructed on uncontrolled fill given the structural requirements for supporting such a large load bearing structure.

### 11.1.3 Buildings and Structures

The recorded soil pH for in-situ soils ranged from neutral (pH 7.2) to slightly alkaline (pH 8.1) but was generally neutral (site average pH 7.5).

Recorded pH values at the site were compared against Standards Australia AS2159-2009 *Piling – Design and Installation* (2009). Based on the pH range recorded soil conditions would be classified as mild (for exposure classification for concrete piles) and non-aggressive (exposure classification for steel piles).

### 11.1.4 Aesthetics

The environmental value of aesthetics is considered unlikely to be applicable for the proposed redevelopment given the proposed bulk excavation and removal of fill soils and proposed development footprint covering the entirety of the site.

## 11.2 PRELIMINARY SOIL WASTE CLASSIFICATION

Contaminant concentrations reported in fill and natural soils during the current assessment were less than the upper limit for Fill Material criteria.

During the previous assessment (Coffey 2007), elevated concentrations of nickel (72 – 100 mg/kg) were reported in near surface fill soils in five locations (SB1, SB4, SB5, SB7, SB8) as exceeding the upper limit for Fill Material criteria (within the range of Category D waste).

The elevated nickel concentrations reported were confined to near surface soils (0.2 m) and were consistent with the presence of frequent gravels (e.g. crushed rock / gravel hard stand surface covering).

The elevated nickel concentrations reported are considered likely to be naturally occurring associated with the minerology (e.g. presence of Olivine) of the basaltic rock source material of the gravel.

Although elevated nickel concentrations within the crushed rock were reported as exceeding Fill Material criteria, given that the crushed rock / gravel is likely to be a propriety product (e.g. quarry sourced crushed rock), generally this should not be treated as a contaminated soil and where practicable material should be segregated from any remaining fill/natural soils and managed in accordance with the EPA wastes hierarchy (e.g. preferencing re-use and recycling) and the *EPA Determination – Specifications Acceptable to the Authority for Receiving Recycled Aggregates* (June 2021)[9].

Where gravels cannot be separated from the underlying fill there is potential that application could be made to EPA for specific waste designation based on the likely naturally elevated nickel concentrations.

Natural soils at the site were likely to be classified as Fill Material for the purposes of off-site disposal.

## 11.3 GROUNDWATER

Elevated concentrations of copper (0.005 mg/L) and zinc (0.19 mg/L) reported in groundwater were generally consistent with available data for surrounding environmental audits and are fairly typical of the Melbourne Formation Aquifer. There is potential that the copper and zinc concentrations reported may be indicative of background (naturally occurring) conditions.

Whilst no PFOS data was available for nearby completed environmental audits, the reported concentrations (0.03 ug/L) are within the range of expected ambient concentrations in freshwater in urban areas (EPA 2022) and are considered likely to be reflective of regional groundwater conditions.

Although elevated concentrations of copper, zinc and PFAS (likely reflective of background conditions or regional contamination) were reported in groundwater above the adopted criteria for Water Dependant Ecosystems and Species, this environmental value is only relevant at the point of groundwater discharge to the relevant ecosystem (surface water body) receptor, unless there is an underground ecosystem, which is not suspected at this site. In this case the water dependent ecosystems and species environmental value is unlikely to be compromised at the point of groundwater discharge (Yarra River located ~1.5 km east of the site), due to the relatively low concentrations reported, distance from the site and processes of physical attenuation (sorption, advection, diffusion and dispersion) of the contaminants.

Whilst not conclusive evidence the absence of significant contamination in groundwater also provides a further line of evidence that there is unlikely to be a significant source of soil contamination at the site (e.g. that may be impacting groundwater), particularly in proximity to or underlying the water tank given the likely location of the monitoring well at the down gradient boundary of the tank.

[9] Victoria Government Gazette No. S 302, 18 June 2021

## 11.4 ENVIRONMENTAL DUTIES

Based on the results of the assessment and proposed ongoing industrial land use at the site a summary of the relevant environmental duties under the EP Act (2017) as they relate to 'contaminated land' is provided in Table 11-1 below.

**Table 11-1 Summary of Environmental Duties[1]**

| Environmental Duty | Effected Media | Summary of Impact | Potential Legislative Obligations | Recommended Actions |
|---|---|---|---|---|
| **Duty to Manage Contaminated Land** | Soil | No contaminant concentrations in soil exceed the relevant indicator objective for any environmental value (i.e. not limited to investigation levels relevant to the proposed site redevelopment)<br>The reported soil impact does not meet the definition of *contaminated land* in accordance with Section 35 of the EP Act (2017) | Based on the reported soil impacts the duty to manage contaminated land would not apply. Requirements would be limited to ensuring that any site redevelopment works consider the GED in relation to minimising the potential risks of harm to human health and the environment. | No action is considered to be required to minimise the risks of harm associated with potential site contamination for the existing use of the site.<br>Should a more sensitive site use be proposed in the future (e.g. with higher ecological value or a low density residential land use) further consideration of the DTM may be required.<br>As a precautionary measure and as part of meeting the GED for any site redevelopment works it is recommended that any parties undertaking earthworks at the site have an understanding of the potential for ACM to be present and that as a minimum an unexpected finds procedure (including potential ACM) is adopted during earthworks for the site redevelopment. |
| | Groundwater | Elevated concentrations of copper, nickel, and PFOS in groundwater exceeded the adopted investigation levels for Water Dependant Ecosystems and Species. | The environmental value of Water Dependant Ecosystems and Species is considered at the point of groundwater discharge to the closest receiving water body (ecosystem receptor). On the basis that the water dependent ecosystems and species environmental value is unlikely to be compromised at the point of groundwater discharge (Yarra River), groundwater quality at the site meets the environmental value objectives for the relevant segment. As such groundwater impact at the site is not considered representative of 'contaminated land' and the associated DTM would not apply. | None |
| **Duty to Notify of Contaminated Land** | Soil and Groundwater | Contaminant concentrations reported in soil and groundwater at the site do not meet the requirement for DTN. | No requirement to notify EPA under Section 40 of the EP Act (1970) | None |

1) The information presented in this review is our interpretation of the guidance at this time (based on the scope and results of this assessment), but it should be noted that this opinion may change based on future guidance and clarifications issued by EPA, or based on additional information that may come to light during future site investigation works.

## 11.5 REQUIREMENT FOR ENVIRONMENTAL AUDIT

The site is (primarily) zoned as Residential Growth Zone under the City of Banyule Planning Scheme and is subject to a specific Development Plan Overlay – Schedule 7 (DPO7) to clause 43.04. The requirements of DPO7 (4.0) include that a development plan must include an *environmental assessment report prepared by a suitable qualified environmental professional* (this report) *that must make reference to the Department of Sustainability and Environment, General Practice Note - Potentially Contaminated Land, June 2005* in assessing whether an environmental audit is required as part of the site redevelopment.

The DSE general practice note (2005) was superseded by PPN30 (2021) in July 2021. In accordance with the guidance provided in PPN30, Tetra Tech Coffey considers that previous land uses at the site (or at adjacent land) do not constitute a high potential for contamination or medium potential for contamination (ancillary uses). As such, a PRSA or environmental audit would not be recommended and consideration of site contamination for a planning scheme amendment or planning permit application may be limited to the responsible planning authority documenting consideration of the potential for contamination to impact the proposal (e.g. under Section 60 of the Planning and Environment Act 1987).

In addition to the above, it should be noted that two environmental audits have previously been completed at the site (southeast corner of current Lot 1 and Lot 2) in 1997 and 1999. The environmental audits found that that the site was suitable for the proposed use of the land for public open space.

# 12. CONCLUSION AND RECOMMENDATIONS

Based on the results of the assessment and proposed site redevelopment for a high-density residential land use, the designated environmental values of land and water were considered to be sufficiently protected. The reported soil and groundwater impacts were unlikely to pose an unacceptable risk to current or future users of the site, construction workers involved in the site development and/or site/surrounding ecosystems.

Reported contaminant concentrations in soil and groundwater the site would not be considered ‘contaminated land’ in accordance with the Environment Protection Act (2017). As such, duties under the Act relating to site contamination would be restricted to the person in management or control of the site undertaking any site redevelopment works in a way that considers the general environmental duty (GED), to minimise potential risks of harm to human health and the environment.

In accordance with the requirements of Ministerial Direction No.1 (2021) and the guidance provided in PPN30 (2021) a PRSA or environmental audit would not be required for the site redevelopment for a sensitive (residential) use. Consideration of site contamination for a planning scheme amendment or planning permit application may be limited to the responsible planning authority documenting consideration of the potential for contamination to impact the proposal (e.g. under Section 60 of the Planning and Environment Act).

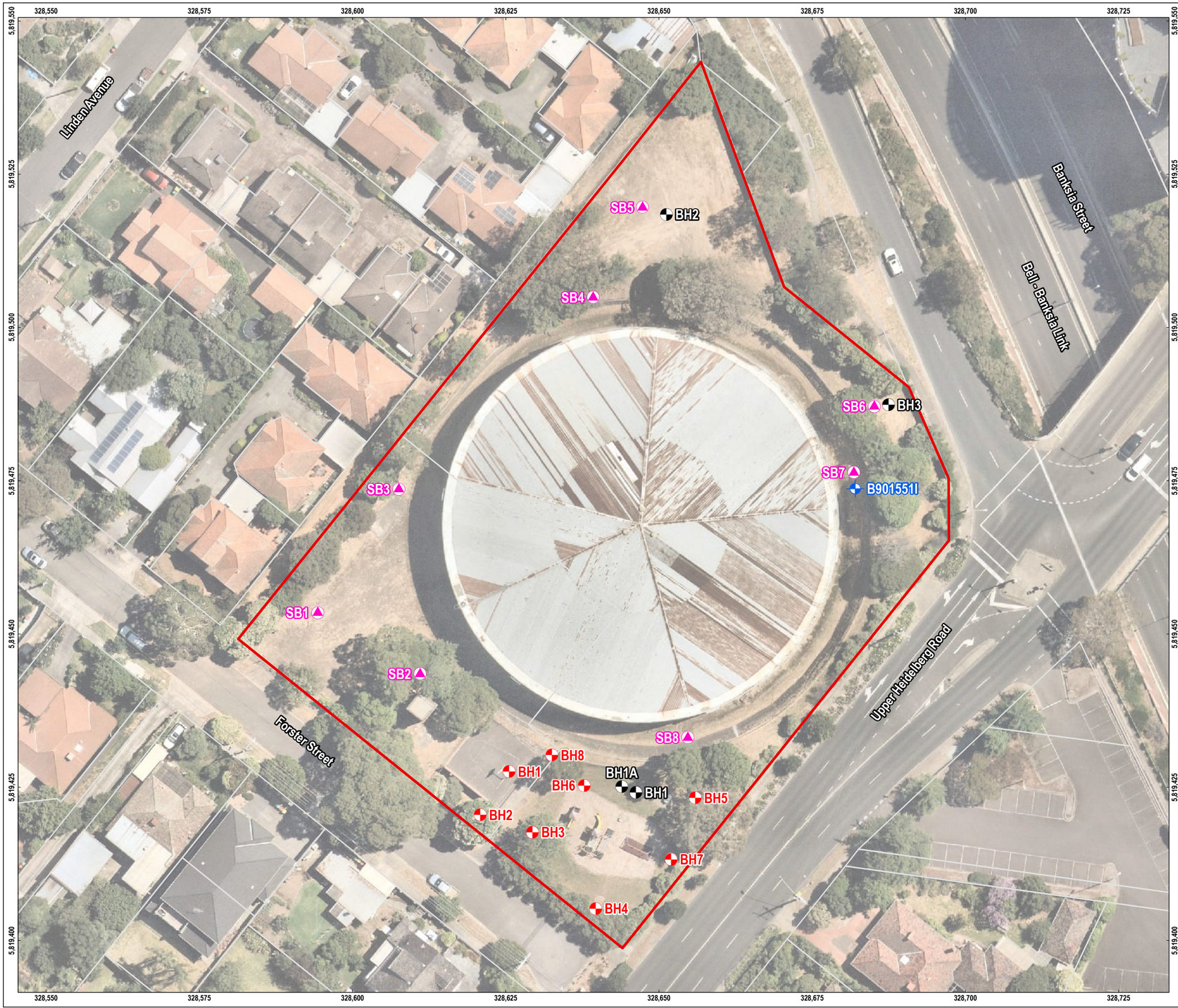
In considering the results of the assessment (and proposed high density residential redevelopment of the site), the following recommendations are made:

- Based on the results of the assessment, the provision of this this report is considered to meet the requirements of DPO7 (4.0) and should be incorporated into the development plan for the site redevelopment.

- The potential for unexpected contamination to be encountered during site redevelopment (e.g. earthworks) including the potential for ACM in soil should be considered in a construction management plan (CMP) to be prepared for the site redevelopment and include measures on how to address the contamination if encountered and that any site workers have an awareness of the potential for contamination to be present.
- Any soils required to be disposed off-site as part of the proposed site development should be classified for off-site disposal (and subsequently) managed in accordance with EPA Victoria Guidelines.
- Prior to the demolition of any existing structures at the site an intrusive (Division 6) asbestos and hazardous materials audit should be undertaken in accordance with the Victorian Occupational Health & Safety Regulations (2017) where asbestos may be present.

# APPENDIX A FIGURES

SAVED BY: YASSO.KOSTI 30.03.23 2:48 PM
DOC REFERENCE: \\TT-LOCAL\COF\S772\S\GIS\309933_MELGE_DV_IVANHOEGEOTECH\1_DV_IVANHOEGEOTECH\GIS\APRX\309933_R02_FIGS_A.APRX LAYOUT:309933_R02_F001_GIS_1

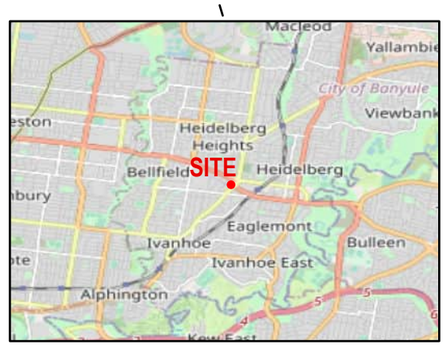



DEVELOPMENT VICTORIA

## LEGEND

- Proposed borehole
- Borehole (CMPS & F, 1997)
- Monitoring well (Vicroads)
- Soil bore (Coffey, 2007)
- Cadastre
- Site boundary




SOURCE
Monitoring locations approximately digitised from Tetra Tech Coffey.
Roads and cadastre from Vicmap.
Imagery from Nearmap (captured date 01-01-2023).

N

0 10 20 m

SCALE **1:600**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 55**

DEVELOPMENT VICTORIA

421 UPPER HEIDELBERG ROAD, IVANHOE
PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT

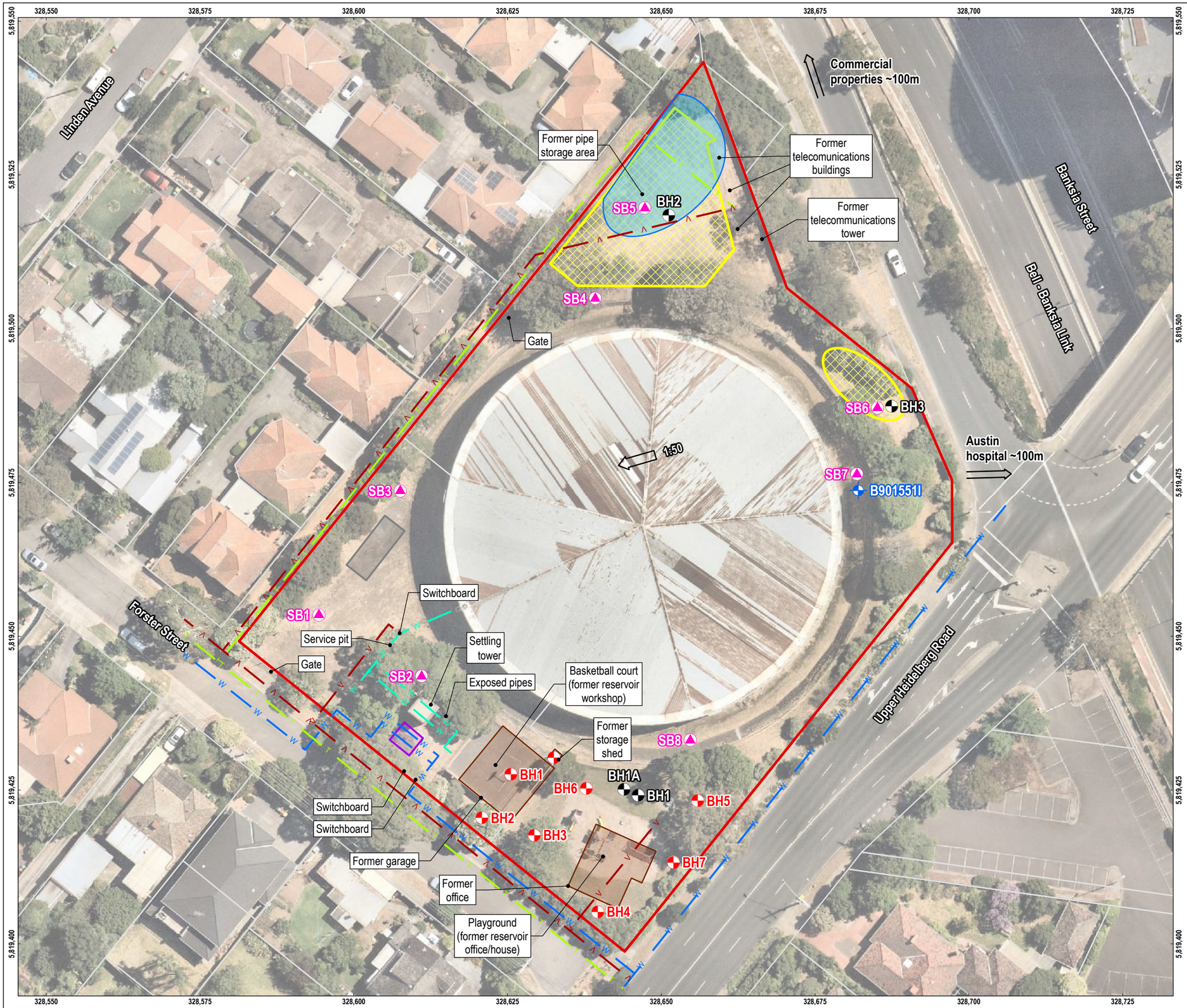
# FIGURE 1

## Borehole Location Plan

TETRA TECH COFFEY

DATE: **30.03.23** PROJECT: **754-MELGE309933** FILE: **309933_R02_F001_GIS**

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.




DEVELOPMENT VICTORIA

## LEGEND

- Proposed borehole
- Borehole (CMPS & F, 1997)
- Monitoring well (Vicroads)
- Soil bore (Coffey, 2007)
- Site Slope
- Active water main
- Disconnected pipeline infrastructure
- Electricity (underground cables)
- Telecommunications
- Concrete slab (former pipe storage area)
- Former building/shed
- Removed asbestos fragments (Coffey, 2007)
- Removed stockpile soil (Coffey, 2007)
- Valve pit
- Cadastre
- Site boundary

SOURCE
Monitoring locations, site features and utilities approximately digitised from Tetra Tech Coffey.
Roads and cadastre from Vicmap.
Imagery from Nearmap (captured date 01-01-2023).

N

0 10 20 m

SCALE **1:600**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 55**

DEVELOPMENT VICTORIA

421 UPPER HEIDELBERG ROAD, IVANHOE
PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT

# FIGURE 2

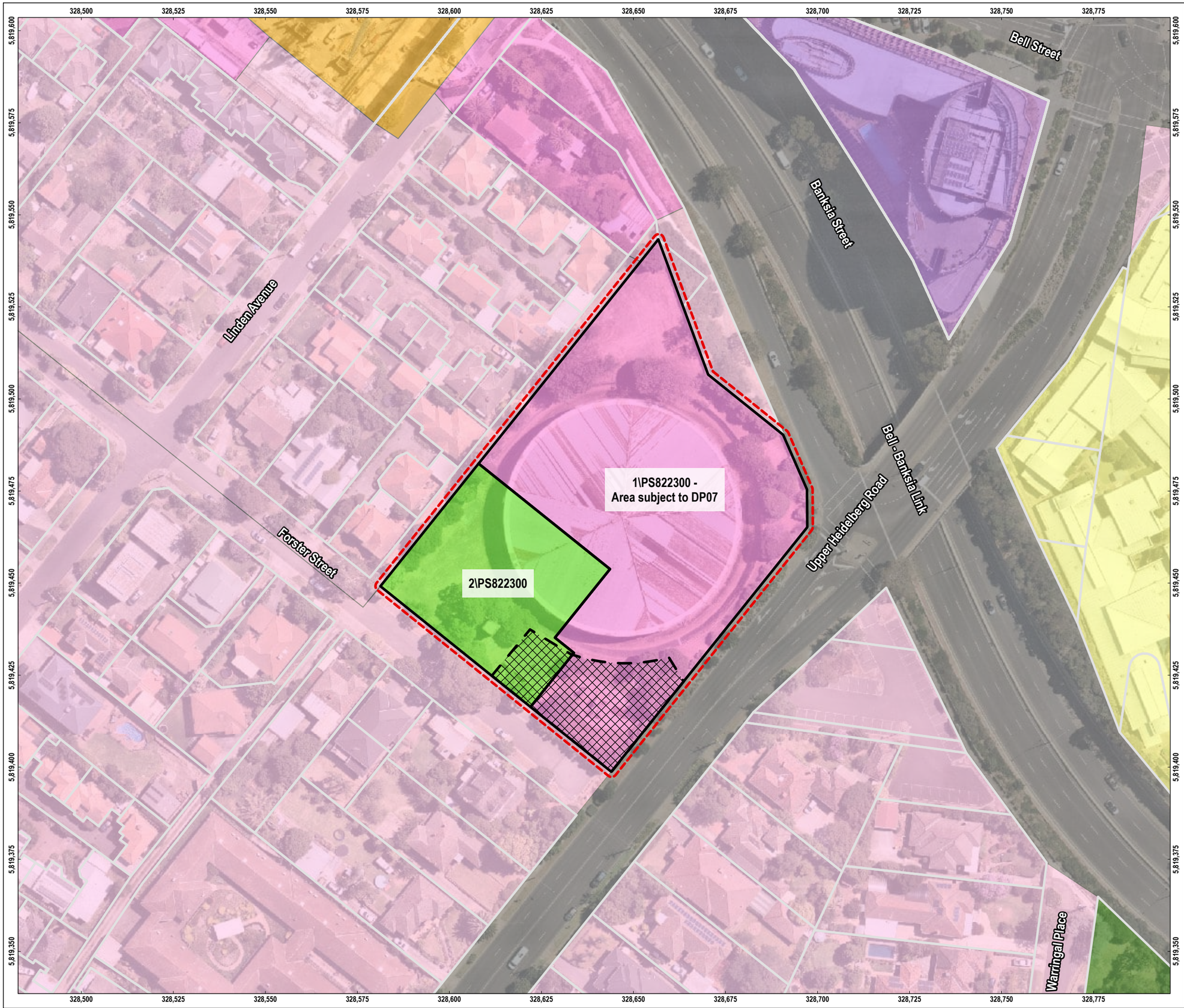
## Site Features Plan

TETRA TECH COFFEY

DATE: **05.04.23** PROJECT: **754-MELGE309933** FILE: **309933_R02_F002_GIS**

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

DOC REFERENCE: \\ETSS77\GISFS1\DATA$\GIS\309933_MELGE_DV_IVANHOEGEOTECH\1_DV_IVANHOEGEOTECH\GIS\APRX\309933_R02_FIGS_A.APRX LAYOUT:309933_R02_F002_GIS_2 SAVED BY: YASSO.KOSTI 05.04.23 4:33 PM




DEVELOPMENT VICTORIA

## LEGEND

- Lot 1 and Lot 2 PS822300 - *Zoning under Banyule planning scheme*
- Historical Lot (2/PS349641) - *Land previously subject to environmental audit (EPA CARMS Ref: 31620-1 and 31620-1)*
- Cadastre
- Site boundary

**Planning zone**

- C1Z - Commercial 1
- GRZ - General Residential
- MIXED USE ZONE
- PCRZ - Public Conservation and Resource
- PPRZ - Public Park and Recreation
- PUZ3 - Public Use-Health & Community
- RGZ - Residential Growth
- TRZ2 - Principal Road Network

SOURCE
Site boundary from Tetra Tech Coffey.
Roads, cadastre and planning zones from Vicmap.
Imagery from Nearmap (captured date 01-01-2023).

0 10 20 m

SCALE **1:1,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 55**

DEVELOPMENT VICTORIA

421 UPPER HEIDELBERG ROAD, IVANHOE
PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT

# FIGURE 3

## Property Parcels and Planning Zoning

TETRA TECH COFFEY

DATE: **04.09.23** PROJECT: **754-MELGE309933** FILE: **309933_R02_F003_GIS**

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

DOC REFERENCE: \\TT-LOCAL\COF\ST72\SIG\S309933_MELGE_DV_IVANHOEGEOTECH\1_DV_IVANHOEGEOTECH\GIS\APRX\309933_R02_FIGS_A.APRX LAYOUT:309933_R02_F003_GIS_2
SAVED BY: AMITAY.MOODY 04.09.23 3:26 PM

# APPENDIX B TABLES

| | | | | | Physical Parameters | | Metals | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Moisture Content (dried @ 103°C) | pH (aqueous extract) | Antimony | Arsenic | Beryllium | Cadmium | Chromium (hexavalent) | Chromium (III+VI) | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Silver | Selenium | Tin |
| | | | | | % | pH_Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | **1** | **0.1** | | **2** | | **0.4** | **1** | **5** | | **5** | **5** | **0.1** | **5** | **5** | **2** | **2** | **10** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | - | - | - | 500 | 90 | 150 | 500 | - | 600 | 30,000 | 1,200 | 120 | - | 1,200 | - | 1,400 | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | - | - | - | 300 | 90 | 90 | 300 | - | 300 | 17,000 | 600 | 80 | - | 1,200 | - | 700 | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | - | - | - | 3,000 | 500 | 900 | 3,600 | - | 4,000 | 240,000 | 1,500 | 730 | - | 6,000 | - | 10,000 | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | - | - | - | 100 | - | - | - | 410 | - | 200 | 1100 | - | - | 180 | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | **10.0** | **7.4** | - | **7.3** | - | <0.4 | <1 | **34** | - | **16** | **19** | <0.1 | <5 | **34** | <2 | <2 | <10 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | **7.5** | - | - | <2 | - | <0.4 | - | **20** | - | <5 | **5.9** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | **10** | - | - | <2 | - | <0.4 | - | **19** | - | <5 | **5.6** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | **7.7** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | **7.1** | - | - | <2 | - | <0.4 | - | **21** | - | <5 | **7.4** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | **10** | - | - | <2 | - | <0.4 | - | **25** | - | <5 | **7.2** | <0.1 | <5 | **5.2** | <2 | <2 | <10 |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | **9.5** | - | - | **2.5** | - | <0.4 | - | **35** | - | **11** | **7.6** | <0.1 | <5 | **26** | <2 | <2 | <10 |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | **4.1** | - | - | <2 | - | <0.4 | - | **14** | - | <5 | **6.3** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | **3.5** | **7.4** | - | <2 | - | <0.4 | <1 | **7.5** | - | <5 | <5 | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | **14** | - | - | **6.5** | - | <0.4 | - | **60** | - | **7.6** | **17** | <0.1 | <5 | **18** | <2 | <2 | <10 |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | **7.0** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | **10.0** | - | - | **3.0** | - | <0.4 | - | **43** | - | <5 | **8.4** | <0.1 | <5 | **6.0** | <2 | <2 | <10 |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | **5.4** | **8.1** | - | <2 | - | <0.4 | <1 | **19** | - | <5 | **18** | <0.1 | <5 | **11** | <2 | <2 | <10 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | **6.1** | - | - | <2 | - | <0.4 | - | **23** | - | <5 | **14** | <0.1 | <5 | **7.2** | <2 | <2 | <10 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | **7.0** | - | - | <2 | - | <0.4 | - | **27** | - | <5 | **11** | <0.1 | <5 | **5.9** | <2 | <2 | <10 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | **4.3** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | **5.1** | **7.2** | - | <2 | - | <0.4 | <1 | **22** | - | <5 | **5.5** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | **5.7** | - | - | <2 | - | <0.4 | - | **34** | - | <5 | **11** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | <10 | 2 | <2 | <0.5 | - | **18** | **20** | **35** | **7.7** | <0.1 | <10 | **92** | - | <2 | <10 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | <10 | **2.2** | <2 | <0.5 | - | **9.2** | <5.0 | **7.2** | **28** | <0.1 | <10 | <5.0 | - | <2 | <10 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | <10 | **2.7** | <2 | <0.5 | - | **20** | **13** | **21** | <5.0 | <0.1 | <10 | **55** | - | <2 | <10 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | <10 | <2 | <2 | <0.5 | - | **19** | **21** | **33** | <5.0 | <0.1 | <10 | **90** | - | <2 | <10 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | <10 | **2.7** | <2 | <0.5 | - | **23** | **17** | **30** | **5.6** | <0.1 | <10 | **72** | - | <2 | <10 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | <10 | **2.5** | <2 | <0.5 | - | **18** | **12** | **23** | **16** | <0.1 | <10 | **53** | - | <2 | <10 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | <10 | 2 | <2 | <0.5 | - | **19** | **21** | **37** | <5.0 | <0.1 | <10 | **100** | - | <2 | <10 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | <10 | <2 | <2 | <0.5 | - | **16** | **18** | **37** | **5.5** | <0.1 | <10 | **93** | - | <2 | <10 |

| | | BTEX | | | | | | | Total Petroleum Hydrocarbons | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Zinc | Benzene | Toluene | Ethylbenzene | Xylene Total | Naphthalene (VOC) | Xylene (o) | Xylene (m & p) | C6 - C9 | C10 - C14 | C15 - C28 | C29 - C36 | C10 - C36 (Sum of total) | F1 (C6 - C10) | F1 (C6 - C10) less BTEX |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **5** | **0.1** | **0.1** | **0.1** | **0.3** | **0.5** | **0.1** | **0.2** | **20** | **20** | **50** | **50** | **50** | **20** | **20** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | 60,000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | 30,000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | 400,000 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | - | 0.5 \| 0.5 \| 0.5 \| 0.5 | 160 \| 220 \| 310 \| 540 | 55 | 40 \| 60 \| 95 \| 170 | - | - | - | - | - | - | - | - | - | 45 \| 70 \| 110 \| 200 |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | - | 3 \| 3 \| 3 \| 3 | - | - | 230 | - | - | - | - | - | - | - | - | - | 260 \| 370 \| 630 |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | 460 | - | - | - | - | 170 | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | - | 50 | 85 | 70 | 105 | - | - | - | - | - | - | - | - | - | 180 |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | 700 | - |

| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | **79** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | **19** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | **9.3** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | **6.6** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | **16** | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | 5.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | **16** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | **8.0** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | **51** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | **77** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | **40** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | **70** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | **53** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | **44** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | **51** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | **100** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - |

| | | | | | Total Recoverable Hydrocarbons | | | | | Monocylic aromatic hydrocarbons | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | F2 (C10 - C16) | F2 C10 - C16 (minus Naphthalene) | F3 (C16 - C34) | F4 (C34 - C40) | C10 - C40 (Sum of total) | 1,2,4-trimethylbenzene | 1,3,5-trimethylbenzene | Isopropylbenzene | Styrene | Total MAH | Benzo(a)pyrene TEQ calc (Half) | Benzo(a)pyrene TEQ (LOR) | Benzo(a)pyrene TEQ calc (Zero) | Benzo(b+j)fluoranthene | Acenaphthene | Acenaphthylene | Anthracene |
| | | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | **50** | **50** | **100** | **100** | **100** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | - | - | - | - | - | - | - | - | - | - | 4 | 4 | 4 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | - | - | - | - | - | - | - | - | - | - | 40 | 40 | 40 | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | - | 110 \| 240 \| 440 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | - | 120 | 300 | 2,800 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | 1,000 | - | 2,500 | 10,000 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <50 | <50 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | <50 | <50 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | <50 | <50 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | <50 | <50 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <50 | <50 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <50 | <50 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | <50 | <50 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | <50 | <50 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <50 | <50 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 |

| | | | | | Polycyclic Aromatic Hydrocarbons | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Benz(a)anthracene | Benzo(a) pyrene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene | PAHs (Sum of total) | Chlorinated hydrocarbons EPAVic | Other chlorinated hydrocarbons EPAVic | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane |
| | | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | 400 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | 300 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | 4,000 | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | - | - | - | - | - | - | - | - | - | 170 | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | - | 0.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | 0.4 | 0.3 | 0.3 | 0.1 | 0.4 | <0.1 | **0.9** | <0.1 | 0.2 | <0.1 | 0.5 | **0.9** | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | 0.2 | 0.1 | <0.1 | <0.1 | 0.2 | <0.1 | 0.5 | <0.1 | <0.1 | <0.1 | 0.3 | 0.4 | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | 0.2 | 0.1 | 0.1 | <0.1 | 0.2 | <0.1 | 0.5 | <0.1 | <0.1 | <0.1 | 0.2 | 0.5 | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - |

| | | | | | Chlorinated Hydrocarbons | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1,1,2,2-tetrachloroethane | 1,1,2-trichloroethane | 1,1-dichloroethane | 1,1-dichloroethene | 1,2,3-trichloropropane | 1,2-dichloroethane | 1,2-dichloropropane | 1,3-dichloropropane | Bromochloromethane | Bromodichloromethane | Bromoform | Carbon tetrachloride | Chlorodibromomethane | Chloroethane | Chloroform | Chloromethane | cis-1,2-dichloroethene |
| | | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | | | | | | | | | | | Halogenated Hydrocarbons | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | cis-1,3-dichloropropene | Dibromomethane | Dichloromethane | Hexachlorobutadiene | Trichloroethene | Tetrachloroethene | trans-1,2-dichloroethene | trans-1,3-dichloropropene | Vinyl chloride | 1,2-dibromoethane | Bromomethane | Dichlorodifluoromethane | Iodomethane | Trichlorofluoromethane | 1,2,4-trichlorobenzene | 1,2-dichlorobenzene | 1,3-dichlorobenzene |
| | | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | Halogenated Benzenes | | | | | PCBs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1,4-dichlorobenzene | 4-chlorotoluene | Bromobenzene | Chlorobenzene | Hexachlorobenzene | Arochlor 1016 | Arochlor 1221 | Arochlor 1232 | Arochlor 1242 | Arochlor 1248 | Arochlor 1254 | Arochlor 1260 | PCBs (Sum of total) | 3/4-Methylphenol (m/p-cresol) | 2,4-Dinitrophenol | 2,4,5-Trichlorophenol | 2,4,6-Trichlorophenol |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **0.5** | **0.5** | **0.5** | **0.5** | **0.05** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.4** | **5** | **1** | **1** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | - | - | - | - | 15 | - | - | - | - | - | - | - | 1 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | - | - | - | - | 10 | - | - | - | - | - | - | - | 1 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | - | - | - | - | 80 | - | - | - | - | - | - | - | 7 | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - |

| | Phenols | | | | | | | | | | | | | | | | Oc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,4-Dichlorophenol | 2,4-Dimethylphenol | 2,6-Dichlorophenol | 2-Chlorophenol | 2-Methylphenol | 2-Nitrophenol | 4,6-Dinitro-2-methylphenol | 4,6-Dinitro-o-cyclohexylphenol | 4-Nitrophenol | 4-chloro-3-methylphenol | Cresol Total | Pentachlorophenol | Phenol | Tetrachlorophenols | Phenols (Total Halogenated) | Phenols (Total Non Halogenated) | Organochlorine pesticides EPAVic |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **0.5** | **0.5** | **0.5** | **0.5** | **0.2** | **1** | **5** | **20** | **5** | **1** | **0.5** | **1** | **0.5** | **10** | **1** | **20** | **0.1** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | - | - | - | - | - | - | - | - | - | - | 4,700 | 130 | 45,000 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | - | - | - | - | - | - | - | - | - | - | 4,000 | 120 | 40,000 | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | - | - | - | - | - | - | - | - | - | - | 25,000 | 660 | 240,000 | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | | CP | Herbicides | Organophosphorous Pesticides | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Other organochlorine pesticides EPAVic | Dinoseb | Azinophos methyl | Bolstar (Sulprofos) | Chlorpyrifos | Coumaphos | Demeton-O | Diazinon | Dichlorvos | Disulfoton | Ethoprop | Ethion | Fenitrothion | Fensulfothion | Fenthion | Merphos | Methyl parathion |
| | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | **0.1** | **20** | | | | | | | | | | | | | | | |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | - | - | - | - | 340 | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | - | - | - | - | 250 | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | - | - | - | - | 2,000 | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.1 | <20 | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.1 | <20 | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.1 | <20 | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.1 | <20 | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | - | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

| | | | | | | Organochlorine Pes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mevinphos (Phosdrin) | Naled (Dibrom) | Phorate | Ronnel | Trichloronate | 4,4-DDE | a-BHC | Aldrin | Aldrin + Dieldrin | b-BHC | chlordane | Chlordane (cis) | d-BHC | DDD | DDT | DDT+DDE+DDD | Dieldrin |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.1** | | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | - | - | - | - | - | - | - | - | 10 | - | 90 | - | - | - | - | 600 | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | - | - | - | - | - | - | - | - | 10 | - | 70 | - | - | - | - | 400 | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | - | - | - | - | - | - | - | - | 45 | - | 530 | - | - | - | - | 3,600 | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 180 | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | - | - | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | - | - | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | - | - | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | - | - | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ticides | | | | | | | | | | Solvents | | |
| | | | | | | Endrin aldehyde | Endrin ketone | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | g-BHC (Lindane) | Heptachlor | Heptachlor epoxide | Methoxychlor | Toxaphene | Methyl Ethyl Ketone | 4-Methyl-2-pentanone | Acetone | Allyl chloride | Carbon disulfide |
| | | | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| NEPM 2013 Table 1A(1) HILs Res B Soil | | | | | | - | - | - | - | - | 20 | - | 10 | - | 500 | 30 | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Rec C Soil | | | | | | - | - | - | - | - | 20 | - | 10 | - | 400 | 30 | - | - | - | - | - |
| NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil | | | | | | - | - | - | - | - | 100 | - | 50 | - | 2,500 | 160 | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Sand | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space [1] | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | Depth | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | 0.1 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | 1.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | 1.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | 2.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | 3.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | 0.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | 0.5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | 0.9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | 1.2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | 1.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | 0.1 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | 0.5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | 0.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | 1.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | 1.8 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | 2.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | | 963822 | M23-Fe0033453 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | | <0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |

| | | | | Physical Parameters | | Metals | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Moisture Content (dried @ 103°C) | pH (aqueous extract) | Antimony | Arsenic | Beryllium | Cadmium | Chromium (hexavalent) | Chromium (III+VI) | Cobalt | Copper | Lead | Mercury | Molybdenum | Nickel | Silver | Selenium | Tin |
| | | | | % | pH_Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **1** | **0.1** | | **2** | | **0.4** | **1** | **5** | | **5** | **5** | **0.1** | **5** | **5** | **2** | **2** | **10** |
| EPA Vic 1828.2 Category B upper limit | | | | - | - | 300 | 2,000 | 400 | 400 | 2,000 | - | - | 20,000 | 6,000 | 300 | 4,000 | 12,000 | 720 | 40,000 | - |
| EPA Vic 1828.2 Category C upper limit | | | | - | - | 75 | 500 | 100 | 100 | 500 | - | - | 5,000 | 1,500 | 75 | 1,000 | 3,000 | 180 | 10,000 | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | - | - | 75 | 500 | 100 | 100 | 500 | - | - | 5,000 | 1,500 | 75 | 1,000 | 3,000 | 180 | 10,000 | - |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | 20 | - | 3 | 1 | - | - | 100 | 300 | 1 | 40 | 60 | 10 | 10 | 50 |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | **10.0** | **7.4** | - | **7.3** | - | <0.4 | <1 | **34** | - | **16** | **19** | <0.1 | <5 | **34** | <2 | <2 | <10 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | **7.5** | - | - | <2 | - | <0.4 | - | **20** | - | <5 | **5.9** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | **10** | - | - | <2 | - | <0.4 | - | **19** | - | <5 | **5.6** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | **7.7** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | **7.1** | - | - | <2 | - | <0.4 | - | **21** | - | <5 | **7.4** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | **10** | - | - | <2 | - | <0.4 | - | **25** | - | <5 | **7.2** | <0.1 | <5 | **5.2** | <2 | <2 | <10 |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | **9.5** | - | - | **2.5** | - | <0.4 | - | **35** | - | **11** | **7.6** | <0.1 | <5 | **26** | <2 | <2 | <10 |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | **4.1** | - | - | <2 | - | <0.4 | - | **14** | - | <5 | **6.3** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | **3.5** | **7.4** | - | <2 | - | <0.4 | <1 | **7.5** | - | <5 | <5 | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | **14** | - | - | **6.5** | - | <0.4 | - | **60** | - | **7.6** | **17** | <0.1 | <5 | **18** | <2 | <2 | <10 |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | **7.0** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | **10.0** | - | - | **3.0** | - | <0.4 | - | **43** | - | <5 | **8.4** | <0.1 | <5 | **6.0** | <2 | <2 | <10 |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | **5.4** | **8.1** | - | <2 | - | <0.4 | <1 | **19** | - | <5 | **18** | <0.1 | <5 | **11** | <2 | <2 | <10 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | **6.1** | - | - | <2 | - | <0.4 | - | **23** | - | <5 | **14** | <0.1 | <5 | **7.2** | <2 | <2 | <10 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | **7.0** | - | - | <2 | - | <0.4 | - | **27** | - | <5 | **11** | <0.1 | <5 | **5.9** | <2 | <2 | <10 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | **4.3** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | **5.1** | **7.2** | - | <2 | - | <0.4 | <1 | **22** | - | <5 | **5.5** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | **5.7** | - | - | <2 | - | <0.4 | - | **34** | - | <5 | **11** | <0.1 | <5 | <5 | <2 | <2 | <10 |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | <10 | **2** | < 2 | <0.5 | - | **18** | **20** | **35** | **7.7** | <0.1 | <10 | **92** | - | <2 | <10 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | <10 | **2.2** | < 2 | <0.5 | - | **9.2** | <5 | **7.2** | **28** | <0.1 | <10 | <5 | - | <2 | <10 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | <10 | **2.7** | < 2 | <0.5 | - | **20** | **13** | **21** | <5 | <0.1 | <10 | **55** | - | <2 | <10 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | <10 | < 2 | < 2 | <0.5 | - | **19** | **21** | **33** | <5 | <0.1 | <10 | **90** | - | <2 | <10 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | <10 | **2.7** | < 2 | <0.5 | - | **23** | **17** | **30** | **5.6** | <0.1 | <10 | **72** | - | <2 | <10 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | <10 | **2.5** | < 2 | <0.5 | - | **18** | **12** | **23** | **16** | <0.1 | <10 | **53** | - | <2 | <10 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | <10 | **2** | < 2 | <0.5 | - | **19** | **21** | **37** | <5 | <0.1 | <10 | **100** | - | <2 | <10 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | <10 | <2.0 | < 2 | <0.5 | - | **16** | **18** | **37** | **5.5** | <0.1 | <10 | **93** | - | <2 | <10 |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | BTEX | | | | | | | Total Petroleum Hydrocarbons | | | | | Total Recoverable Hydı | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Zinc | Benzene | Toluene | Ethylbenzene | Xylene Total | Naphthalene (VOC) | Xylene (o) | Xylene (m & p) | C6 - C9 | C10 - C14 | C15 - C28 | C29 - C36 | C10 - C36 (Sum of total) | F1 (C6 - C10) | F1 (C6 - C10) less BTEX | F2 (C10 - C16) | F2 C10 - C16 (minus Naphthalene) |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **5** | **0.1** | **0.1** | **0.1** | **0.3** | **0.5** | **0.1** | **0.2** | **20** | **20** | **50** | **50** | **50** | **20** | **20** | **50** | **50** |
| EPA Vic 1828.2 Category B upper limit | 140,000 | 16 | 12,800 | 4,800 | 9,600 | - | - | - | 2,600 | - | - | - | 40,000 | - | - | - | - |
| EPA Vic 1828.2 Category C upper limit | 35,000 | 4 | 3,200 | 1,200 | 2,400 | - | - | - | 650 | - | - | - | 10,000 | - | - | - | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | 35,000 | 4 | 3,200 | 1,200 | 2,400 | - | - | - | 325 | - | - | - | 5,000 | - | - | - | - |
| EPA Vic 1828.2 Fill material upper limit | 200 | 1 | - | - | - | - | - | - | 100 | - | - | - | 1,000 | - | - | - | - |

| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | **79** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | **19** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | **9.3** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | **6.6** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | **16** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | **5.0** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | **16** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | **8.0** | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <5 | <0.1 | <0.1 | <0.1 | <0.3 | <0.5 | <0.1 | <0.2 | <20 | <20 | <50 | <50 | <50 | <20 | <20 | <50 | <50 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | <5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | **51** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | **77** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | **40** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | **70** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | **53** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | **44** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | **51** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | **100** | - | - | - | - | - | - | - | <20 | <50 | <100 | <100 | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | ocarbons | | | Monocylic aromatic hydrocarbons | | | | | | | | | | | | | Pol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F3 (C16 - C34) | F4 (C34 - C40) | C10 - C40 (Sum of total) | 1,2,4-trimethylbenzene | 1,3,5-trimethylbenzene | Isopropylbenzene | Styrene | Total MAH | Benzo(a)pyrene TEQ calc (Half) | Benzo(a)pyrene TEQ (LOR) | Benzo(a)pyrene TEQ calc (Zero) | Benzo(b+j)fluoranthene | Acenaphthene | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a) pyrene |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **100** | **100** | **100** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | - | - | - | - | - | - | 480 | - | 160 | 160 | 160 | - | - | - | - | - | 160 |
| EPA Vic 1828.2 Category C upper limit | - | - | - | - | - | - | 120 | - | 40 | 40 | 40 | - | - | - | - | - | 40 |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | - | - | - | - | - | - | 120 | - | 20 | 20 | 20 | - | - | - | - | - | 20 |
| EPA Vic 1828.2 Fill material upper limit | - | - | - | - | - | - | - | 7 | - | - | - | - | - | - | - | - | 1 |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | <100 | <100 | <100 | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <100 | <100 | <100 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | **0.6** | **1.2** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | **0.4** | **0.3** |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | **0.2** | **0.1** |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | **0.2** | **0.1** |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | ycyclic Aromatic Hydrocarbons | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-c,d)pyrene | Naphthalene | Phenanthrene | Pyrene | PAHs (Sum of total) | Chlorinated hydrocarbons EPAVic | Other chlorinated hydrocarbons EPAVic | 1,1,1,2-tetrachloroethane | 1,1,1-trichloroethane | 1,1,2,2-tetrachloroethane | 1,1,2-trichloroethane |
| | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | | | | - | - | - | - | - | - | - | - | - | - | 400 | - | - | 1,600 | 4,800 | 210 | 190 |
| EPA Vic 1828.2 Category C upper limit | | | | - | - | - | - | - | - | - | - | - | - | 100 | - | - | 400 | 1,200 | 52 | 48 |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | - | - | - | - | - | - | - | - | - | - | 50 | - | - | 400 | 1,200 | 52 | 48 |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | - | - | - | - | - | - | - | 20 | 1 | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | **0.3** | **0.1** | **0.4** | <0.1 | **0.9** | <0.1 | **0.2** | <0.1 | **0.5** | **0.9** | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | <0.1 | <0.1 | **0.2** | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | **0.3** | **0.4** | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | **0.1** | <0.1 | **0.2** | <0.1 | **0.5** | <0.1 | <0.1 | <0.1 | **0.2** | **0.5** | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | Chlorinated Hydrocarbons | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,1-dichloroethane | 1,1-dichloroethene | 1,2,3-trichloropropane | 1,2-dichloroethane | 1,2-dichloropropane | 1,3-dichloropropane | Bromochloromethane | Bromodichloromethane | Bromoform | Carbon tetrachloride | Chlorodibromomethane | Chloroethane | Chloroform | Chloromethane | cis-1,2-dichloroethene | cis-1,3-dichloropropene | Dibromomethane |
| | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | | | | - | 480 | - | 48 | - | - | - | - | - | 48 | - | - | 960 | - | - | - | - |
| EPA Vic 1828.2 Category C upper limit | | | | - | 120 | - | 12 | - | - | - | - | - | 12 | - | - | 240 | - | - | - | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | - | 120 | - | 12 | - | - | - | - | - | 12 | - | - | 240 | - | - | - | - |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | | | | | | Halogenated Hydrocarbons | | | | | | Halogenated Benzenes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Dichloromethane | Hexachlorobutadiene | Trichloroethene | Tetrachloroethene | trans-1,2-dichloroethene | trans-1,3-dichloropropene | Vinyl chloride | 1,2-dibromoethane | Bromomethane | Dichlorodifluoromethane | Iodomethane | Trichlorofluoromethane | 1,2,4-trichlorobenzene | 1,2-dichlorobenzene | 1,3-dichlorobenzene | 1,4-dichlorobenzene | 4-chlorotoluene |
| | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | | | | 64 | 11 | 80 | 800 | - | - | 4.8 | - | - | - | - | - | - | 24,000 | - | 640 | - |
| EPA Vic 1828.2 Category C upper limit | | | | 16 | 2.8 | 20 | 200 | - | - | 1.2 | - | - | - | - | - | - | 6,000 | - | 160 | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | 16 | 2.8 | 20 | 200 | - | - | 1.2 | - | - | - | - | - | - | 6,000 | - | 160 | - |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | PCBs | | | | | | | | | | | | | | | |
| | Bromobenzene | Chlorobenzene | Hexachlorobenzene | Arochlor 1016 | Arochlor 1221 | Arochlor 1232 | Arochlor 1242 | Arochlor 1248 | Arochlor 1254 | Arochlor 1260 | PCBs (Sum of total) | 3/4-Methylphenol (m/p-cresol) | 2,4-Dinitrophenol | 2,4,5-Trichlorophenol | 2,4,6-Trichlorophenol | 2,4-Dichlorophenol | 2,4-Dimethylphenol |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **0.5** | **0.5** | **0.05** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.1** | **0.4** | **5** | **1** | **1** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | - | 4,800 | - | - | - | - | - | - | - | - | 6 | - | - | 64,000 | 320 | 3,200 | - |
| EPA Vic 1828.2 Category C upper limit | - | 1,200 | - | - | - | - | - | - | - | - | 50 | - | - | 16,000 | 80 | 800 | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | - | 1,200 | - | - | - | - | - | - | - | - | 2 | - | - | 16,000 | 80 | 800 | - |
| EPA Vic 1828.2 Fill material upper limit | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.5 | <0.5 | <0.05 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.4 | <5 | <1 | <1 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | <0.05 | - | - | - | - | - | - | - | <1 | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | Phenols | | | | | | | | | | | | | | OCP | | Herbicides |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2,6-Dichlorophenol | 2-Chlorophenol | 2-Methylphenol | 2-Nitrophenol | 4,6-Dinitro-2-methylphenol | 4,6-Dinitro-o-cyclohexyl phenol | 4-Nitrophenol | 4-chloro-3-methylphenol | Cresol Total | Pentachlorophenol | Phenol | Tetrachlorophenols | Phenols (Total Halogenated) | Phenols (Total Non Halogenated) | Organochlorine pesticides EPAVic | Other organochlorine pesticides EPAVic | Dinoseb |
| | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **0.5** | **0.5** | **0.2** | **1** | **5** | **20** | **5** | **1** | **0.5** | **1** | **0.5** | **10** | **1** | **20** | **0.1** | **0.1** | **20** |
| EPA Vic 1828.2 Category B upper limit | | | | - | 4,800 | - | - | - | - | - | - | 32,000 | - | - | - | - | 2,200 | - | 50 | - |
| EPA Vic 1828.2 Category C upper limit | | | | - | 1,200 | - | - | - | - | - | - | 8,000 | - | - | - | - | 560 | - | 10 | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | - | 1,200 | - | - | - | - | - | - | 8,000 | - | - | - | - | 560 | - | 10 | - |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 60 | 1 | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 | <0.1 | <20 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 | <0.1 | <20 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 | <0.1 | <20 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.5 | <0.5 | <0.2 | <1 | <5 | <20 | <5 | <1 | <0.5 | <1 | <0.5 | <10 | <1 | <20 | <0.1 | <0.1 | <20 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | Organophosphorous Pesticides | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Azinophos methyl | Bolstar (Sulprofos) | Chlorpyrifos | Coumaphos | Demeton-O | Diazinon | Dichlorvos | Disulfoton | Ethoprop | Ethion | Fenitrothion | Fensulfothion | Fenthion | Merphos | Methyl parathion | Mevinphos (Phosdrin) | Naled (Dibrom) |
| | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | | | | | | | | | | | | | | | | | |
| EPA Vic 1828.2 Category B upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPA Vic 1828.2 Category C upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| EPA Vic 1828.2 Fill material upper limit | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | Organochlorine Pesticides | | | | | | |
| | Phorate | Ronnel | Trichloronate | 4,4-DDE | a-BHC | Aldrin | Aldrin + Dieldrin | b-BHC | chlordane | Chlordane (cis) | d-BHC | DDD | DDT | DDT+DDE+DDD | Dieldrin | Endrin aldehyde | Endrin ketone |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | | | | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.1** | | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** |
| EPA Vic 1828.2 Category B upper limit | - | - | - | - | - | - | 4.8 | - | 16 | - | - | - | - | 50 | - | - | - |
| EPA Vic 1828.2 Category C upper limit | - | - | - | - | - | - | 1.2 | - | 4 | - | - | - | - | 50 | - | - | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | - | - | - | - | - | - | 1.2 | - | 4 | - | - | - | - | 50 | - | - | - |
| EPA Vic 1828.2 Fill material upper limit | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | - | - | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.1 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | <0.2 | <0.2 | <0.2 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.1 | <0.1 | - | <0.05 | <0.05 | - | <0.05 | <0.05 | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | | | | | | | Solvents | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Endosulfan I | Endosulfan II | Endosulfan sulphate | Endrin | g-BHC (Lindane) | Heptachlor | Heptachlor epoxide | Methoxychlor | Toxaphene | Methyl Ethyl Ketone | 4-Methyl-2-pentanone | Acetone | Allyl chloride | Carbon disulfide |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **EQL** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.05** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** | **0.5** |
| EPA Vic 1828.2 Category B upper limit | - | - | - | - | - | 4.8 | - | - | - | 32,000 | - | - | - | - |
| EPA Vic 1828.2 Category C upper limit | - | - | - | - | - | 1.2 | - | - | - | 8,000 | - | - | - | - |
| EPA Vic 1828.2 Category D / Industrial Waste upper limit | - | - | - | - | - | 1.2 | - | - | - | 8,000 | - | - | - | - |
| EPA Vic 1828.2 Fill material upper limit | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Field ID | Date | Lab Report Number | Sample Code | | | | | | | | | | | |
| BH1_0.1 | 06 Feb 2023 | 963822 | M23-Fe0033428 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH1_0.5 | 06 Feb 2023 | 963822 | M23-Fe0033429 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.0 | 06 Feb 2023 | 963822 | M23-Fe0033430 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.5 | 06 Feb 2023 | 963822 | M23-Fe0033431 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_1.6 | 06 Feb 2023 | 963822 | M23-Fe0033432 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_2.9 | 06 Feb 2023 | 963822 | M23-Fe0033433 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH1_3.5 | 06 Feb 2023 | 963822 | M23-Fe0033434 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.1 | 08 Feb 2023 | 963822 | M23-Fe0033435 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_0.5 | 08 Feb 2023 | 963822 | M23-Fe0033436 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH2_0.9 | 08 Feb 2023 | 963822 | M23-Fe0033437 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.2 | 08 Feb 2023 | 963822 | M23-Fe0033438 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH2_1.8 | 08 Feb 2023 | 963822 | M23-Fe0033439 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.1 | 09 Feb 2023 | 963822 | M23-Fe0033440 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_0.5 | 09 Feb 2023 | 963822 | M23-Fe0033441 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_0.8 | 09 Feb 2023 | 963822 | M23-Fe0033442 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.4 | 09 Feb 2023 | 963822 | M23-Fe0033443 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BH3_1.8 | 09 Feb 2023 | 963822 | M23-Fe0033444 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| BH3_2.4 | 09 Feb 2023 | 963822 | M23-Fe0033445 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SB1-0.2m | 19 Sep 2007 | | SB1-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB2-0.2m | 19 Sep 2007 | | SB2-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB3-0.2m | 19 Sep 2007 | | SB3-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB4-0.2m | 19 Sep 2007 | | SB4-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB5-0.2m | 19 Sep 2007 | | SB5-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB6-0.2m | 19 Sep 2007 | | SB6-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB7-0.2m | 19 Sep 2007 | | SB7-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |
| SB8-0.2m | 19 Sep 2007 | | SB8-0.2m_190907 | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | <0.05 | <0.05 | - | - | - | - | - | - | - |

Environmental Standards
EPA Victoria, July 2021, EPA Vic 1828.2 Category B upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category C upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Category D / Industrial Waste upper limit
EPA Victoria, July 2021, EPA Vic 1828.2 Fill material upper limit

| | | | | Drinking Water | Irrigation (Long Term) | Irrigation (Short Term) | Stock Watering | Water Dependent Ecosystems and Species | Recreational Water | Field ID | B901551I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Date | 08 Feb 2023 |
| Chem Group | Analyte | | EQL | | | | | | | Sample Code | M23-Fe0018104 |
| Physical Parameters | Electrical Conductivity @ 25C (lab) | µS/cm | **10** | - | - | - | - | - | - | | **330** |
| | pH (lab) | pH_unit | **0.1** | - | 6-8.5 | - | - | - | - | | **7.9** |
| Metals | Arsenic (filtered) | mg/L | **0.001** | 0.01 | 0.1 | 2 | 0.5 | - | 0.07 | | <0.001 |
| | Cadmium (filtered) | mg/L | **0.0002** | 0.002 | 0.01 | 0.05 | 0.01 | 0.0004 | 0.02 | | <0.0002 |
| | Chromium (hexavalent) | mg/L | **0.005** | 0.05 | - | - | - | 0.0018 | - | | <0.005 |
| | Chromium (III+VI) (filtered) | mg/L | **0.001** | - | 0.1 | 1 | 1 | - | 0.5 | | <0.001 |
| | Copper (filtered) | mg/L | **0.001** | 2 | 0.2 | 5 | 0.4 | 0.0018 | 20 | | **0.005** |
| | Lead (filtered) | mg/L | **0.001** | 0.01 | 2 | 5 | 0.1 | 0.0056 | 0.1 | | <0.001 |
| | Mercury (filtered) | mg/L | **0.0001** | 0.001 | 0.002 | 0.002 | 0.002 | 0.0019 | 0.01 | | <0.0001 |
| | Molybdenum (filtered) | mg/L | **0.005** | 0.05 | 0.01 | 0.05 | 0.15 | - | 0.5 | | <0.005 |
| | Nickel (filtered) | mg/L | **0.001** | 0.02 | 0.2 | 2 | 1 | 0.013 | 0.2 | | **0.009** |
| | Silver (filtered) | mg/L | **0.005** | 0.1 | - | - | - | 0.0001 | - | | <0.005 |
| | Selenium (filtered) | mg/L | **0.001** | 0.01 | 0.02 | 0.05 | 0.02 | 0.018 | 0.1 | | <0.001 |
| | Tin (filtered) | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Zinc (filtered) | mg/L | **0.005** | - | 2 | 5 | 20 | 0.015 | - | | **0.19** |
| BTEX | Benzene | mg/L | **0.001** | 0.001 | - | - | - | 1.3 | 0.01 | | <0.001 |
| | Toluene | mg/L | **0.001** | 0.8 | - | - | - | - | 8 | | <0.001 |
| | Ethylbenzene | mg/L | **0.001** | 0.3 | - | - | - | - | 3 | | <0.001 |
| | Xylene Total | mg/L | **0.003** | 0.6 | - | - | - | - | 6 | | <0.003 |
| | Naphthalene (VOC) | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Xylene (o) | mg/L | **0.001** | - | - | - | - | 0.47 | - | | <0.001 |
| | Xylene (m & p) | mg/L | **0.002** | - | - | - | - | - | - | | <0.002 |
| Total Petroleum Hydrocarbons | C6 - C9 | mg/L | **0.02** | - | - | - | - | - | - | | <0.02 |
| | C10 - C14 | mg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | C15 - C28 | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| | C29 - C36 | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| | C10 - C36 (Sum of total) | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| Total Recoverable Hydrocarbons | F1 (C6 - C10) | mg/L | **0.02** | - | - | - | - | - | - | | <0.02 |
| | F1 (C6 - C10) less BTEX | mg/L | **0.02** | - | - | - | - | - | - | | <0.02 |
| | F2 (C10 - C16) | mg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | F2 C10 - C16 (minus Naphthalene) | mg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | F3 (C16 - C34) | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| | F4 (C34 - C40) | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| | C10 - C40 (Sum of total) | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| Monocylic aromatic hydrocarbons | 1,2,4-trimethylbenzene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,3,5-trimethylbenzene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Isopropylbenzene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Styrene | mg/L | **0.001** | 0.03 | - | - | - | - | - | | <0.001 |
| | Total MAH | mg/L | **0.003** | - | - | - | - | - | - | | <0.003 |
| Polycyclic Aromatic Hydrocarbons | Benzo(b+j)fluoranthene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Acenaphthene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Acenaphthylene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Anthracene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Benz(a)anthracene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Benzo(a) pyrene | mg/L | **0.001** | 0.00001 | - | - | - | - | - | | <0.001 |
| | Benzo(g,h,i)perylene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Benzo(k)fluoranthene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Chrysene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Dibenz(a,h)anthracene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Fluoranthene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Fluorene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Indeno(1,2,3-c,d)pyrene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Naphthalene | mg/L | **0.001** | - | - | - | - | 0.037 | - | | <0.001 |
| | Phenanthrene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Pyrene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | PAHs (Sum of total) | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| Chlorinated Hydrocarbons | Chlorinated hydrocarbons EPAVic | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Other chlorinated hydrocarbons EPAVic | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | 1,1,1,2-tetrachloroethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,1,1-trichloroethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,1,2,2-tetrachloroethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,1,2-trichloroethane | mg/L | **0.001** | - | - | - | - | 7.3 | - | | <0.001 |
| | 1,1-dichloroethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,1-dichloroethene | mg/L | **0.001** | 0.03 | - | - | - | - | 0.3 | | <0.001 |
| | 1,2,3-trichloropropane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,2-dichloroethane | mg/L | **0.001** | 0.003 | - | - | - | - | 0.003 | | <0.001 |
| | 1,2-dichloropropane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | 1,3-dichloropropane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Bromochloromethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Bromodichloromethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Bromoform | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Carbon tetrachloride | mg/L | **0.001** | 0.003 | - | - | - | - | 0.03 | | <0.001 |
| | Chlorodibromomethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Chloroethane | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Chloroform | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Chloromethane | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | cis-1,2-dichloroethene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | cis-1,3-dichloropropene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Dibromomethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Dichloromethane | mg/L | **0.005** | 0.004 | - | - | - | - | - | | <0.005 |
| | Hexachlorobutadiene | mg/L | **0.001** | 0.0007 | - | - | - | - | 0.007 | | <0.001 |
| | Trichloroethene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Tetrachloroethene | mg/L | **0.001** | 0.05 | - | - | - | - | 0.5 | | <0.001 |
| | trans-1,2-dichloroethene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | trans-1,3-dichloropropene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Vinyl chloride | mg/L | **0.005** | 0.0003 | - | - | - | - | 0.003 | | <0.005 |
| Halogenated Hydrocarbons | 1,2-dibromoethane | mg/L | **0.001** | 0.001 | - | - | - | - | 0.01 | | <0.001 |
| | Bromomethane | mg/L | **0.005** | 0.001 | - | - | - | - | - | | <0.005 |
| | Dichlorodifluoromethane | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Iodomethane | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Trichlorofluoromethane | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| NA | Sum of enHealth PFAS (PFHxS + PFOS + PFOA)* | mg/L | **0.00001** | - | - | - | - | - | - | | **0.00003** |
| | Sum of US EPA PFAS (PFOS + PFOA)* | mg/L | **0.00001** | - | - | - | - | - | - | | **0.00003** |
| Per and polyfluoroalkyl substances | Sum of PFAS (WA DER List) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | Perfluorobutane sulfonic acid (PFBS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluoropentane sulfonic acid (PFPeS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorohexane sulfonic acid (PFHxS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluoroheptane sulfonic acid (PFHpS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorooctanesulfonic acid (PFOS) | µg/L | **0.01** | - | - | - | - | 0.13 | - | | **0.03** |
| | Perfluorodecane sulfonic acid (PFDS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorobutanoic acid (PFBA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | Perfluoropentanoic acid (PFPeA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorohexanoic acid (PFHxA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluoropropanesulfonic acid (PFPrS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorononanesulfonic acid (PFNS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluoroheptanoic acid (PFHpA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorooctanoic acid (PFOA) | µg/L | **0.01** | 0.56 | - | - | 0.56 | 220 | 10 | | <0.01 |
| | Perfluorononanoic acid (PFNA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | Perfluorodecanoic acid (PFDA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluoroundecanoic acid (PFUnDA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorododecanoic acid (PFDoDA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorotridecanoic acid (PFTrDA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Perfluorotetradecanoic acid (PFTeDA) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |

| | | | | Drinking Water | Irrigation (Long Term) | Irrigation (Short Term) | Stock Watering | Water Dependent Ecosystems and Species | Recreational Water | Field ID | B901551I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Date | 08 Feb 2023 |
| Chem Group | Analyte | | EQL | | | | | | | Sample Code | M23-Fe0018104 |
| | Perfluorooctane sulfonamide (PFOSA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | N-Ethyl perfluorooctane sulfonamide (NEtFOSA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | N-ethyl-perfluorooctanesulfonamidoacetic acid (NEtFOSAA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | N-Methyl perfluorooctane sulfonamide (NMeFOSA) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | 4:2 Fluorotelomer sulfonic acid (4:2 FTS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | 6:2 Fluorotelomer sulfonic acid (6:2 FTS) | µg/L | **0.05** | - | - | - | - | - | - | | <0.05 |
| | 8:2 Fluorotelomer sulfonic acid (8:2 FTS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | µg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Sum (PFHxS + PFOS) | µg/L | **0.01** | 0.07 | - | - | 0.07 | - | 2 | | **0.03** |
| | Sum of PFASs (n=28) | µg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| Halogenated Benzenes | 1,2,4-trichlorobenzene | mg/L | **0.001** | - | - | - | - | 0.22 | - | | <0.001 |
| | 1,2-dichlorobenzene | mg/L | **0.001** | 1.5 | - | - | - | 0.2 | 15 | | <0.001 |
| | 1,3-dichlorobenzene | mg/L | **0.001** | - | - | - | - | 0.35 | - | | <0.001 |
| | 1,4-dichlorobenzene | mg/L | **0.001** | 0.04 | - | - | - | 0.075 | 0.4 | | <0.001 |
| | 4-chlorotoluene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Bromobenzene | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Chlorobenzene | mg/L | **0.001** | 0.3 | - | - | - | - | 3 | | <0.001 |
| | Hexachlorobenzene | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| PCBs | Arochlor 1016 | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Arochlor 1221 | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Arochlor 1232 | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Arochlor 1242 | mg/L | **0.005** | - | - | - | - | 0.001 | - | | <0.005 |
| | Arochlor 1248 | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Arochlor 1254 | mg/L | **0.005** | - | - | - | - | 0.00007 | - | | <0.005 |
| | Arochlor 1260 | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | PCBs (Sum of total) | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| Phenols | 3/4-Methylphenol (m/p-cresol) | mg/L | **0.006** | - | - | - | - | - | - | | <0.006 |
| | 2,4-Dinitrophenol | mg/L | **0.03** | - | - | - | - | 0.08 | - | | <0.03 |
| | 2,4,5-Trichlorophenol | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | 2,4,6-Trichlorophenol | mg/L | **0.01** | 0.02 | - | - | - | 0.04 | - | | <0.01 |
| | 2,4-Dichlorophenol | mg/L | **0.003** | 0.2 | - | - | - | 0.2 | - | | <0.003 |
| | 2,4-Dimethylphenol | mg/L | **0.003** | - | - | - | - | - | - | | <0.003 |
| | 2,6-Dichlorophenol | mg/L | **0.003** | - | - | - | - | - | - | | <0.003 |
| | 2-Chlorophenol | mg/L | **0.003** | 0.3 | - | - | - | 0.63 | - | | <0.003 |
| | 2-Methylphenol | mg/L | **0.003** | - | - | - | - | - | - | | <0.003 |
| | 2-Nitrophenol | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | 4,6-Dinitro-2-methylphenol | mg/L | **0.03** | - | - | - | - | - | - | | <0.03 |
| | 4,6-Dinitro-o-cyclohexyl phenol | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| | 4-Nitrophenol | mg/L | **0.03** | - | - | - | - | - | - | | <0.03 |
| | 4-chloro-3-methylphenol | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Cresol Total | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Pentachlorophenol | mg/L | **0.01** | 0.01 | - | - | - | 0.017 | - | | <0.01 |
| | Phenol | mg/L | **0.003** | - | - | - | - | 0.6 | - | | <0.003 |
| | Tetrachlorophenols | mg/L | **0.03** | - | - | - | - | - | - | | <0.03 |
| | Phenols (Total Halogenated) | mg/L | **0.01** | - | - | - | - | - | - | | <0.01 |
| | Phenols (Total Non Halogenated) | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| OCP | Organochlorine pesticides EPAVic | mg/L | **0.002** | - | - | - | - | - | - | | <0.002 |
| | Other organochlorine pesticides EPAVic | mg/L | **0.002** | - | - | - | - | - | - | | <0.002 |
| Herbicides | Dinoseb | mg/L | **0.1** | - | - | - | - | - | - | | <0.1 |
| Organochlorine Pesticides | 4,4-DDE | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | a-BHC | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Aldrin | mg/L | **0.0002** | - | - | - | - | - | 0.003 | | <0.0002 |
| | Aldrin + Dieldrin | mg/L | **0.0002** | 0.0003 | - | - | - | - | - | | <0.0002 |
| | b-BHC | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | chlordane | mg/L | **0.002** | 0.002 | - | - | - | 0.00014 | 0.01 | | <0.002 |
| | d-BHC | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | DDD | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | DDT | mg/L | **0.0002** | 0.009 | - | - | - | 0.00002 | 0.2 | | <0.0002 |
| | DDT+DDE+DDD | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Dieldrin | mg/L | **0.0002** | - | - | - | - | - | 0.003 | | <0.0002 |
| | Endrin aldehyde | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Endrin ketone | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Endosulfan I | mg/L | **0.0002** | - | - | - | - | - | 0.3 | | <0.0002 |
| | Endosulfan II | mg/L | **0.0002** | - | - | - | - | - | 0.3 | | <0.0002 |
| | Endosulfan sulphate | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Endrin | mg/L | **0.0002** | - | - | - | - | 0.00004 | - | | <0.0002 |
| | g-BHC (Lindane) | mg/L | **0.0002** | 0.01 | - | - | - | 0.0004 | 0.2 | | <0.0002 |
| | Heptachlor | mg/L | **0.0002** | 0.0003 | - | - | - | 0.00025 | 0.003 | | <0.0002 |
| | Heptachlor epoxide | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Methoxychlor | mg/L | **0.0002** | - | - | - | - | - | - | | <0.0002 |
| | Toxaphene | mg/L | **0.005** | - | - | - | - | 0.0003 | - | | <0.005 |
| Solvents | Methyl Ethyl Ketone | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | 4-Methyl-2-pentanone | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Acetone | mg/L | **0.005** | - | - | - | - | - | - | | <0.005 |
| | Allyl chloride | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |
| | Carbon disulfide | mg/L | **0.001** | - | - | - | - | - | - | | <0.001 |

**Environmental Standards**
NHMRC, May 2022, ADWG 2022 Health
DoE, 2000, ANZECC 2000 Irrigation Long Term Trigger Values
DoE, 2000, ANZECC 2000 Irrigation Short Term Trigger Values
DoE, 2000, ANZECC 2000 Livestock DW Low Risk Trigger Values
ANZG, 2018, ANZG (2018) Freshwater 90% toxicant DGVs
PFAS NEMP 2.0 (2020)

# APPENDIX C PLANNING PROPERTY REPORTS

# PLANNING PROPERTY REPORT

From www.planning.vic.gov.au at 05 April 2023 09:58 AM

## PROPERTY DETAILS

| | |
|---|---|
| Address: | **12 FORSTER STREET IVANHOE 3079** |
| Lot and Plan Number: | **Lot 2 PS822300** |
| Standard Parcel Identifier (SPI): | **2\PS822300** |
| Local Government Area (Council): | **BANYULE** www.banyule.vic.gov.au |
| Council Property Number: | **472936** |
| Planning Scheme: | **Banyule** Planning Scheme - Banyule |
| Directory Reference: | **Melway 31 H4** |

## UTILITIES

| | |
|---|---|
| Rural Water Corporation: | **Southern Rural Water** |
| Melbourne Water Retailer: | **Yarra Valley Water** |
| Melbourne Water: | **Inside drainage boundary** |
| Power Distributor: | **JEMENA** |

## STATE ELECTORATES

| | |
|---|---|
| Legislative Council: | **NORTH-EASTERN METROPOLITAN** |
| Legislative Assembly: | **IVANHOE** |

## OTHER

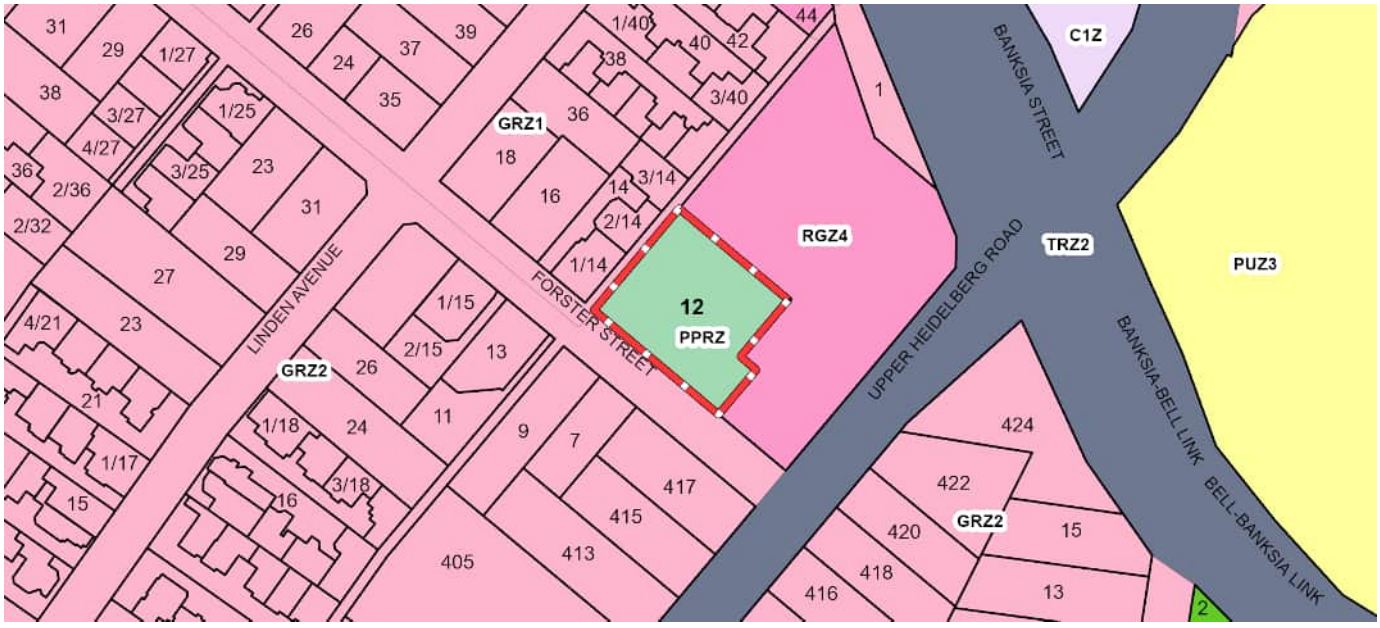
| | |
|---|---|
| Registered Aboriginal Party: | **Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation** |

View location in VicPlan

## Planning Zones

PUBLIC PARK AND RECREATION ZONE (PPRZ)

SCHEDULE TO THE PUBLIC PARK AND RECREATION ZONE (PPRZ)




**C1Z - Commercial 1**
**GRZ - General Residential**
**PCRZ - Public Conservation and Resource**
**PPRZ - Public Park and Recreation**
**PUZ3 - Public Use-Health & Community**
**RGZ - Residential Growth**
**TRZ2 - Principal Road Network**

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

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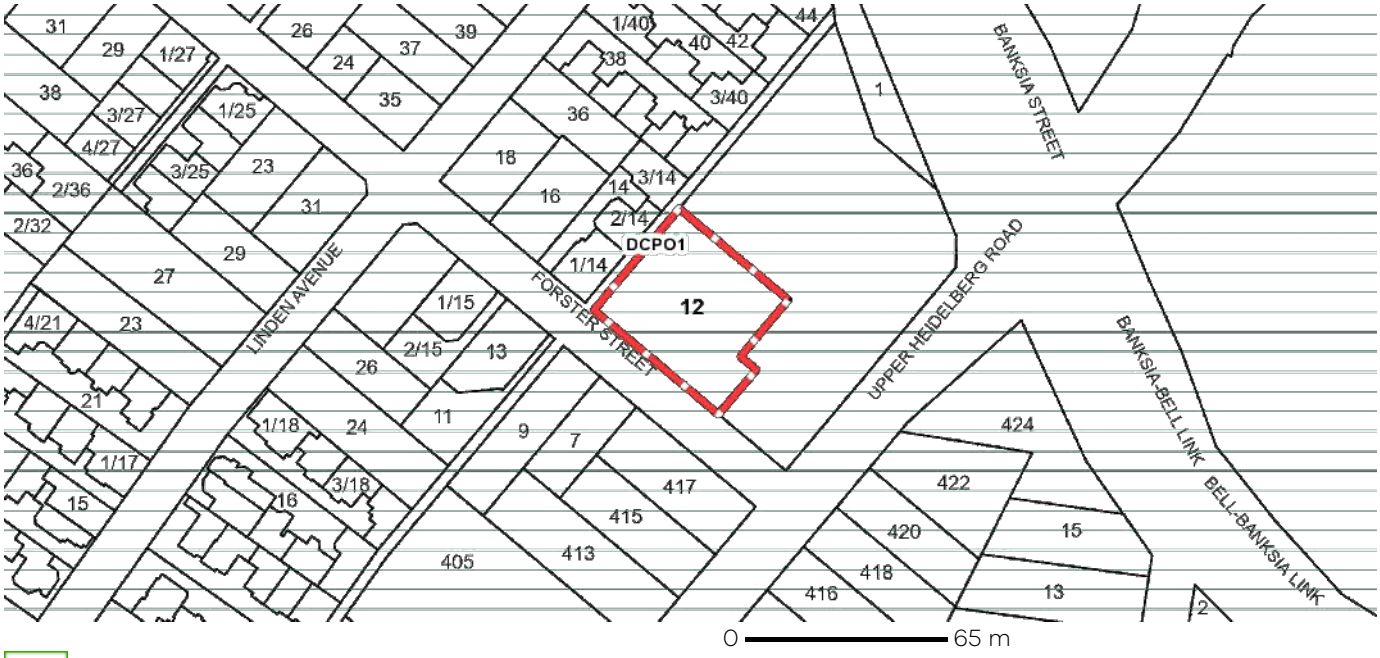
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# PLANNING PROPERTY REPORT

## Planning Overlays

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY (DCPO)

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY - SCHEDULE 1 (DCPO1)




**DCPO - Development Contributions Plan Overlay**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

PARKING OVERLAY (PO)

PARKING OVERLAY - PRECINCT 2 SCHEDULE (PO2)




**PO - Parking Overlay**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

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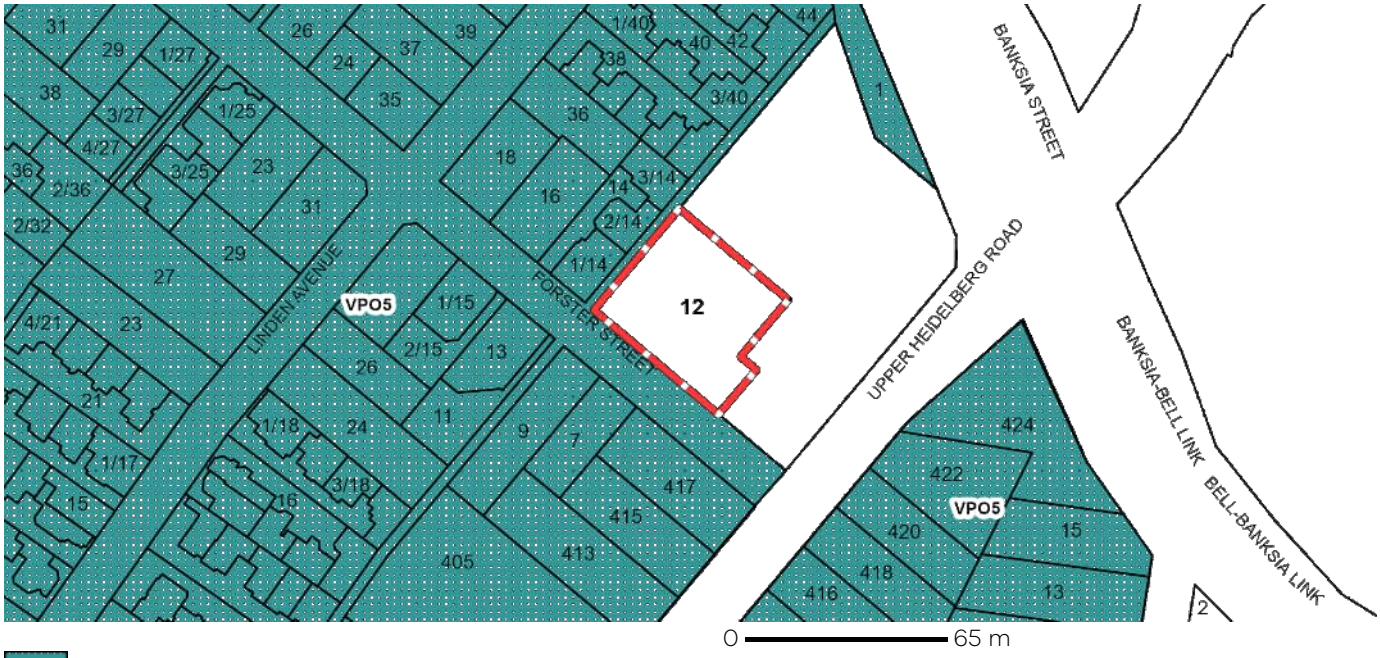
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# PLANNING PROPERTY REPORT

## Planning Overlays

VEGETATION PROTECTION OVERLAY (VPO)

VEGETATION PROTECTION OVERLAY - SCHEDULE 5 (VPO5)




**VPO - Vegetation Protection Overlay**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DEVELOPMENT PLAN OVERLAY (DPO)

ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)

HERITAGE OVERLAY (HO)




**DDO - Design and Development Overlay** **DPO - Development Plan Overlay** **ESO - Environmental Significance Overlay**

**HO - Heritage Overlay**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

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# PLANNING PROPERTY REPORT

## Further Planning Information

Planning scheme data last updated on 29 March 2023.

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 and local policy, particular, general and operational 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 https://www.planning.vic.gov.au

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# PLANNING PROPERTY REPORT

## Designated Bushfire Prone Areas

**This property is not in a designated bushfire prone area.**
**No special bushfire construction requirements apply. Planning provisions may apply.**

Where part of the property is mapped as BPA, if no part of the building envelope or footprint falls within the BPA area, the BPA construction requirements do not apply.

Note: the relevant building surveyor determines the need for compliance with the bushfire construction requirements.




**Designated Bushfire Prone Areas**

Designated BPA are determined by the Minister for Planning following a detailed review process. The Building Regulations 2018, through adoption of the Building Code of Australia, apply bushfire protection standards for building works in designated BPA.

Designated BPA maps can be viewed on VicPlan at https://mapshare.vic.gov.au/vicplan/ or at the relevant local council.

Create a BPA definition plan in VicPlan to measure the BPA.

Information for lot owners building in the BPA is available at https://www.planning.vic.gov.au.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au. Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au. For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au.

## Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule

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# PLANNING PROPERTY REPORT

From www.planning.vic.gov.au at 05 April 2023 09:53 AM

## PROPERTY DETAILS

| | |
|---|---|
| Address: | **421 UPPER HEIDELBERG ROAD IVANHOE 3079** |
| Lot and Plan Number: | **Lot 1 PS822300** |
| Standard Parcel Identifier (SPI): | **1\PS822300** |
| Local Government Area (Council): | **BANYULE** www.banyule.vic.gov.au |
| Council Property Number: | **569327** |
| Planning Scheme: | **Banyule** Planning Scheme - Banyule |
| Directory Reference: | **Melway 31 H4** |

## UTILITIES

| | |
|---|---|
| Rural Water Corporation: | **Southern Rural Water** |
| Melbourne Water Retailer: | **Yarra Valley Water** |
| Melbourne Water: | **Inside drainage boundary** |
| Power Distributor: | **JEMENA** |

## STATE ELECTORATES

| | |
|---|---|
| Legislative Council: | **NORTH-EASTERN METROPOLITAN** |
| Legislative Assembly: | **IVANHOE** |

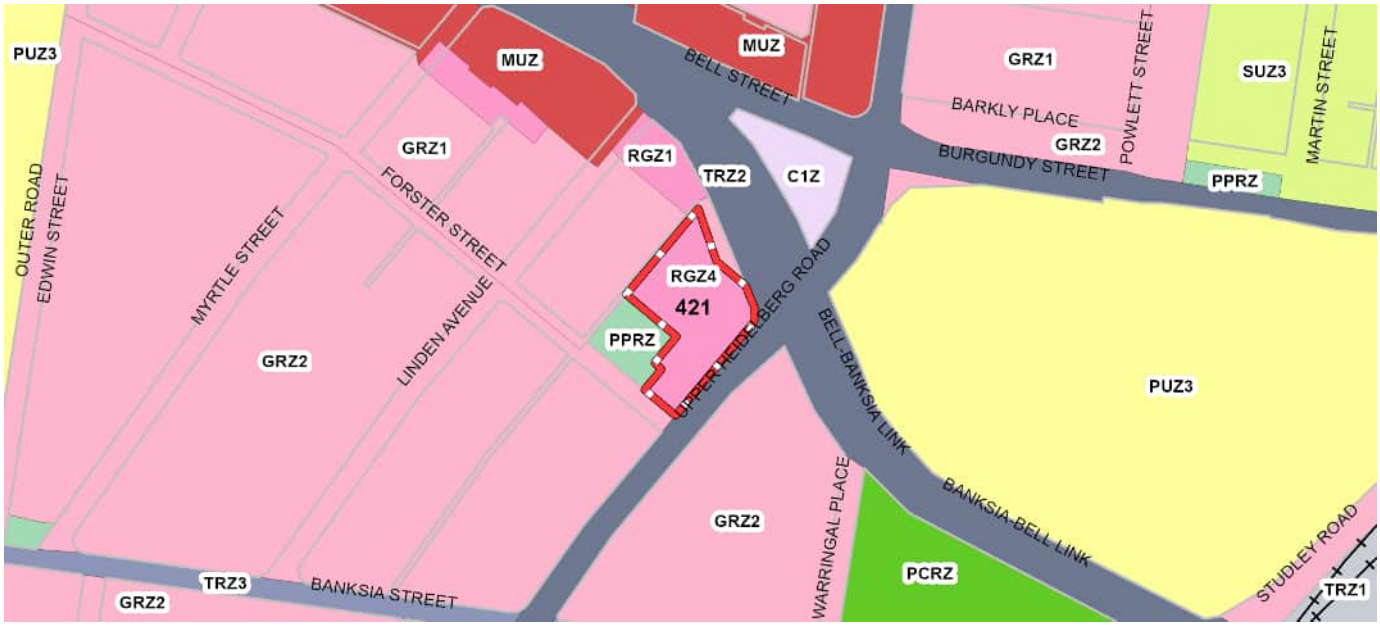
## OTHER

Registered Aboriginal Party: **Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation**

View location in VicPlan

## Planning Zones

RESIDENTIAL GROWTH ZONE (RGZ)
RESIDENTIAL GROWTH ZONE - SCHEDULE 4 (RGZ4)




| | | |
|---|---|---|
| C1Z - Commercial 1 | GRZ - General Residential | MUZ - Mixed Use |
| PCRZ - Public Conservation and Resource | PPRZ - Public Park and Recreation | PUZ3 - Public Use-Health & Community |
| RGZ - Residential Growth | SUZ - Special Use | TRZ1 - State Transport Infrastructure |
| TRZ2 - Principal Road Network | TRZ3 - Significant Municipal Road | Railway line |

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

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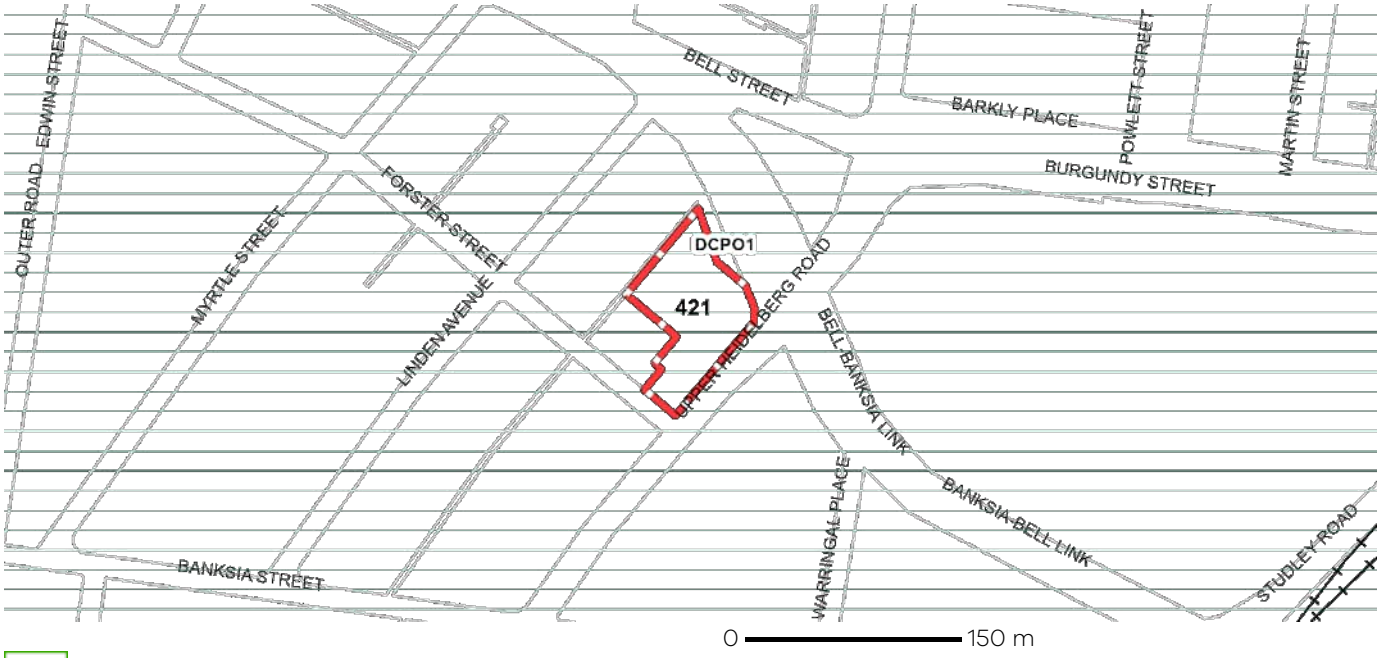
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# PLANNING PROPERTY REPORT

## Planning Overlays

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY (DCPO)

DEVELOPMENT CONTRIBUTIONS PLAN OVERLAY - SCHEDULE 1 (DCPO1)




**DCPO - Development Contributions Plan Overlay**

**Railway line**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

DEVELOPMENT PLAN OVERLAY (DPO)

DEVELOPMENT PLAN OVERLAY - SCHEDULE 7 (DPO7)




**DPO - Development Plan Overlay**

**Railway line**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

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# PLANNING PROPERTY REPORT

## Planning Overlays

PARKING OVERLAY (PO)

PARKING OVERLAY - PRECINCT 2 SCHEDULE (PO2)

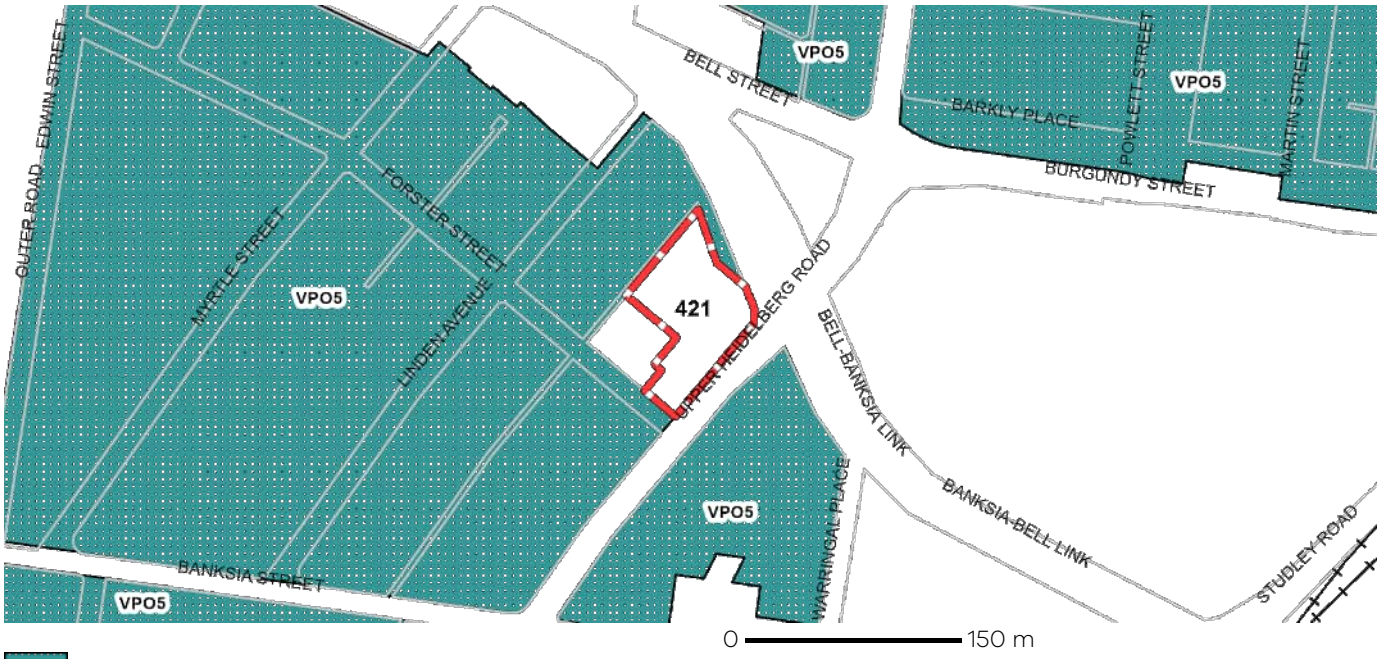



**PO - Parking Overlay** **Railway line**

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VEGETATION PROTECTION OVERLAY (VPO)

VEGETATION PROTECTION OVERLAY - SCHEDULE 5 (VPO5)




**VPO - Vegetation Protection Overlay** **Railway line**

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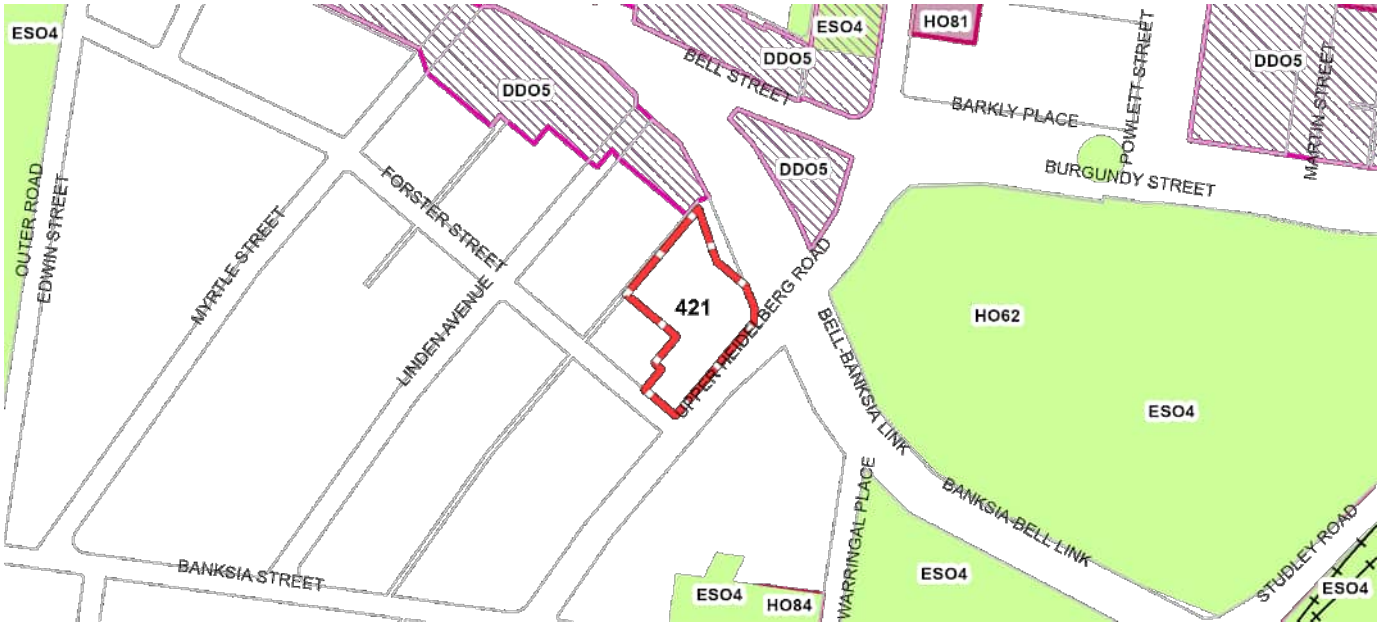
# PLANNING PROPERTY REPORT

## Planning Overlays

OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

DESIGN AND DEVELOPMENT OVERLAY (DDO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
HERITAGE OVERLAY (HO)




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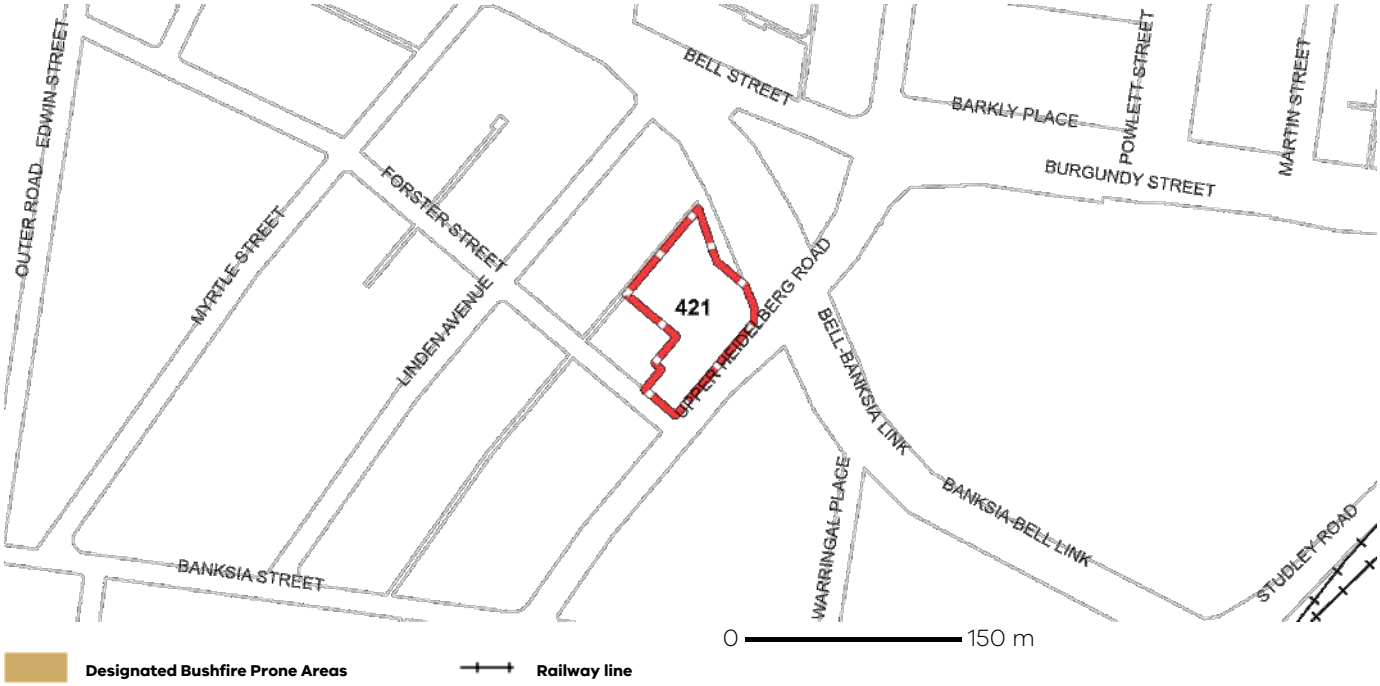
# PLANNING PROPERTY REPORT

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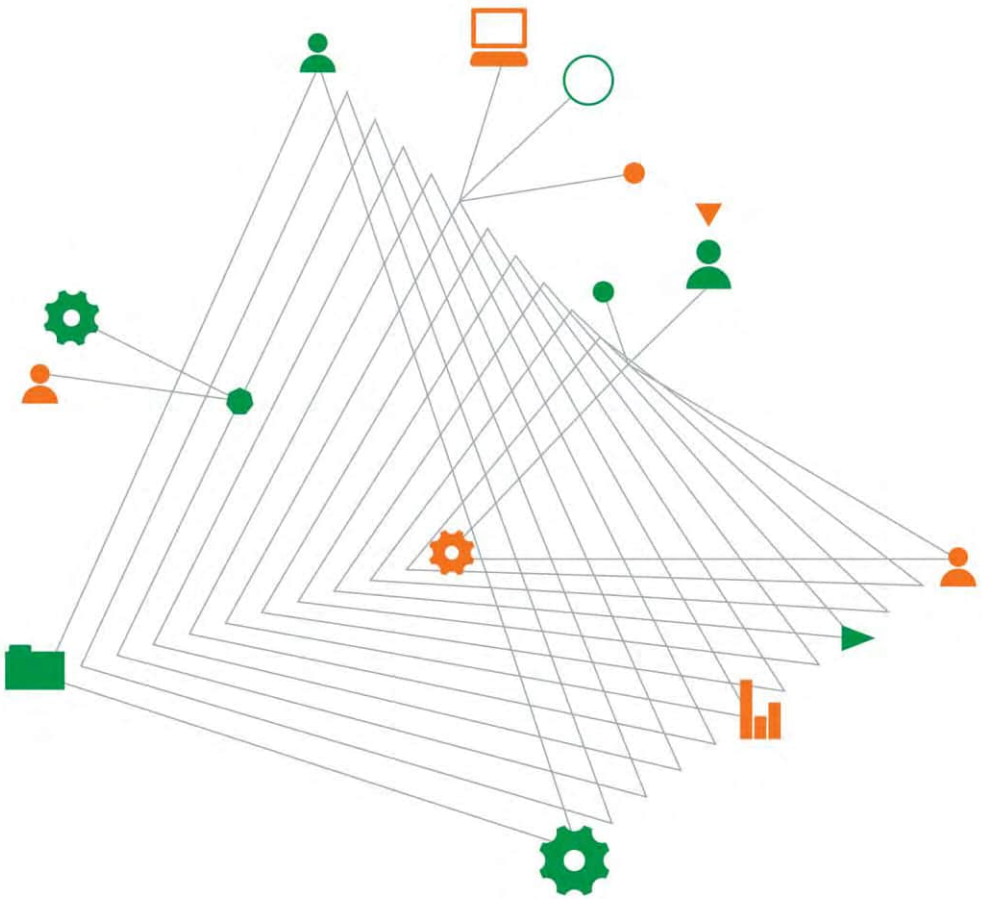
# APPENDIX D PREVIOUS ASSESSMENT REPORTS

**Places Victoria**

# 421 Upper Heidelberg Road Ivanhoe

Environmental Site Assessment Review

2 December 2015



Experience
comes to life
when it is
powered by
expertise

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# 421 Upper Heidelberg Road Ivanhoe

Prepared for
Places Victoria

Prepared by
Coffey Environments Australia Pty Ltd
Level 1, 436 Johnston Street
Abbotsford VIC 3067 Australia
t: +61 3 9290 7091 f: +61 3 9290 7499
ABN: 65 140 765 902

| | |
|---|---|
| **Project Director** | Phil Sinclair<br>Principal Environmental Scientist |
| **Project Manager** | Lenka Thompson<br>Environmental Scientist |

2 December 2015

ENAUABTF20345AA-R01

# Quality information

## Revision history

| Revision | Description | Date | Author | Reviewer |
|---|---|---|---|---|
| V1 | Draft report | 25 November 2015 | Lenka Thompson | Phil Sinclair |
| V2 | Final reports | 2 December 2015 | Lenka Thompson | Phil Sinclair |

## Distribution

| Report Status | No. of copies | Format | Distributed to | Date |
|---|---|---|---|---|
| V1 | 1 | PDF | Places Victoria | 25/11/2015 |
| V2 | 1 | PDF | Places Victoria | 2/12/2015 |

# Executive summary

Places Victoria contracted Coffey Environments Australia Pty Ltd (Coffey) to conduct a review of an Environmental Site Assessment (ESA) of the Heidelberg Yarra Valley Water (YVW) Reservoir site located at 421 Upper Heidelberg Road, Ivanhoe, Victoria (the site). The previous report was conducted by Coffey Environments Pty Ltd in 2007 and comprised a desk-top study with limited soil sampling.

The objective of this assessment was to review the 2007 report and reassess the site for potential contamination and its suitability for future sensitive uses, including residential. This current project comprised of a review and update of the previous Coffey ESA report from 2007, a site inspection and the development of this preliminary ESA report. A list of the changes made to the report is presented in Table 1.

Based on the review of the results from the 2007 Preliminary ESA, the following conclusions and recommendations are made.

- The soil conditions were consistent with those that would be considered suitable for residential land use. However, should soil later be removed from the site, further sampling will be required to appropriately classify the material in accordance with the Industrial Waste Resource Guidelines, Soil Hazard Categorisation and Management (IWRG621) prior to disposal.

- It is recommended that documentation be located and provided to Places Victoria that confirms removal of fragmented asbestos cement sheeting which was located on the northern part of the site during the 2007 assessment.

- The 2007 site assessment was based on a limited number of soil assessment locations. Due to the potentially variable nature of fill material, should materials be encountered during excavations that are not similar to those observed during that assessment, further investigation and analysis may be required.

- The 2007 assessment did not assess soil located beneath the existing reservoir tank. Should the base of the tank be removed, further soil assessment is recommended to confirm the contamination status of underlying materials.

- The 2007 assessment did not considered impact to groundwater; however the 2007 soil contamination data indicates it presents a low contamination risk to groundwater.

- Based on the guidance provided in the Planning Practice Note for Potentially Contaminated Land, the past uses of the site would classify it as having a low contamination risk and as such, in our opinion, an environmental audit should not be required for the site to be used for residential use; assuming the land zoning is altered to allow that use.

# Table of contents


1. Introduction ..... 1
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# 1. Introduction

Places Victoria contracted Coffey Environments Australia Pty Ltd (Coffey) to conduct a review of an Environmental Site Assessment (ESA) of the Heidelberg Yarra Valley Water (YVW) Reservoir site located at 421 Upper Heidelberg Road, Ivanhoe, Victoria (the site).

The previous report was conducted by Coffey Environments Pty Ltd in 2007 and comprised a desk-top study with limited soil sampling. The 2007 report was prepared for YVW c/o Foresite Pty Ltd. Foresite was a project management company acting on behalf of YVW. The objective of the 2007 report was to assess the site for potential contamination and its suitability for future sensitive uses, including residential.

## 1.1. Objective

The objective of this assessment was to review the 2007 report and reassess the site for potential contamination and its suitability for future sensitive uses, including residential.

## 1.2. Scope of Works

To achieve the objective of this review the following scope of works was undertaken.

**Previous Report Review and Update**

A review the previous Coffey environmental site assessment report from 2007 was conducted and we identified gaps in the information and also areas of the report which needed updating to adhere to current environmental legislation.

**Preliminary Environmental Assessment**

In addition to the review and update of the 2007 report, the preliminary environmental assessment also included:

- Review of historical aerial photographs;
- Review of Titles;
- Review of relevant site zonings, including Environmental Audit conditions;
- Search and review licences and notices (i.e. water discharge licences, hazardous materials, trade waste etc.);
- Review of EPA Priority Sites Register to assess whether Clean Up or Pollution Abatement Notices have been issued for the site or immediately surrounding properties;
- Enquiry to the local water authority regarding site drainage plans and any trade waste records;
- Sewer and service plans (where available);
- Review of Cathodic Protection Systems Database (Energy Safe Victoria); and
- Review of geological, hydrogeological and topographical maps.

- The site inspection included:
  - A detailed inspection of the current site condition and check for any visual evidence of potential contamination;
  - A confirmation of the presence of an on-site groundwater monitoring well; and
  - An inspection of some of the adjacent properties.

**Reporting**

This preliminary environmental site assessment report has been developed and updated from the 2007 ESA report to satisfy the objective of the project and submitted to Places Victoria. This has been completed with the written permission of YVW. A list of the changes made to the report is presented in Table 1.

# 2. Site Information

## 2.1. Site Identification

The site was located at 421 Upper Heidelberg Road, Ivanhoe, Victoria. The site had a total area of approximately 6,999 $m^2$ and was zoned Public Use Zone – Service and Utility (PUZ1) under the Banyule City Council planning scheme. A copy of the Banyule City Council property report is presented in Appendix A. There are three property reports allocated to this parcel of land:

1. 321 Upper Heidelberg Road, Ivanhoe (Council Property Number, 569327)
2. 421A Upper Heidelberg Road, Ivanhoe (Council Property Number, 573261)
3. 421C Upper Heidelberg Road, Ivanhoe (Council Property Number, 600437)

The site comprised largely of a decommissioned covered above-ground 30ML reservoir tank with associated pipework and infrastructure to the south of the site. Information from YVW indicated that the reservoir and associated pipework infrastructure was disconnected from mains water supply. A telecommunications distribution facility existed to the north of the site.

## 2.2. Site Location

The location of the site is shown in Figure 1, and a detailed site features plan is presented in Figure 2.

Details relating to the general land use and primary features surrounding the site are summarised below.

- Adjacent and surrounding land use are considered as residential, recreational and commercial.
- The site is situated on the top of a hill (elevation approximately 98 m above sea level), with a slope to the south west of approximately 1:50.
- The closest surface water bodies include Salt Creek, located 1.3 km east of the site, which flows into the Yarra River, located 1.5 km east of the site; and Darebin Creek, located 1.9 km west of the site.
- The Austin Hospital is located across Upper Heidelberg Road to the east of the site.

## 2.3. Site Condition and Surrounding Environment

Photographs from 2007 and 2015 of the site are presented in Appendix B. Site features, including the subject site boundary, are shown on Figure 2 and summarised as follows:

- The site consisted of a large 30 ML decommissioned, intact, covered, above-ground reservoir tank.
- Underground pipework, and infrastructure including a settling tower associated with the reservoir, were located on the southern part of the site. Information from YVW indicated that the reservoir and infrastructure had been disconnected from mains water supply. Mains water supply entered the site to the south and was diverted in 2004 through a series of velocity-reducing valves in the far southern portion of the site, south of the settling tower (see Photo 2a and 2c, Appendix B).
- The reservoir tank was based between approximately 1.5 – 3 metres below natural ground surface. A basalt stone retaining wall surrounded the entire reservoir tank, except for the south western tank wall, which faced an open gravelled area leading up to the south western entrance to the site.
- To the north east of the reservoir tank, a groundwater monitoring well was present between the base of the reservoir tank and the retaining wall.
- No asbestos was identified during the 2015 site inspection and the YVW representative indicated it would have been removed subsequent to the 2007 report. No documentation was provided about the removal of the asbestos.

**Adjacent Land Use**

Adjacent and surrounding land use was residential, commercial and recreational with the following occupants:

- To the north, a telecommunications distribution facility adjoined the site, consisting of three small buildings and a telecommunications tower. A car park was located across Bell Street to the north, with residential and commercial properties beyond.
- To the east, across Upper Heidelberg Road: Austin Hospital (to the east) and residential properties.
- To the south: A playground, including a sealed basketball court, bordered the site to the south east, and residential properties existed across Forster Street.
- To the west, over an access alleyway: Residential properties.

## 2.4. Site History

Information from historical aerial photographs, historical titles and YVW records were reviewed as part of assessment in 2007 and a review of that information formed part of this assessment. Historical titles are presented in Appendix C, aerial photos in Appendix D, and YVW records in Appendix E. Based on the results of these searches, a chronological summary of the history of the site and surrounding areas is presented in Table 2, and is summarised below.

- From 1880 to 1910, the site and surrounding land was privately owned by various landholders, including a sheep farmer and grazier.
- In 1910, a portion of this land which now largely covers the site was purchased by The Melbourne Metropolitan Board of Works.
- In 1911, a 1,000,000 Gallon reservoir was built in the south eastern corner of the site, formerly extending over the current playground area and the southern portion of the current tank. YVW

historical plans indicate that the former tank extended approximately 2 m below natural ground surface, and was mounded at the edges to a height of approximately 2 m above natural ground surface. This tank can be seen in the 1951 aerial photograph.

- In 1957, The Melbourne Metropolitan Board of Works purchased a portion of land from the residential property to the north of the site.
- During the mid-1950's, the former tank was demolished, and by 1959 the current tank was constructed and commenced operation. A workshop/storage area building and office/house was later constructed in the south eastern portion of the site, positioned in the area now occupied by the adjoining playground. This new tank and residential properties can be seen in the 1968 aerial photograph.
- In 1993, the land to the immediate north of the site was subdivided and cleared for the construction of the Bell Street – Banksia Street link (Upper Heidelberg Road underpass).
- In 1996, the site was sub-divided into two lots on the plan of subdivision PS349641N: Lot 1 including the subject site, and Lot 2 being the existing playground and basketball court reserve. The reservoir workshop/storage area and office/house formerly located on the playground area was demolished later than 1989.
- In 2004, YVW ceased operation of the reservoir facility. Mains water was diverted from the reservoir and associated infrastructure through two velocity-reducing valves in the far south of the site (south of the settling tower) in 2005.

Discussion with YVW representative yielded the following information:

- The tower located in the south of the site, known as the "settling tower", was used to generate water pressure for the distribution of water to the surrounding area. It was now decommissioned and not in use.
- The velocity-reducing infrastructure, located south east of the settling tower, was still in operation.

The following points were not able to be validated from the 2007 review, however are regarded to hold valuable information.

- From the land gifted to Banyule City Council
  The basketball court located in the adjoining playground (off-site) has been built over the foundations of the former reservoir workshop/storage area building. Pipe fittings, maintenance equipment and petroleum storage drums were formerly stored within this workshop.
- From the land housing the Telstra tower
  Stockpiles of imported fill material were stored to the rear of the site, in the location of the telecommunications facility. These stockpiles of soil were sourced from excavated material around broken pipes and areas requiring underground maintenance around the district.
- From the land housing the Telstra tower
  Steel pipes were formerly stored on railway sleepers in the rear yard, in the vicinity of the telecommunications facility, and on a concrete slab located near the south western wall of the tank.

### 2.4.1. Potentially Contaminating Activities

The identification of potentially contaminating activities has been based on the historical land use and that if surrounding properties. Accordingly, there are potential contaminating activities have occurred, particularly on the properties to the south east of the site (the area gifted to Banyule City Council and where the playground was) where the former workshop/storage area was located, and within the site itself, particularly at the north western corner (where the Telstra tower was located). Such activities may relate to, but are not limited to:

- Past storage of petroleum in drums along with maintenance equipment and pipe fittings within the former workshop to the south east of the site (where the basketball court is located).
- Past importation and storage of stockpiled fill material at the north western corner of the site, adjacent to the telecommunications facility (as indicated on Figure 3). In 2007, scattered asbestos cement sheeting fragments were also observed in this area to the north and north-west of the site (as indicated on Figure 3). No material of this appearance was observed in the site walkover in 2015.
- Potential importation of fill material for the construction of the former banked reservoir, previously existing in the south eastern corner of the site.
- Potential past use of pesticides and herbicides.
- The Austin Hospital, located across Upper Heidelberg Road, previously contained a briquette-fired boiler, and there was the potential for the scattering of ashes around the surrounding (then) vacant properties. However, this is ranked as a low risk.

### 2.4.2. EPA Priority Sites Register

The site was not listed on or in the vicinity of a site listed on the EPA Victoria Priority Site Register. A copy of the register is presented in Appendix F.

### 2.4.3. Leaks and Spills

We were not aware of any recorded leaks or spills associated with the site. This was verified with the YVW representative.

### 2.4.4. Previous, Present and Proposed Zoning and Land Use

- From the aerial photographs and site history, the site appears not to have been in use other than for water storage and distribution, or possible earlier rural purposes.
- The site is currently zoned Public Use Zone (PUZ1) under the Banyule City Council planning scheme.
- The site is proposed to be developed for residential land use.

### 2.4.5. Previous Environmental Reports

Coffey Environments Preliminary ESA report from 2007 was the only previous environmental reports known to be associated with the site.

## 2.5. Site Equipment

The site consists of a decommissioned 30ML covered above-ground reservoir tank. Associated underground pipework and infrastructure was located to the south of the tank, and included a settling tower. In 2004, the reservoir and all associated infrastructure was disconnected from mains water supply, which was diverted on-site through 2 velocity-reducing valves. YVW records of the current and past equipment are presented in Appendix E.

At the time of the 2015, site walkover, a telecommunications distribution facility existed to the north of the site, including three small buildings and a distribution tower.

## 2.6. Regional Geology

The geology of the site as mapped in the Visualising Victoria's Groundwater (VVG) on-line database appears as Miocene to Pliocene fluvial sandstone and conglomerate of the Red Bluff Sandstone of the Brighton Group formation.

No excavation works were conducted during this investigation; however the 2007 assessment reported, "cemented course grain sands were encountered across the site to a maximum investigation depth of 1.6 metres below ground surface (mbgs). This was consistent with the regional formation outlined above".

## 2.7. Regional Hydrogeology

The closest local surface water bodies are Salt Creek, approximately 1.3 km east of the site, which flows into the Yarra River, located 1.5 km east of the site; and Darebin Creek, located approximately 1.9 km west of the site. An inspection of the VVG on-line database revealed that the site was situated above an aquifer with salinity between 1000 to 3500 mg/L, and groundwater in the aquifer was suitable for agriculture, parks and gardens uses. The estimated groundwater depth of the area was 20 – 50 mbgs.

One groundwater monitoring well was found on-site adjacent to the north eastern wall of the reservoir tank. The standing water level was gauged at 9.10 m below top of casing (mbtoc). This was shallower than the 2007 reading of 11.03 mbtoc.

A search of the VVG on-line database indicated that three registered groundwater bores existed within 500 m radius from the site.

1. WRK989722 existed south of the site.
2. WRK985383 existed south-east of the site.
3. 69873 existed west of the site.

# 3. Soil Assessment

Refer to Coffey Environments (2007) Preliminary Environmental Site Assessment report for the methodology, laboratory analysis, results and quality assurance for the soil assessment conducted at the site. There was no soil assessment carried out as part of this review and update.

Our review of the 2007 Preliminary ESA indicates that the methods, analyses, assessment of results and quality assurance information were able to be relied upon in the preparation of this updated report.

# 4. Soil Assessment Criteria

Soil assessment criteria have been updated from those available in 2007; and the soil results from the 2007 field works were reassessed against the current human health and ecological health soil assessment guidelines. Table 3 presents the 2007 soil results compared with the updated soil assessment criteria.

It is noted that the Health Screening Levels (HSLs) and Ecologically Based Soil Screening Levels (ESLs) guidelines are specific to soil particle size. The soil profile was observed to be sands at the majority of sample locations. Based on the soil type observed criteria for 'coarse soils' was adopted as the soil type when applying the HSL and ESL guidelines.

## 4.1. Human Health Criteria

The protection of human health has been assessed with reference to the National Environment Protection Measure (Assessment of Site Contamination) Measure 1999 as amended in 2013 (NEPM 2013) guidelines. The Health Investigation Levels (HILs) and HSLs for exposure setting "A" (i.e. residential) have been adopted as being protective of future residents and construction workers.

## 4.2. Ecological Health Criteria

Preliminary consideration has been given to assessing the potential impacts to ecological receptors onsite, for example vegetation as part of some on site landscaping.

The protection of the beneficial use "Maintenance of Ecosystems" is assessed with reference to the NEPM (2013) National Environment Protection (Assessment of Site Contamination) Measure, ESLs for TRH, BTEX and benzo(a)pyrene in coarse soils.

Current ESL guidance only has a limited number of metal criteria to compare test results against; therefore we have adopted other criteria to assist the assessment potential ecological health impacts. The following references have been applied to one or more of the metals analysed for and can be found in Table 1.

- O'Farrell, C., (1992-2012) Brighton Group Raw Data
  Coffey has been collecting soil results data from different geological sequences and has retrieved over 400 samples for the Brighton Group formation; the soil type present at the site. The data was filtered for sand and associated metal concentrations adopted for this assessment.
- Olswozy, H., (1995) Trace Element Concentrations in Soils from Rural and Urban Areas Australia
  Olswozy provides arsenic and cadmium concentration ranges which have been used as a comparison with site specific data.
- Diomides, C., (2005) An Investigation of Inorganic Background Soil Constituents with a Focus on Arsenic Species
  Diomides provided background concentrations for metals of chromium, copper, lead, mercury, nickel and zinc.

# 5. Soil Results

The 2007 ESA analysed a total of 8 individual primary samples from 8 test pits. All results, laboratory certificates, and chain of custody documentation can be found in the 2007 Coffey Environments ESA report.

The following table shows the changes in ecological health impact from the 2007 guidelines to the 2015 guidelines. This has resulted in more soil sample results exceeding the metals criteria compared to 2007. Metals that exceed to 2015 criteria include cobalt, copper, nickel and zinc. There was a uniform spread of exceedances across the site, suggesting these metals may occur naturally at these concentrations.

| Analyte | 2007 Soil Criteria<br>Soil Results Exceeding Ecological Health Levels | 2015 Soil Criteria<br>Soil Results Exceeding Ecological Health Levels |
|---|---|---|
| Cobalt | - | SB1-0.2, SB3-0.2, SB4-0.2, SB5-0.2, SB6-0.2, SB7-0.2, SB8-0.2 |
| Copper | - | SB1-0.2, SB3-0.2, SB4-0.2, SB5-0.2, SB6-0.2, SB7-0.2, SB8-0.2 |
| Nickel | SB1-0.2, SB4-0.2, SB5-0.2, SB7-0.2, SB8-0.2 | SB1-0.2, SB3-0.2, SB4-0.2, SB5-0.2, SB6-0.2, SB7-0.2, SB8-0.2 |
| Zinc | - | SB1-0.2, SB2-0.2, SB4-0.2, SB5-0.2, SB7-0.2, SB8-0.2 |

Current soil criteria for total recoverable hydrocarbon have changed slightly since those applied in 2007; and the 2007 analytical results no longer correspond to the appropriate carbon chain length fractions as used in 2013 guidelines. Though a direct comparison cannot be drawn, the results from 2007 were all below the laboratory limit of detection and therefore are assessed to indicate there was no adverse impact due to petroleum hydrocarbons in soils at the site.

Concentrations of PAHs were detected in the surface sample at SB5 (located in the north western corner of the site). However, total polycyclic aromatic hydrocarbons (PAH) and benzo(a)pyrene concentrations were below the adopted updated criteria.

Asbestos was not detected during the current on-site inspection and soil samples from 2007 did not detect asbestos fibres in any surface sample for which asbestos was analysed.

# 6. Discussion

The review of Coffey Environments' 2007 ESA report yielded 11 key areas for updating and this information is presented in Table 1 at the rear of this report.

The list of these changes includes:

- Change of suburb in address;
- Presence of previous environmental reports associated with the site;
- Geological references;
- Salinity concentration and precluded beneficial uses;
- Depth to groundwater from the on-site groundwater monitoring well;
- Increase in the number of surrounding registered groundwater monitoring wells;
- Soil assessment criteria adjusted to reflect updated guidance; and
- Analytes exceeding the ecological health guidelines have been updated.

The unverified information from the YVW representative of 2007 has been retained in this report as it relates to potential contaminating activities being conducted at the site. We also acknowledge these areas are under the control of entities other than YVW; i.e.– Banyule City Council and Telstra Corporation; however we believe it is prudent for Places Victoria to be aware of that these entities could have carried out activities that changed the contamination status of the site or parts of the site.

Soil assessment guidelines have changed since the initial assessment and as a result more metal concentrations exceed the nominated assessment criteria for ecological health impacts for cobalt, copper, nickel and zinc. These results were consistent with metal concentrations normally found in sites to the north and west of Melbourne; however they may also be attributed to the upper fill material encountered on site.

The main potential effect of the EIL exceedances is the possibility that some sensitive plant species will not thrive, if planted on the site. Any future recreational spaces provided on the site will not be precluded as long as the soils used in landscaping are suitable to support the range of plant species desired. Additionally, as the soil results did not exceed the adopted human health-based criteria (HILs), these recreational spaces will also be suitable for future users.

Groundwater levels at the site have also changed and the current measurement showed the groundwater level had risen 2 m since the 2007 assessment. Assuming the groundwater monitoring well integrity is good, there is reason to believe this is an accurate measurement.

# 7. Conclusions and Recommendations

Based on the review of the results from the 2007 Preliminary ESA the following conclusions and recommendations are made.

- The soil conditions were consistent with those that would be considered suitable for residential land use. However, should soil later be removed from the site, further sampling will be required to appropriately classify the material in accordance with the Industrial Waste Resource Guidelines, Soil Hazard Categorisation and Management (IWRG621) prior to disposal.
- It is recommended that documentation be located and provided to Places Victoria that confirms removal of fragmented asbestos cement sheeting which was located on the northern part of the site during the 2007 assessment.
- The 2007 site assessment was based on a limited number of soil assessment locations. Due to the potentially variable nature of fill material, should materials be encountered during excavations that are not similar to those observed during that assessment, further investigation and analysis may be required.
- The 2007 assessment did not assess soil located beneath the existing reservoir tank. Should the base of the tank be removed, further soil assessment is recommended to confirm the contamination status of underlying materials.
- The 2007 assessment did not considered impact to groundwater; however the 2007 soil contamination data indicates it presents a low contamination risk to groundwater.
- Based on the guidance provided in the Planning Practice Note for Potentially Contaminated Land, the past uses of the site would classify it as having a low contamination risk and as such, in our opinion, an environmental audit should not be required for the site to be used for residential use; assuming the land zoning is altered to allow that use.

# 8. Limitations of this report

- This report should be read in conjunction with the Important Information Sheet attached to the report.
- It is noted that there is underground infrastructure on the site. This report has not assessed geotechnical issues or construction risks at the site.

# 9. References

Coffey Environments Pty Ltd (2007) Preliminary Environmental Site Assessment – Heidelberg Yarra Valley Water Reservoir, 421 Upper Heidelberg Road, Heidelberg, Victoria

O'Farrell, C. (1992-2012) Brighton Group Raw Data. Coffey Pty Ltd

Olswozy, H. (1995) Trace Element Concentrations in Soils from Rural and Urban Areas Australia. Contaminated Sites Monograph Series No. 4

Diomides, C. (2005) An Investigation of Inorganic Background Soil Constituents with a Focus on Arsenic Species. Victoria University.

# Important information about your **Coffey** Environmental Report

## Introduction

This report has been prepared by Coffey for you, as Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice,

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

## Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

## Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

## Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but

steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Coffey would be pleased to assist with any investigation or advice in such circumstances.

## Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

## Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

## Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Coffey prepared the report and has familiarity with the site, Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Coffey disowns any responsibility for such misinterpretation.

## Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

## Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

# Tables

Table 1
Changes from 2007 to 2015 Reports
Places Victoria Environmental Site Assessment Review
421 Upper Heidelberg Road, Ivanhoe VIC

| Item | 2007 Environmental Site Assessment Report Details | 2015 Environmental Site Assessment Update Details | Changes |
|---|---|---|---|
| 1 | 421 Upper Heidelberg Road, Heidelberg, Victoria. | 421 Upper Heidelberg Road, Ivanhoe, Victoria | Change of suburb to address |
| 2 | "The basketball court located in the adjoining playground (off-site) has been built over the foundations of the former reservoir workshop/storage area building. Pipe fittings, maintenance equipment and petroleum storage drums were formerly stored within this workshop." | Unable to be verified | |
| 3 | "Stockpiles of imported fill material were stored to the rear of the site, in the location of the telecommunications facility. These stockpiles of soil were sourced from excavated material around broken pipes and areas requiring underground maintenance around the district." | Unable to be verified | |
| 4 | "Steel pipes were formerly stored on railway sleepers in the rear yard, in the vicinity of the telecommunications facility, and on a concrete slab located near the south western wall of the tank." | Unable to be verified | |
| 5 | Previous environmental reports for the site did not exist. | There is one envrionmental site assessment report - Coffey Environments 2007. | Changed status of previous environmental reports for the site. |
| 6 | Geological reference was Geolgoical Survey of Victoria, Melbourne Map. | Geology referenced by Visualising Victoria's Groundwater on-line data base. | Reference changed in report. |
| 7 | Underlying aquifer salinity reported at 3000-7000 mg/L. | Visualising Victoria's Groundwater on-line database has this area updated to an aquifer salinty of 1000-3500 mg/L. | Salinity concentration updated and beneficial uses amended. |
| 8 | Groundwater suitable for stock watering. | Groundwater suitable for agriculture, parks and gardens due to salinity concentration reduction. | Report amended for groundwater to be suitable for agriculture, parks and gardens. |
| 9 | On-site groundwater monitoring well measured depth to groundwater at 11.03 mbtoc. | On-site groundwater measurement detected at 9.10 mbtoc. | Depth to groundwater changed to 9.10 mbtoc to reflect updated field measurement. |
| 10 | One registered groundwater well within 1 km radius of the site. | Three registered groundwater wells within 500 m radius of the site. | Three registered groundwater wells added to the report. |
| 11 | Soil assessment criteria NEPM 1999 redundant. | Soil assessment criterial NEPM 2013, O'Farrell, Olswozy and Diomides used to reflect new updated guidelines. | Soil results reassessed against updated soil assessment guidelines. |
| 12 | Analyte exceeding soil assessment criteria is nickel. | Analytes exceeding soil assessment criteria are colbalt, copper, nickel and zinc. As a result of the new guidance used in the report. | Tables updated to reflect new soil assessment criteria |
| 13 | EPA Pub 448.3 guidance for off-site disposal now redundant. | IWRG 621 is the current off-site disposal guidance. | Recommendations amended to reflect change is legislative requirements. |

Table 2
Summary of Site History
Places Victoria Environmental Site Assessment Review
421 Upper Heidelberg Road, Ivanhoe VIC

| Date | Site History Details | Reference |
|---|---|---|
| **1880 - 1910** | Original Title of the land encompassing the site was granted to Charles Henry James, a sheep farmer and grazier. | Historical Titles |
| **1910** | The area of land encompassing the site was subdivided. The Melbourne and Metropolitan Board of Works purchased the portion of land that bounds the subject site. | Historical Titles |
| **1911** | A 1,000,000 Gallon open reservoir was built in the south eastern corner of the site, extending over what is now the playground area and the southern portion of the current tank. YVW historical plans indicate that the former tank extended approximately 2 m below natural ground surface, and was mounded at the edges to a height of approximately 2 m above natural ground surface. | Yarra Valley Water |
| **1951** | Onsite: The former reservoir is clearly visible, located in the south eastern corner of the site. The rest of the site appears to be vacant with scattered trees. | Aerial Photos |
| | Offsite: The surrounding properties appear as established medium density residential houses. There are significant areas of undeveloped land in the surrounding blocks. The Austin Hospital is clearly visible to the east of the site. | |
| **1957** | In 1957, The Melbourne Metropolitan Board of Works purchased a portion of land from the residential property to the north of the site | Historical Titles |
| **1959** | During the mid-1950's the former tank was demolished, and by 1959 the current tank was constructed and commenced operation. A workshop/storage area building and office/house was later constructed in the south eastern portion of the site, positioned over the playground area. | Yarra Valley Water |
| **1968** | Onsite: The current reservoir tank is clearly visible, and appears to be open-top. The former office/house, workshop and settling tower are clearly visible to the south of the tank. It appears that several cars were parked in the open area to the south west of the site, and several small unidentifiable structures were visible along the western fence to the north of the site (potentially pipes in storage). The site was scarcely vegetated. | Aerial Photos |
| | Offsite: Residential development had increased significantly since the previous aerial photo in 1951. Commercial properties appeared on Bell Street north west of the site. More buildings have appeared on the Austin Hospital site. The appears to be no other significant changes since the previous aerial photo in 1951. | |
| **1978** | Onsite: A roof appears to have been placed over the reservoir tank. No other significant changes appear to have occurred. | Aerial Photos |
| | Offsite: The property to the east of the site across Upper Heidelberg Road was converted to a carpark. No other significant changes appear to have occurred. | |
| **1989** | Onsite: No significant changes appear to have occurred. | Aerial Photos |
| | Offsite: No significant changes appear to have occurred. | |
| **1993** | The residential land to the immediate north of the site was subdivided and cleared for the construction of the Bell Street – Upper Heidelberg Road underpass. | Historical Titles |
| **1996** | The site was sub-divided into two lots on the plan of subdivision PS349641N: Lot 1 including the subject site, and Lot 2 being the existing playground and basketball court reserve. The reservoir workshop/storage area and office/house formerly located on the playground area was demolished at a stage later than 1989. | Historical Titles |
| **2004** | Yarra Valley Water ceased operation of the reservoir facility. Mains water was diverted from the reservoir and associated infrastructure through two velocity-reducing valves in the far south of the site (south of the settling tower) in 2005. | Yarra Valley Water |
| **2007** | Onsite: The telecommunications facility is clearly visible to the north of the site, consisting of 3 small buildings and a distribution tower. To the south of the site, a playground was present where the reservoir house/office and workshop was formerly located. No other significant changes appear to have occurred. | Aerial Photos |
| | Offsite: The Bell Street - Upper Heidelberg Road underpass constructed in 1993 is clearly visible to the immediate north of the site, where residential properties were formerly located. No other significant changes appear to have occurred. | |

Table 3
2007 Soil Analytical Results with Current Guidelines
Places Victoria Environmental Site Assessment Review
421 Upper Heidelberg Road, Ivanhoe VIC

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Field_ID** | SB1-0.2m | SB2-0.2m | SB3-0.2m | SB4-0.2m | SB5-0.2m | SB6-0.2m | SB7-0.2m | SB8-0.2m |
| | | | | | | **Sampled_Date-Time** | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 |
| **Contaminant** | **ChemName** | **Units** | **EQL** | NEPM 2013 ESLs Urban residential and public open space, Coarse Soil | NEPM 2013 HILs Residential A Soil | NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Sand | | | | | | | | |
| Total Recoverable Hydrocarbons | C6 - C9 | mg/kg | 10 | | | | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| | C10 - C14 | mg/kg | 50 | | | | < 50 | < 50 | < 50 | < 50 | < 50 | < 50 | < 50 | < 50 |
| | C15 - C28 | mg/kg | 100 | | | | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 |
| | C29 - C36 | mg/kg | 100 | | | | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 | < 100 |
| | C10 - C36 (Sum of total) | mg/kg | 50 | | | | | | | | | | | |
| | C6 - C10 | mg/kg | 10 | **180** | | | | | | | | | | |
| | C10-C16 | mg/kg | 50 | **120** | | | | | | | | | | |
| | C16-C34 | mg/kg | 100 | **300** | | | | | | | | | | |
| | C34-C40 | mg/kg | 100 | **2800** | | | | | | | | | | |
| | C10 - C40 (Sum of total) | mg/kg | 50 | | | | | | | | | | | |
| | C6-C10 less BTEX (F1) | mg/kg | 10 | | | **45** | | | | | | | | |
| Metals (total) | Antimony | mg/kg | 1 | **<5** (1) | | | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| | Arsenic | mg/kg | 5 | **5-40** (2) | **100** | | 2 | 2.2 | 2.7 | < 2 | 2.7 | 2.5 | 2 | < 2 |
| | Berylium | mg/kg | 2 | **<1** (1) | **60** | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| | Cadmium | mg/kg | 0.5 | **0.5-14** (2) | **20** | | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| | Chromium (hexavalent) | mg/kg | 5 | **26** (3) | **100** | | 18 | 9.2 | 20 | 19 | 23 | 18 | 19 | 16 |
| | Cobalt | mg/kg | 5 | **10** (1) | **100** | | **20** | < 5 | **13** | **21** | **17** | **12** | **21** | **18** |
| | Copper | mg/kg | 5 | **11** (3) | **6000** | | **35** | 7.2 | **21** | **33** | **30** | **23** | **37** | **37** |
| | Lead | mg/kg | 5 | **31** (3) | **300** | | 7.7 | 28 | < 5 | < 5 | 5.6 | 16 | < 5 | 5.5 |
| | Mercury | mg/kg | 0.1 | **0.1** (3) | **40** | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Molybdenum | mg/kg | 2 | **<5** (1) | | | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| | Nickel | mg/kg | 2 | **17** (3) | **400** | | **92** | < 5 | **55** | **90** | **72** | **53** | **100** | **93** |
| | Selenium | mg/kg | 5 | **<5** (1) | **200** | | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| | Tin | mg/kg | 5 | **10** (1) | | | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| | Zinc | mg/kg | 5 | **46** (3) | **7400** | | **51** | **77** | 40 | **70** | **53** | 44 | **51** | **100** |
| PAH/Phenols | Acenaphthene | mg/kg | 0.5 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Acenaphthylene | mg/kg | 0.5 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Anthracene | mg/kg | 0.5 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Benzo(a)anthracene | mg/kg | 0.5 | | | | 0.4 | 0.2 | < 0.1 | < 0.1 | 0.2 | < 0.1 | < 0.1 | < 0.1 |
| | Benzo(a)pyrene | mg/kg | 0.5 | **0.7** | | | 0.3 | 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Benzo(g,h,i)perylene | mg/kg | 0.5 | | | | 0.3 | < 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Benzo(k)fluoranthene | mg/kg | 0.5 | | | | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Chrysene | mg/kg | 0.5 | | | | 0.4 | 0.2 | < 0.1 | < 0.1 | 0.2 | < 0.1 | < 0.1 | < 0.1 |
| | Dibenz(a,h)anthracene | mg/kg | 0.5 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Fluoranthene | mg/kg | 0.5 | | | | 0.9 | 0.5 | < 0.1 | < 0.1 | 0.5 | < 0.1 | < 0.1 | < 0.1 |
| | Fluorene | mg/kg | 0.5 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Indeno(1,2,3-c,d)pyrene | mg/kg | 0.5 | | | | 0.2 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Naphthalene | mg/kg | 0.5 | | | **3** | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | Phenanthrene | mg/kg | 0.5 | | | | 0.5 | 0.3 | < 0.1 | < 0.1 | 0.2 | < 0.1 | < 0.1 | < 0.1 |
| | Pyrene | mg/kg | 0.5 | | | | 0.9 | 0.4 | < 0.1 | < 0.1 | 0.5 | < 0.1 | < 0.1 | < 0.1 |
| | PCBs (Sum of total) | mg/kg | 0.1 | | **1** | | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Semi-volatile Organic Compounds | 4,4-DDE | mg/kg | 0.05 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | a-BHC | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Aldrin | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | b-BHC | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | cis-Chlordane | mg/kg | 0.03 | | | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| | DDD | mg/kg | 0.05 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | DDT | mg/kg | 0.05 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Dieldrin | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Endosulfan I | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Endosulfan II | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Endosulfan sulphate | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Endrin | mg/kg | 0.03 | | **10** | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Endrin aldehyde | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Heptachlor | mg/kg | 0.03 | | **6** | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Heptachlor epoxide | mg/kg | 0.03 | | | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Hexachlorobenzene | mg/kg | 0.03 | | **10** | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Methoxychlor | mg/kg | 0.03 | | **300** | | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| | Chlordane | mg/kg | 0.03 | | **50** | | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |

(1) O'Farrell, C., (1992-2012) Brighton Group Raw Data
(2) Olswozy, H., (1995) Trace Element Concentrations in Soils from Rural and Urban Areas Australia
(3) Diomides, C., (2005) An Investigation of Inorganic Background Soil...

Table 3
2007 Soil Analytical Results with Current Guidelines
Places Victoria Environmental Site Assessment Review
421 Upper Heidelberg Road, Ivanhoe VIC

| | | | | | | | Field_ID | SB1-0.2m | SB2-0.2m | SB3-0.2m | SB4-0.2m | SB5-0.2m | SB6-0.2m | SB7-0.2m | SB8-0.2m |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sampled_Date-Time | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 | 19/09/2007 |
| **Contaminant** | **ChemName** | **Units** | **EQL** | NEPM 2013 ESLs Urban residential and public open space, Coarse Soil | NEPM 2013 HILs Residential A Soil | NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion, 0 to <1m, Sand | | | | | | | | | |
| Organophosphorus Pesticides | Bolstar | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Chlorpyrifos | mg/kg | 0.2 | | **160** | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Coumaphos | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Demeton-O | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Diazinon | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Dichlorvos | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Disulfoton | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Ethion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Ethoprop | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Fenitrothion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Fensulfothion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Fenthion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Merphos | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Methyl azinphos | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Methyl parathion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Mevinphos | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Naled | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Phorate | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | ***< 0.2*** | < 0.2 | < 0.2 |
| | Ronnel | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Tokuthion | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| | Trichloronate | mg/kg | 0.2 | | | | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |

(1) O'Farrell, C., (1992-2012) Brighton Group Raw Data
(2) Olswozy, H., (1995) Trace Element Concentrations in Soils from Rural and Urban Areas Australia
(3) Diomides, C., (2005) An Investigation of Inorganic Background Soil...

# Figures




GENERAL AREA MAP




REGIONAL AREA MAP

© Bing Maps, downloaded 13.11.15




LOCAL AREA MAP

© Google Earth Pro, image captured 21.01.15

| revision | no. | description | drawn | approved | date |
|---|---|---|---|---|---|
| | A | ORIGINAL ISSUE | HU | LT | 19/11/15 |

| | |
|---|---|
| drawn | HU |
| approved | LT |
| date | 19/11/15 |
| scale | AS SHOWN |
| original size | A3 |

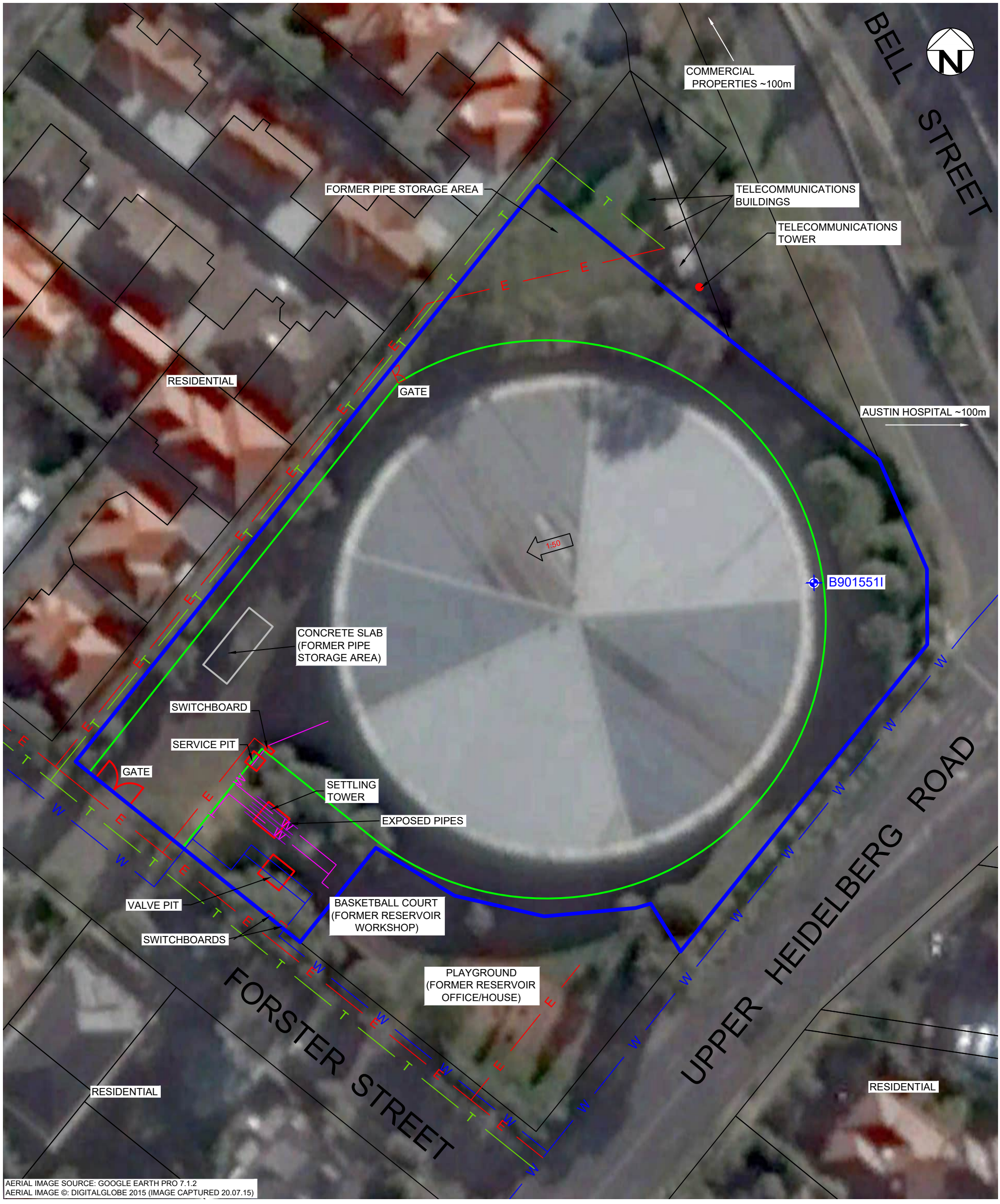
client: PLACES VICTORIA

project: ENVIRONMENTAL SITE ASSESSMENT REVIEW
421 UPPER HEIDELBERG ROAD
IVANHOE, VICTORIA

title: SITE LOCALITY PLAN

project no: ENAUABTF20345-R01-D01 | figure no: FIGURE 1 | rev: A

PLOT DATE: 19/11/2015 5:29:25 PM DWG FILE: \\ABTFFS01.CORP.COFFEY.COM.AU\DATA\$\ENVIMEL_OPS\JOB FILES\ENAUABTF20300\S\ENAUABTF20345AA - PLACES VIC 421 UPPER HEIDELBERG RD, ESA \UPDATE\CAD\ENAUABTF20345AA-R01-D01.DWG




| revision | no. | description | drawn | approved | date |
|---|---|---|---|---|---|
| | A | ORIGINAL ISSUE | HU | LT | 19/11/15 |

## LEGEND

- MW — MONITORING WELL LOCATION (VICROADS)
- SB — SOIL BORE LOCATIONS (COFFEY, 2007)
- 1:50 — SITE SLOPE
- SITE BOUNDARY
- W — ACTIVE WATER MAIN
- W — DISCONNECTED PIPELINE INFRASTRUCTURE
- E — ELECTRICITY (UNDERGROUND CABLES)
- T — TELECOMMUNICATIONS

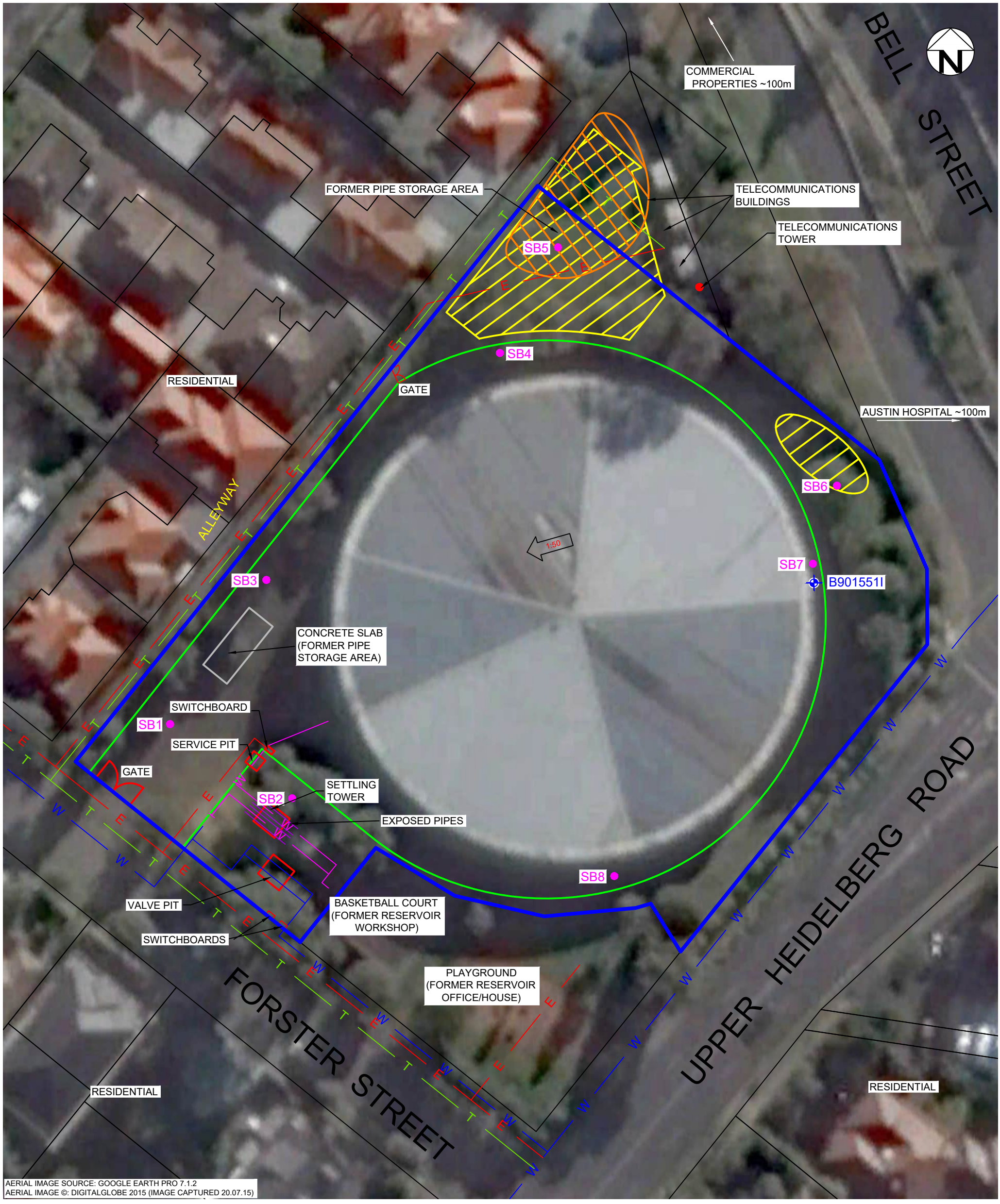
SCALE 0 5 10 15 20 25 METRES
1:500 (A3)

| | |
|---|---|
| drawn | HU |
| approved | LT |
| date | 19/11/15 |
| scale | AS SHOWN |
| original size | A3 |

coffey

| | |
|---|---|
| client: | PLACES VICTORIA |
| project: | ENVIRONMENTAL SITE ASSESSMENT REVIEW<br>421 UPPER HEIDELBERG ROAD<br>IVANHOE, VICTORIA |
| title: | DETAILED SITE MAP |
| project no: | ENAUABTF20345-R01-D01 |
| figure no: | FIGURE 2 |
| rev: | A |

PLOT DATE: 19/11/2015 5:29:28 PM DWG FILE: \\ABTFFS01.CORP.COFFEY.COM.AU\DATA\SEN\WMEL_OPS\JOB FILES\ENAUABTF20300\SI\ENAUABTF20345A - PLACES VIC 421 UPPER HEIDELBERG RD, ESA UPDATE\CAD\ENAUABTF20345AA-R01-D01.DWG




| revision | no. | description | drawn | approved | date |
|---|---|---|---|---|---|
| | A | ORIGINAL ISSUE | HU | LT | 19/11/15 |

## LEGEND

- MW — MONITORING WELL LOCATION (VICROADS)
- SB — SOIL BORE LOCATIONS (COFFEY, 2007)
- REMOVED ASBESTOS FRAGMENTS (COFFEY, 2007)
- REMOVED STOCKPILED SOIL (COFFEY, 2007)
- SITE BOUNDARY
- 1:50 — SITE SLOPE
- W — ACTIVE WATER MAIN
- W — DISCONNECTED PIPELINE INFRASTRUCTURE
- E — ELECTRICITY (UNDERGROUND CABLES)
- T — TELECOMMUNICATIONS

SCALE 1:500 (A3) METRES (0, 5, 10, 15, 20, 25)

| | |
|---|---|
| drawn | HU |
| approved | LT |
| date | 19/11/15 |
| scale | AS SHOWN |
| original size | A3 |

coffey

client: PLACES VICTORIA

project: ENVIRONMENTAL SITE ASSESSMENT REVIEW
421 UPPER HEIDELBERG ROAD
IVANHOE, VICTORIA

title: CURRENT AND 2007 SITE CONFIGURATION MAP

project no: ENAUABTF20345-R01-D01 | figure no: FIGURE 3 | rev: A

PLOT DATE: 19/11/2015 5:29:30 PM DWG FILE: \\ABTFFS01.CORP.COFFEY.COM.AU\DATA\SEN\WMEL_OPS\JOB FILES\ENAUABTF20300\SI\ENAUABTF20345A - PLACES VIC 421 UPPER HEIDELBERG RD, ESA UPDATE\CAD\ENAUABTF20345AA-R01-D01.DWG

# Appendix A - Property Reports

# Property Report from **www.land.vic.gov.au** on 20 November 2015 09:46 AM

**Address:** 321 UPPER HEIDELBERG ROAD IVANHOE 3079
**Lot and Plan Number:** This site has 2 parcels. See table below.
**Standard Parcel Identifier (SPI):** See table below.
**Local Government (Council):** BANYULE **Council Property Number:** 569327
**Directory Reference:** Melway 31 H4

**Note:** There are 3 properties identified for this site.
These can include units (or car spaces), shops, or part or whole floors of a building.
Dimensions for these individual properties are generally not available.

**This property is not in a designated bushfire prone area.**
**No special bushfire construction requirements apply. Planning provisions may apply.**

Further information about the building control system and building in bushfire prone areas can be found in the Building Commission section of the Victorian Building Authority website www.vba.vic.gov.au

## Parcel Details

| Lot/Plan or Crown Description | SPI |
|---|---|
| Lot 3 PS314700 | 3\PS314700 |
| Lot 1 PS349641 | 1\PS349641 |

## State Electorates

**Legislative Council:** EASTERN METROPOLITAN
**Legislative Assembly:** IVANHOE

## Utilities

**Rural Water Business:** Southern Rural Water
**Metro Water Business:** Yarra Valley Water Ltd
**Melbourne Water:** inside drainage boundary
**Power Distributor:** JEMENA (Information about choosing an electricity retailer)

## Planning Zone Summary

**Planning Zone:** PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)
SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY
**Planning Overlay:** None

Planning scheme data last updated on 19 November 2015.

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## Area Map




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Department of Environment, Land, Water and Planning

# Planning Property Report

from **www.dtpli.vic.gov.au/planning** on 20 November 2015 09:45 AM

**Address:** 321 UPPER HEIDELBERG ROAD IVANHOE 3079

**Lot and Plan Number:** Lot 3 PS314700

This property has a total of 2 parcels.

For full parcel details get the free Basic Property report at Property Reports

**Local Government (Council):** BANYULE **Council Property Number:** 569327

**Directory Reference:** Melway 31 H4

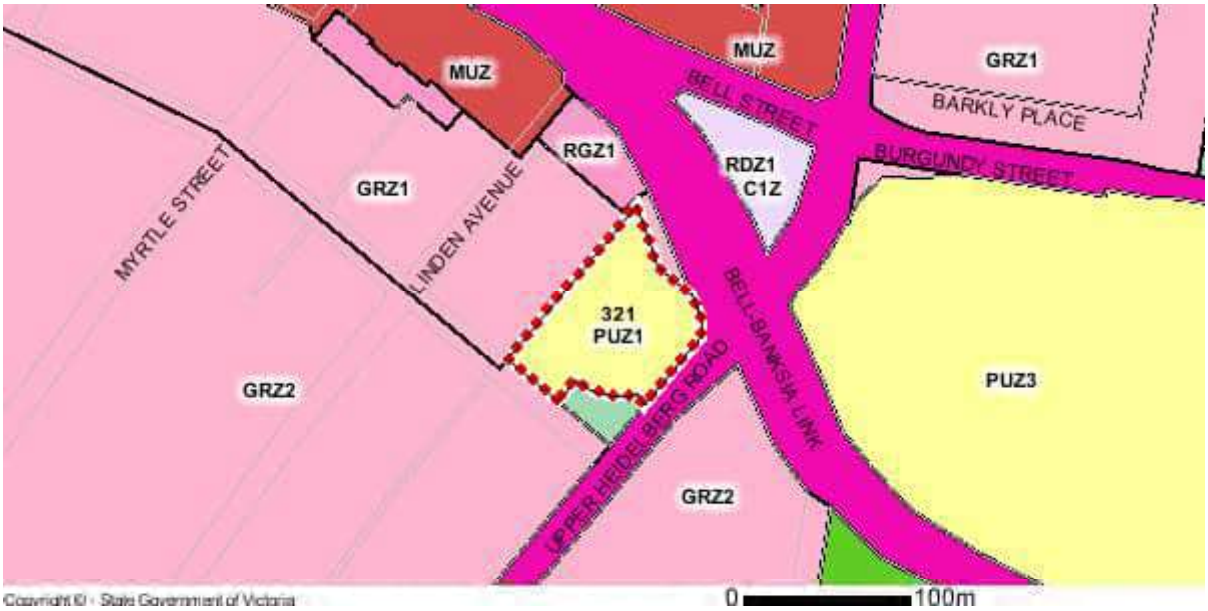
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## Planning Zone

PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)

SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY




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

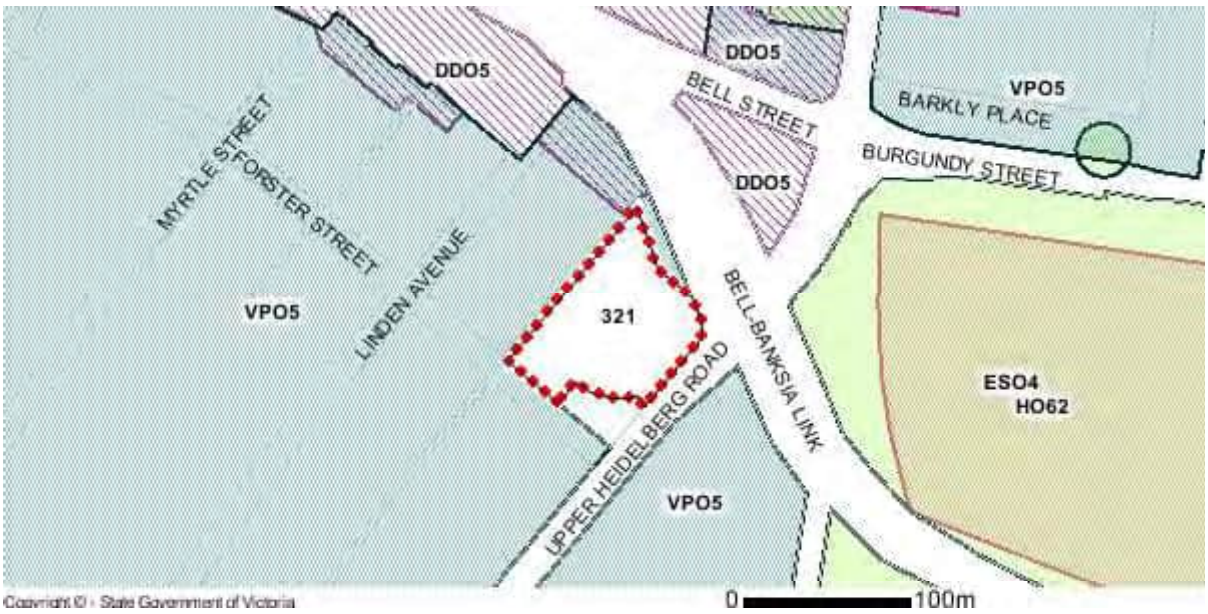
### Zones Legend

- ACZ - Activity Centre
- B1Z - Commercial 1
- B2Z - Commercial 1
- B3Z - Commercial 2
- B4Z - Commercial 2
- B5Z - Commercial 1
- C1Z - Commercial 1
- C2Z - Commercial 2
- CA - Commonwealth Land
- CCZ - Capital City
- CDZ - Comprehensive Development
- DZ - Dockland
- ERZ - Environmental Rural
- FZ - Farming
- GRZ - General Residential
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- NRZ - Neighbourhood Residential
- PCRZ - Public Conservation & Resource
- PDZ - Priority Development
- PPRZ - Public Park & Recreation
- PUZ1 - Public Use - Service & Utility
- PUZ2 - Public Use - Education
- PUZ3 - Public Use - Health Community
- PUZ4 - Public Use - Transport
- PUZ5 - Public Use - Cemetery/Crematorium
- PUZ6 - Public Use - Local Government
- PUZ7 - Public Use - Other Public Use
- PZ - Port
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- RCZ - Rural Conservation
- RDZ1 - Road - Category 1
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- SUZ - Special Use
- TZ - Township
- UFZ - Urban Floodway
- UGZ - Urban Growth
- Urban Growth Boundary

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## Planning Overlay

None affecting this land - there are overlays in the vicinity
DESIGN AND DEVELOPMENT OVERLAY (DDO)
ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
HERITAGE OVERLAY (HO)
VEGETATION PROTECTION OVERLAY (VPO)




**Overlays Legend**

- AEO - Airport Environs
- BMO - Bushfire Management (also WMO)
- CLPO - City Link Project
- DCPO - Development Contributions Plan
- DDO - Design & Development
- DDOPT - Design & Development Part
- DPO - Development Plan
- EAO - Environmental Audit
- EMO - Erosion Management
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- FO - Floodway
- HO - Heritage
- IPO - Incorporated Plan
- LSIO - Land Subject to Inundation
- MAEO1 - Melbourne Airport Environs 1
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- NCO - Neighbourhood Character
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- RO - Restructure
- RCO - Road Closure
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## Further Planning Information

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# Property Report from **www.land.vic.gov.au** on 05 November 2015 11:49 AM

**Address:** 421A UPPER HEIDELBERG ROAD IVANHOE 3079
**Lot and Plan Number:** This site has 2 parcels. See table below.
**Standard Parcel Identifier (SPI):** See table below.
**Local Government (Council):** BANYULE **Council Property Number:** 573261
**Directory Reference:** Melway 31 H4

**Note:** There are 3 properties identified for this site.
These can include units (or car spaces), shops, or part or whole floors of a building.
Dimensions for these individual properties are generally not available.

**This property is not in a designated bushfire prone area.**
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**Legislative Council:** EASTERN METROPOLITAN
**Legislative Assembly:** IVANHOE

## Utilities

**Rural Water Business:** Southern Rural Water
**Metro Water Business:** Yarra Valley Water Ltd
**Melbourne Water:** inside drainage boundary
**Power Distributor:** JEMENA (Information about choosing an electricity retailer)

## Planning Zone Summary

**Planning Zone:** PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)
SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY
**Planning Overlay:** None

Planning scheme data last updated on 5 November 2015.

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## Area Map




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Department of Environment, Land, Water and Planning

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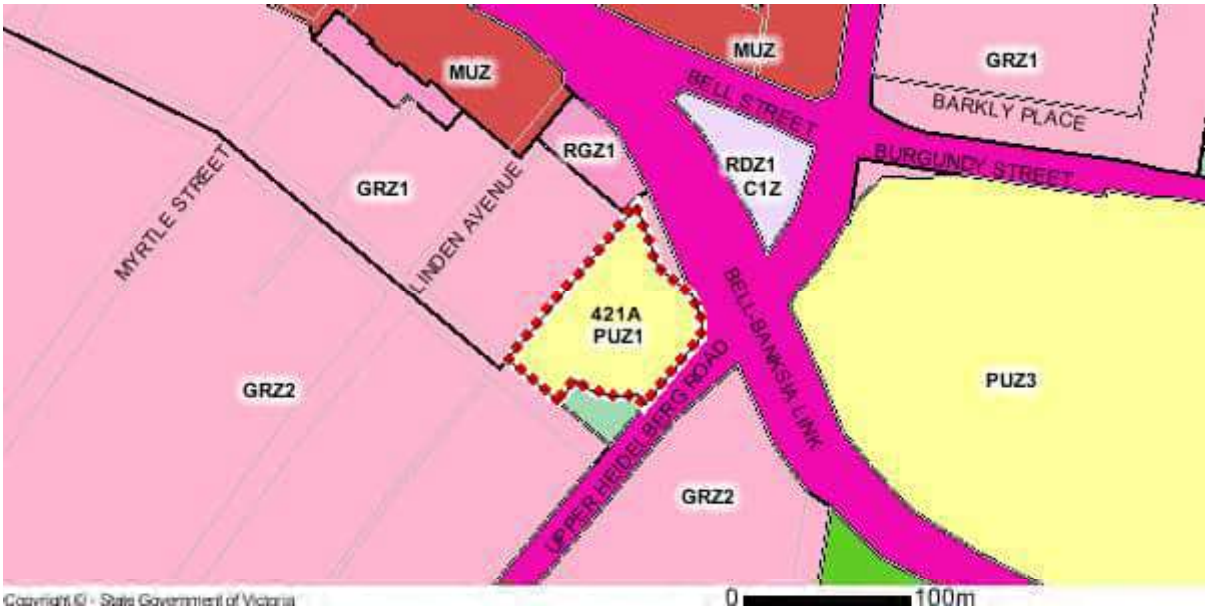
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## Planning Zone

PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)

SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY




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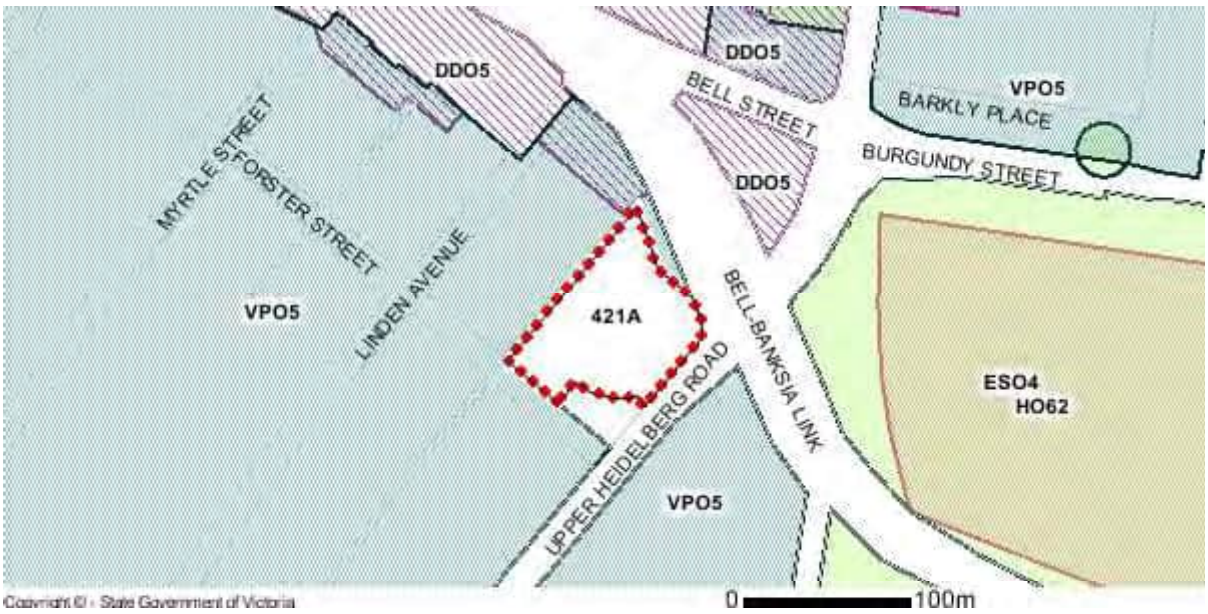
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## Planning Overlay

None affecting this land - there are overlays in the vicinity
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ENVIRONMENTAL SIGNIFICANCE OVERLAY (ESO)
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**Directory Reference:** Melway 31 H4

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## Planning Zone Summary

**Planning Zone:** PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)
SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY
**Planning Overlay:** None

Planning scheme data last updated on 5 November 2015.

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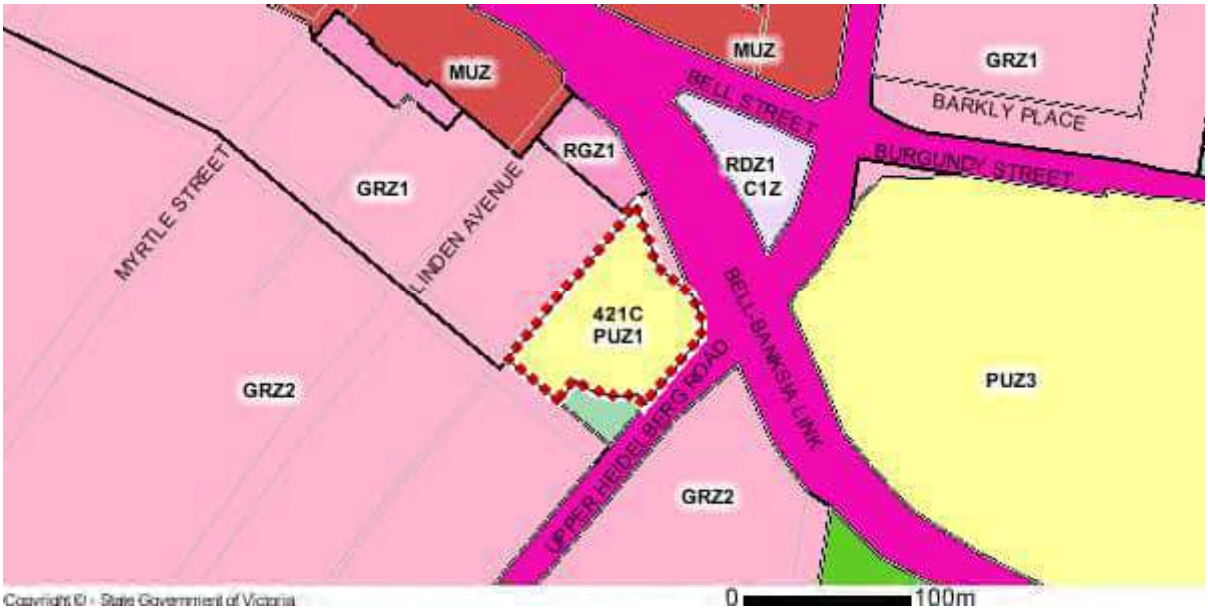
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## Planning Zone

PUBLIC USE ZONE - SERVICE AND UTILITY (PUZ1)

SCHEDULE TO THE PUBLIC USE ZONE - SERVICE AND UTILITY




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## Planning Overlay

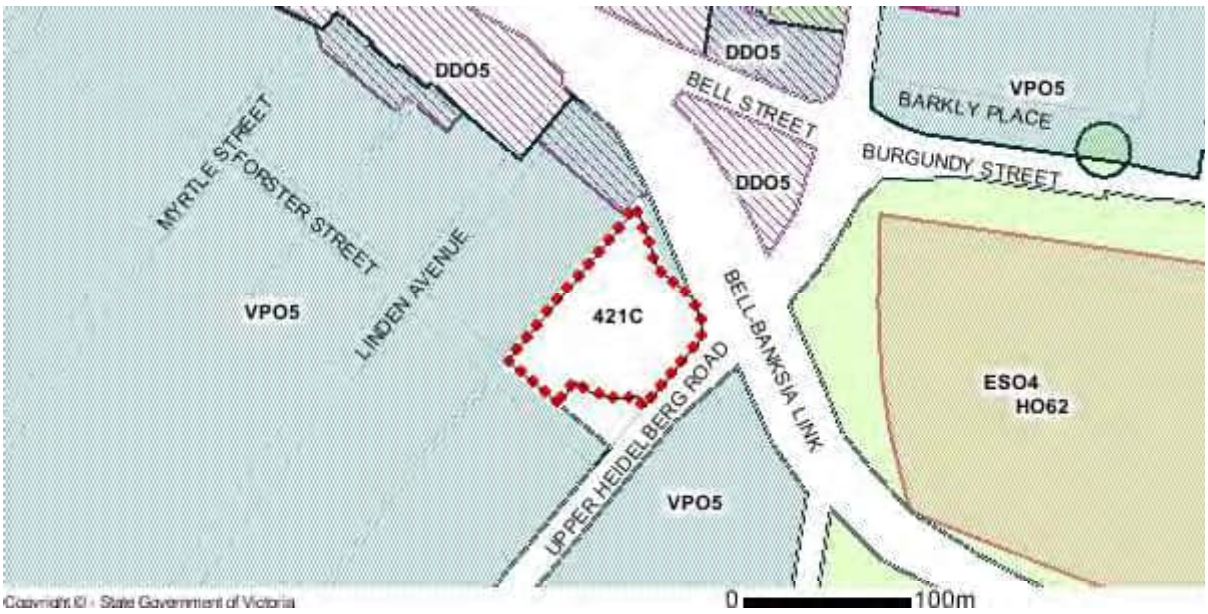
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# Appendix B - Site Photographs (2007 and 2015)



Photo 1a: South western portion of the site, facing north (2007).



Photo 1b: South western portion of the site, facing north (2015).



Photo 2a: Base of settling tower to the south of the site, facing west. Note the large service pit in the foreground houses the valves by which the mains water was diverted through in 2004 (2007).



Photo 2b: The settling tower (2007).



Photo 2c: Settling Tower with velocity-reducing infrastructure (2015)



Photo 3a: The eastern portion of the site, facing north east (2007).



Photo 3b: The eastern portion of the site, facing north east (2015).



Photo 4a: The northern portion of the site including the telecommunications facility, facing south east (2007).



Photo 4b: The northern portion of the site including the telecommunications facility, facing south east (2015).



Photo 5a: The telecommunications facility to the north of the site (2007).



Photo 5b: The telecommunications facility to the north of the site (2015).



Photo 6a: The north western corner of the site, facing south. Scattered asbestos fragments were observed within soil in the foreground (2007).



Photo 6b: The north western corner of the site, facing south. Previous location of where the scattered asbestos fragments was observed (2015).



Photo 7a: Adjacent to the north eastern wall of the reservoir, facing north west. The monitoring well discovered during the assessment is located in the foreground (2007).



Photo 7b: Adjacent to the north eastern wall of the reservoir, facing north west. The monitoring well discovered during the 2007 assessment is located in the foreground (2015).



Photo 8a: The playground to the south east of the site. The basketball court is positioned over the foundations of the former reservoir workshop (2007).



Photo 8b: The basketball court to the south east of the site (2015).



Photo 9a: The south western portion of the site, facing south towards the site entrance (2007).



Photo 9b: The south western portion of the site, facing south towards the site entrance (2015).

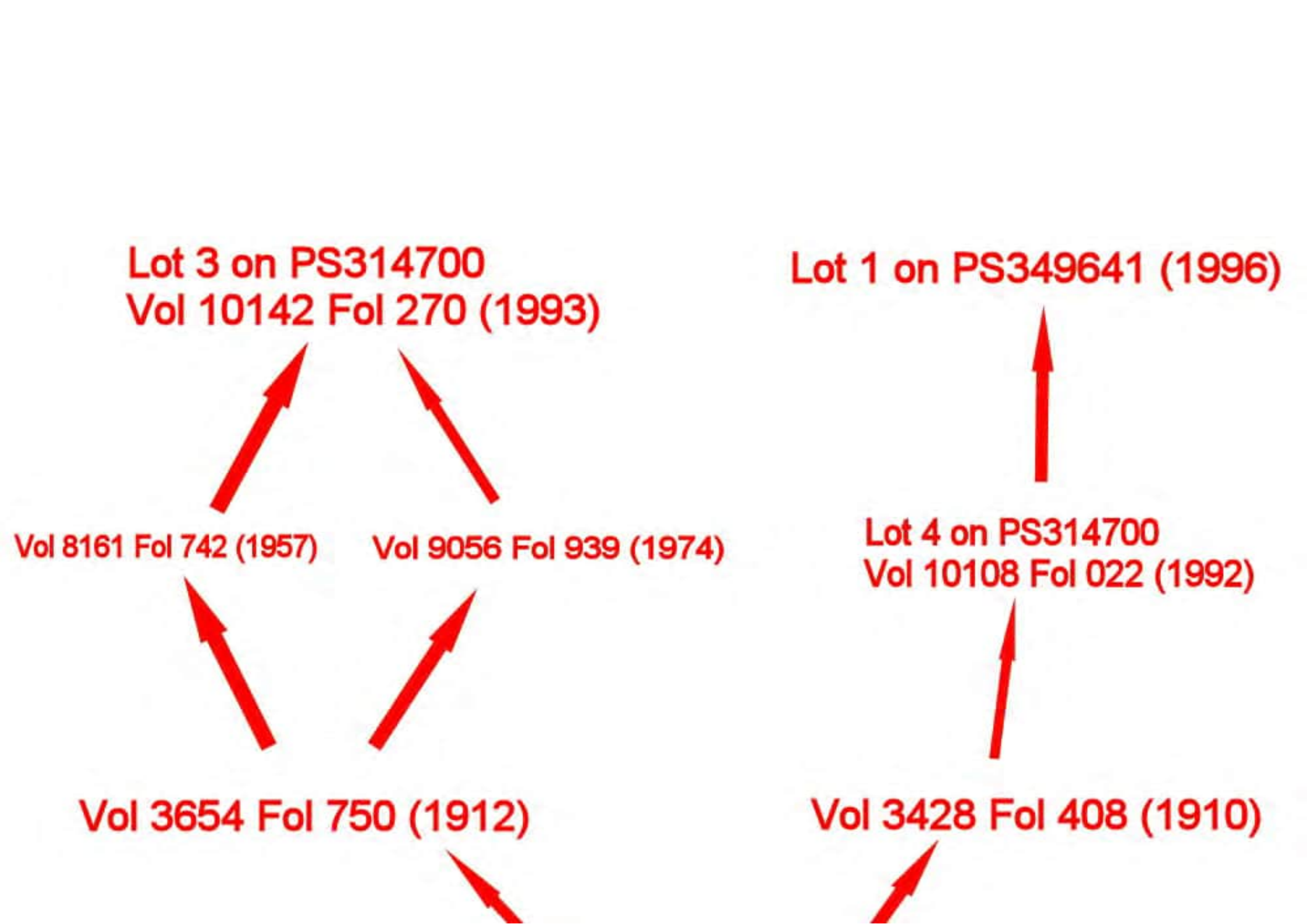


Photo 10: Soil test pit SB1, located in the south western portion of the site (2007).



Photo 12: Scattered asbestos cement sheeting fragments observed in the north western portion of the site (2007).

# Appendix C - Titles


Lot 3 on PS314700
Vol 10142 Fol 270 (1993)
Lot 1 on PS349641 (1996)
Vol 8161 Fol 742 (1957)
Vol 9056 Fol 939 (1974)
Lot 4 on PS314700
Vol 10108 Fol 022 (1992)
Vol 3654 Fol 750 (1912)
Vol 3428 Fol 408 (1910)

8915

ORIGINAL

NOT TO BE TAKEN FROM THE OFFICE OF TITLES

REGISTER BOOK

VOL. 9056 FOL. 939

VICTORIA

# Certificate of Title

UNDER THE "TRANSFER OF LAND ACT"

ANDRAN KYLE WIGHTMAN Builder and FREDA AMELIA WIGHTMAN Married Woman - - both of 435 Upper Heidelberg Road Heidelberg are now joint proprietors of- an estate in fee simple subject to the encumbrances notified hereunder in- - ALL THAT piece of land delineated and coloured red on the map hereon being - part of Lot 91 on Plan of Subdivision No.5824 Parish of Keelbundora - - - - County of Bourke Together with a right of carriage way over the roads - - - coloured brown on the said Plan of Subdivision and Together with a right to use the land coloured yellow on the said map for drainage and sewerage - - - purposes - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

DATED the 7th day of September 1974

Assistant Registrar of Titles

OFFICE OF TITLES VICTORIA

FULLY CONVERTED TITLE

THIS IS A SUPERSEDED FOLIO OF THE REGISTER. Both text and diagram for this folio have been fully converted to a computer folio.

## ENCUMBRANCES REFERRED TO




PLAN 314700 x 35
AFFECTS LAND HEREIN

Derived from Vol.3654 Fol.750
F452112

MEASUREMENTS ARE IN FEET AND INCHES

VOL. FOL. INSTRUMENT APPLICATION VOL. 9056 FOL. 939

COUNTRY ROADS BOARD is now the proprietor

Registered 21st July 1980

No.J76174

CANCELLED As To PART
PURSUANT TO SECTION 24 SUBDIVISION ACT 1988 AND TITLES ISSUED AS SET OUT HEREUNDER.
Registered 15-9-92
No PS314700V

Lots ONE to 2 in Vol 10076 Fol 956
to Vol 10076 Fol 957

Reserve No. ONE in Vol. 10076 Fol. 958

Reserve No. 3 in Vol. 10076 Fol. 959

Titles not Issued for Road(s) which are vested as shown on the Plan.

OFFICE OF TITLES K.B. VICTORIA

TRANSFER AS TO BALANCE No. S291568R
registered 4-1-93
CANCELLED See Vol. 10142 FOL. 270
Lot 3 on PS 314700V

OFFICE OF TITLES K.B. VICTORIA

CANCELLED

FULLY CONVERTED TITLE
THIS IS A SUPERSEDED FOLIO OF THE REGISTER. Both text and diagram for this folio have been fully converted to a computer folio.

T09056-939-1-7

Y 14.59

Entered in the Register Book
Vol. 1667 Fol. 333 & 262

Vol. 1667 Fol. 262

VICTORIA.

# Certificate of Title,

UNDER THE "TRANSFER OF LAND STATUTE."

V 1667
F 262

Charles Henry James of Collins Street West Melbourne Merchant is now the proprietor of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and colored red on the Map in the margin, containing fifty one acres three roods and twenty perches or thereabouts being part of Crown Portion three Parish of Keellundoora County of Bourke Together with a right of carriage way over the road delineated and colored brown on the said map

Dated the eleventh day of March One thousand eight hundred and eighty

Assistant Registrar of Titles.

ENCUMBRANCES REFERRED TO




PLAN PS 314700L X 35
PS 328014L
AFFECTS LAND HEREIN

T01667-262-1-7

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.

C.O. 12997
30.7.12

Vol. 1154 Fol. 226660 Transfer 44160 Application

| Nature of Instrument. | Day and Hour of its Production. | Names of the Parties to it. | Number or Symbol thereon. |
|---|---|---|---|
| Mortgage | The 12th day of June 1903 at 1.45 o'clock in the afternoon. | Charles Henry James to The Commercial Bank of Australia Limited (in Liquidation) Assistant Registrar of Titles. | 533820 |
| Memo No. 1347 On the 26th May, 1897, Edward Nathan Brown, of 31 Queen Street, Melbourne, Accountant was appointed Trustee of the Estate of Charles Henry James, of 418 Collins Street, Melbourne, Sheep Farmer and Grazier. Dated the 16th November, 1901. | The day of 18 at o'clock in the noon. | Assistant Registrar of Titles. | |
| The Commercial Bank of Australia Limited is now the proprietor of the within described Estate and Land by Transfer from the above named Edward Nathan Brown registered on the 4th day of January 1902, at 1.53 o'clock in the fore noon, and Numbered 44660 Assistant Registrar of Titles. | | | |
| Transfer as to part as to the land in Certificate of Title Vol 3428 Fol 685408 and 0 Rds. 0 per Assistant Registrar of Titles | The 21st day of June 1910 at 2.15 o'clock in the after noon. | The Commercial Bank of Australia Limited to The Melbourne and Metropolitan Board of Works Assistant Registrar of Titles. | 629332 |
| Transfer as to part and Creation of Easement cancelled as to the land in Certificate of Title Vol 3654 Fol 730750 3654 | The 4th day of December 1912 at 11.45 o'clock in the fore noon. | The Commercial Bank of Australia Limited to Edward Harry Jenkins Assistant Registrar of Titles. | 728161 |
| Transfer as to part and Creation of Easement cancelled as to the land in Certificate of Title Vol 9870 | The 5th day of June 1913 at 10.46 o'clock in the fore noon | The Commercial Bank of Australia Limited to Ethel Ellen Nelson Assistant Registrar | 745507 |

# Titles Office Record of Subdivision

Register Book Vol 1667 fol 262

SCALE 150 feet to one inch

SEE PS 314700V (CANC PT)

* VESTS IN ROADS CORP VIDE ⇒ CLAUSE 2, SCHEDULE 4 OF TRANSFER ACT

TP 7866J (SEE SHEET 3)

L.P. 5827 Sheet 2

T01667-262-2-5

Natural Resources and Environment

AGRI... ...LAND MANAGEMENT

INTENTIONALLY
BLANK