

Preliminary Site
Investigation with
Supplementary Sampling

Corner of Appin Road and Kellerman Drive St Helens Park NSW 2560

Prepared for Premise Pty Ltd April 2021



New South Wales

2 Tipperary Avenue Killarney Heights NSW 2087

Queensland

11 Tintaldra Court Buderim QLD 4556

Mob: 0412 987 456 Fax: 02 9285 0528

Eml: fenn@canopyenterprises.com

ABN/ACN: 53 093 830 409/093 830 409

Ref No: Helens-AP21

Corner of Appin Road and Kellerman Drive, St Helens Park NSW 2560

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Fenn Hinchcliffe CEnvP BA, MBEnv, CEnvP, MEIANZ Director Canopy Enterprises Pty Ltd Reviewer



CEnvP Seal

01 April 2021

Dr Gunnar Haid

MSc; PhD (Petroleum Engineering) MUL **Senior Environmental Engineer** Canopy Enterprises Pty Ltd Author



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Acknowledgements and Copyright

The following imagery and documentation are attributed to and gratefully acknowledged:

Location Map: Google Maps

Aerial Photography: NSW Department of Land Property Information

Google Earth Pro, Google Maps, Nearmap

All other sources are referenced as footnotes within the document.

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1 Executive Summary

Canopy Enterprises Pty Ltd (Canopy) was engaged by Emily Elliott of Premise on behalf of others (Client) to undertake a Preliminary Site Investigation with Supplementary Sampling and Analysis (PSI-SS) at the Property located at the corner of Appin Road and Kellerman Drive, St Helens Park NSW 2560 (the Site).

Canopy understands that a PSI-SS is required to establish, that the Site is likely to be suitable (or can be made suitable) as part of the gateway determination which includes the rezoning of the Property for use as a neighbourhood centre with an increase in height of Buildings limit (currently zoned as Low Density Residential). After the rezoning, the proposed land use includes the construction of a shopping precinct, restaurant and multi-level residential apartments, as outlined in the Site Plans referenced in Table 1. The Summary of Site Details is contained in Table 1 of Section 3.1 and provided in Appendix A. There have been several contaminated land related investigations conducted on the Property known as 5210 Appin road in which the Site forms a portion there of. A Detailed Site Investigation was undertaken for part of the Property in September 2014 by SMEC Testing Services Pty Ltd (SMEC Report), and a Groundwater Assessment was undertaken in 2018 by STS GeoEnvironmental Pty Ltd (STS Report). In October 2020, Ventia Utility Services Pty Ltd issued a Groundwater Monitoring Event Report (Ventia Report).

This investigation has been undertaken in consideration of and in deference to the relevant guidelines and regulatory documents or part thereof, as presented in Section 12 with regard for the site specific circumstances. In particular the Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (EPA 2020) (Reporting Guidelines), NEPM (2013) and SEPP 55 (among others).

The full suite of findings and conclusions and recommendations are outlined in Sections 10 and 11, however the salient points can be summarised as follows:

- 1. The Site is located in a predominantly residential area with the exception of the service station neighbouring the Site to the west. The Site has a size of approximately 5,440 m².
- 2. The Site's history can reasonably be summarised as a block of land that was possibly used for agricultural purposes, which may have included orchard farming. In circa 2017, a service station was constructed on the Property. The Site itself has remained vacant until the present day.
- 3. No stress was observed in the vegetation and no surface staining or olfactory evidence of contamination were encountered.
- 4. A total of nine boreholes were drilled across the Site as part of the investigation's sampling program, with a total of 13 primary soil samples and three water samples submitted to the laboratory and analysed for a broad range of contaminants.
- 5. The subsurface of the Site was found to consist of a layer of fill material ranging in thickness from 3.0 m and 4.25 m and was followed by natural silty clay of colours varying between orange-brown to grey. This was followed by dark grey shale.
- 6. Groundwater in form of a distinct wet layer was only encountered in Boring B3 at a depth of approximately 8.5 mbgl. No water accumulated in Borings B1 and B2. Water accumulating in Boring B3 was sampled.
- 7. Groundwater flow direction is inferred to be in a north to north-eastern direction;



- 8. The sampling program conducted as part of this investigation targeted a wide range of target contaminants in shallow fill materials found across the Site.
- 9. Results of the laboratory analysis undertaken showed concentrations of all analytes to be below the adopted site criteria.

Based on the results of the investigation the following conclusions are provided:

- 1. Canopy considers that the subject Site is similar in nature to the greater Property, as described in the SMEC Report prior to development of the now adjoining service station. The SMEC Report therefore is considered relevant to the investigation herein given the site-specific circumstances. Canopy's findings, recommendations and conclusions are generally commensurate with those in the SMEC Report, noting in particular the key conclusion of the SMEC Report which stated as follows:
 - 'Based on the results of this DSI, the site is considered to be suitable for a commercial/industrial land use, including the service station development which is proposed. However, the operator of the service station should be requested to provide confirmation that an appropriate environmental performance monitoring program will be implemented as a condition of their lease agreement. As a minimum, this should include a leak detection system for underground petroleum storage systems (UPSSs) in accordance with EPA's Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (UPSS Regulations), a key component of which is the installation of, and regular sampling from, groundwater monitoring wells. The performance monitoring program should be documented in an Environment Protection Plan (EPP), prepared in accordance with the UPSS Regulations'
- 2. Based on the above Canopy considers the Site suitable for the proposed land use without further environmental assessment.
- 3. As a matter of prudence, the following key requirements are noted:
 - The Construction Environmental Management Plan (CEMP) (or equivalent document) should include an 'unexpected finds' protocol.
 - Should any evidence become apparent during site/earth works that asbestos or asbestos fragments (or other contaminants including hydrocarbon odours) are present in soils then appropriate actions should be undertaken in accordance with relevant guidelines and regulations.
 - All soils to be taken offsite must be classified in accordance with the EPA Waste Guidelines Part 1: Classifying Waste (2014) prior to being disposed of at a landfill facility authorised to receive the material.



2 Project Introduction

Canopy Enterprises Pty Ltd (Canopy) was engaged by Emily Elliott of Premise on behalf of others (Client) to undertake a Preliminary Site Investigation with Supplementary Sampling and Analysis (PSI-SS) at the Property located at the corner of Appin Road and Kellerman Drive, St Helens Park NSW 2560 (the Site).

Canopy understands that a PSI-SS is required to establish, that the Site is likely to be suitable (or can be made suitable) as part of the gateway determination which includes the rezoning of the Property for use as a neighbourhood centre with an increase in height of Buildings limit (currently zoned as Low Density Residential). After the rezoning, the proposed land use includes the construction of a shopping precinct, restaurant and multi-level residential apartments, as outlined in the Site Plans referenced in Table 1. The Summary of Site Details is contained in Table 1 of Section 3.1 and provided in Appendix A. There have been several contaminated land related investigations conducted on the Property known as 5210 Appin road in which the Site forms a portion there of. A Detailed Site Investigation was undertaken for part of the Property in September 2014 by SMEC Testing Services Pty Ltd (SMEC Report), and a Groundwater Assessment was undertaken in 2018 by STS GeoEnvironmental Pty Ltd (STS Report). In October 2020, Ventia Utility Services Pty Ltd issued a Groundwater Monitoring Event Report (Ventia Report).

This investigation has been undertaken in deference to the relevant guidelines and regulatory documents or part thereof with regard for the site specific circumstances, as presented in Section 11 (among others), noting in particular the EPA Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (2020) (Reporting Guidelines), NEPM (2013) and SEPP 55.

2.1 Previous Investigations

Previous investigations conducted within the Site are as follows:

SMEC Testing Services Pty Ltd conducted a Detailed Site Investigation (DSI) at the Site in April 2014 and submitted its findings in a report titled Detailed Site Investigation, Land at Lot 5210 Appin Road, St Helens Park, New South Wales with Project No. 19649/4204C and Report No. 14/2134 dated September 2014.

The DSI was commissioned by MIR Group of Companies Presville Developments Pty Ltd for the following purposes:

"The objectives of the investigation were to determine the nature and extent of any soil contamination at the site that may be significant for a commercial/industrial land use setting. Further, as the site is proposed to be redeveloped as a service station, the investigation was also to establish the baseline environmental condition of the site against which the results of future environmental monitoring can be compared."

The conclusions presented in that report were as follows:

• "Soil was sampled from a total of eight locations across the site for this investigation. The results of the sampling program show that that the concentrations of chemical contaminants measured in the soils across the site are low and well below criteria that are protective of human-health for a commercial/industrial land use setting. Further, the



concentrations of chemical contaminants measured in the soils on the site are representative of the natural background levels in the regional soil formation, and the groundwater beneath the site is not likely to be contaminated.; and

• Based on the results of this DSI, the site is considered to be suitable for a commercial/industrial land use, including the service station development which is proposed. However, the operator of the service station should be requested to provide confirmation that an appropriate environmental performance monitoring program will be implemented as a condition of their lease agreement. As a minimum, this should include a leak detection system for underground petroleum storage systems (UPSSs) in accordance with EPA's Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (UPSS Regulations), a key component of which is the installation of, and regular sampling from, groundwater monitoring wells. The performance monitoring program should be documented in an Environment Protection Plan (EPP), prepared in accordance with the UPSS Regulations."

STS GeoEnvironmental Pty Ltd conducted a Groundwater Assessment at the Site in June 2017 and submitted its findings in a report titled Groundwater Assessment for MIR Group of Companies at Lot 5210 Appin Road, St Helens Park, New South Wales with Project No. 19649/8197C and Report No. 17/1221A dated May 2018. The Groundwater Assessment was commissioned by MIR Group of Companies.

The objectives of the investigation are as follows:

"The objectives of the investigation were to determine if the site is likely to be suitable for an ongoing commercial/industrial use in its current condition."

The conclusions presented in that report were as follows:

- "The results of the current groundwater sampling and testing show that the concentrations of contaminants measured in the groundwater samples are below the adopted screening criteria, except for heavy metals cadmium, copper, nickel and zinc. However, the concentrations of these heavy metals are expected to be representative of the background concentrations in the regional aquifer rather than being due to on-site sources, and are therefore not considered to be significant."
- "Based on the results of the DSI of September 2014 and the current groundwater sampling and testing the site is considered to be suitable for a commercial/industrial land use. Further, the groundwater contaminant concentrations determined during the current groundwater assessment can be used as baseline values for the site prior to the commencement of the service station operations."

Ventia Utility Services Pty Ltd conducted Groundwater Monitoring at the Site in October 2020 and submitted its findings in a report titled 7-Eleven Groundwater Monitoring Event Report with Report No. 2316 dated October 2020.

The conclusions presented in that report were as follows:

- "Analyte concentrations are shown in Table 2 Analytical Summary."
- "All hydrocarbon concentrations are stable or display no trend as shown in Table 4 Trend Analysis."



2.2 Scope of Work

The scope of works for this assessment includes:

- Review of all information provided to Canopy by the Client of information relating to the current Site condition including: SMEC Testing Services Pty Ltd DSI, STS GeoEnvironmental Pty Ltd Groundwater Assessment and Ventia Groundwater Monitoring.
 - ➤ Geological maps of the area;
 - > Groundwater data; and
 - ➤ Acid Sulfate Soil Risk Map.
 - ➤ History and EPA records
- Site history review comprising:
 - ➤ Historical aerial photography;
 - ➤ Historical Land Title Search;
 - ➤ NSW Environmental Protection Authority (EPA) Contaminated Land Searches;
 - ➤ Historical contamination assessments (if any); and
 - ➤ Historical Information available under reasonable endeavour.
- Update the CSM presented in the previous investigations;
- Update and identify potential Areas of Environmental Concern (AECs) and Associated Contaminants of Potential Concern (COPCs) presented in the previous investigations;
- A detailed site inspection of the Site including drilling and sampling of soils;
- Laboratory analysis of select samples for COPCs; and
- Preparation of this Report.

2.3 Aims and Objectives

Details of the project are provided in the Summary of Site Details as contained in Table 1 in Section 3.1 and provided in Appendix A.

The PSI-SS has been prepared with deference to the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (2020) (Reporting Guidelines) and the 2015 NSW EPA Sampling Design Guidelines (1995) (SDGs), albeit the intent and core purpose of the SDGs is for the undertaking of Detailed Site Investigations (DSI). It is also noted the SDGs are under major revision and have been recently issued by the EPA as draft for purposes of industry comment. Accordingly, it is noted that the PSI-SS has been designed to take account of the SDGs (among other documentation) and site-specific project imperatives with regard for the physical setting and limitations.

To enable the proposed works to proceed from an environmental investigation perspective, a fundamental objective of the PSI-SS herein is to establish with reasonable certainty that contamination is not present at any levels of concern or otherwise significant. Further, if contamination is present, the contamination is at levels which are considered acceptable for the proposed land use with regard to identified land use thresholds and other relevant sections of NEPM (2013).



If contamination is however found to be present at unacceptable levels, the PSI-SS will determine, if the Site can be made suitable for the proposed land use noting the intent of Clause 7 (1) (a-c) of SEPP 55. Mechanisms such as disposal of contaminated material off-site to a licenced land fill facility in accordance with the EPA Waste Guidelines Part 1: Classifying Waste (2014) may in this case be appropriate. Determination will also be provided with respect of whether the requirement for a DSI is triggered under the countenance of SEPP 55 noting in particular Cl 7 (3).

The central aims and objectives of the PSI-SS are as follows:

- Conduct an investigation based on the findings of the previous investigations outlined above in general compliance with contemporary reporting standards and industry expectations.
- to identify any evidence which may suggest that the conditions or the contamination profile at the Site have materially altered since when SMEC and STS undertook their assessments.
- to confirm or (otherwise) SMEC's principal conclusion stated as follows:

'In our opinion the site [sic] is considered to be suitable for development as a residential subdivision.'

• to confirm (or otherwise) that no further environmental assessment is required.



3 Site Information and Surroundings

3.1 Site Identification

The Site details are summarised in Table 1 below:

Table 1: Summary of Site Details

Subject	Description
Site description (The Site)	Part of Lot 6202/DP 1203930 Corner of Appin Road and Kellerman Drive St Helens Park NSW 2560 (excluding the existing service station)
Site Area approximately	Approximately 5,440 m ² (Property area approximately 7625 m ²)
The Client:	Emily Elliott Town Planner Premise Pty Ltd (on behalf of others)
Council and LEP	Campbelltown City Council Campbelltown Local Environmental Plan 2015 (Updated 2021)
Present and proposed zoning	Present zoning: R2 – Low Density Residential Proposed zoning: B1 – Neighbourhood Centre
Reason for Assessment	Proposed development of a neighbourhood centre, including a supermarket, shops, restaurant, takeaway shops, gymnasium, residential apartments and an underground parking facility.
Approximate AHD	138 - 144 m AHD
Supporting relevant information provided to Canopy:	Site Plans: Clarke Hopkins Clarke Ref: 170164/SK01-SK08 dated January 2019; Richmond & Ross Pty Ltd Ref: P1008-SK2 dated 8 July 2002. Campbelltown City Council Determination of Application Ref: F886/2002 dated 2 April 2003. Statement of Environmental Effects: Acclaim Australia Pty Ltd. Proposal Details: Corner of Appin Road and Kellerman Drive, St Helens Park (No. PP_2020_CAMPB_005_00). Detailed Site Investigation: SMEC Testing Services Pty Ltd Ref: 14/2134 dated September 2014. Groundwater Assessment: STS GeoEnvironmental Pty Ltd Ref: 17/1221A dated May 2018. Groundwater Monitoring Event Report: Ventia Utility Services Pty Ltd dated October 2020.
Additional Information	This PSI-SS has been undertaken by suitably qualified and experienced personnel. A PSI-SS report will be provided with reference to relevant guidelines and regulations or part thereof, in particular the EPA Consultants Reporting on Contaminated Land Guidelines (2020), NEPM (2013), SEPP 55 and the LEP.



Figure 1 Location Map

Corner of Appin Rd & Kellerman Drive, St Helens Park NSW 2560 (Source: Nearmap & Whereis)





3.2 Site Description / Land Use

The Site consists of an L-shaped parcel of land, which forms a portion of the greater Property which is situated directly east of Appin Road and south of Kellerman Drive. The majority of the Site consists of a vacant grass covered area. A concrete driveway is located toward the northern section of the Site which runs through to the central portion of the Site before connecting to a service station located toward the south-western portion of the greater Property.

Neighbouring the Site are residential buildings located to the south and east. To the west, opposite Appin Road are additional residential buildings. Parklands are apparent to the north of the Site, opposite Kellerman Drive.

Site photographs are provided in Appendix B.

3.3 Topography

Review of the regional topographic maps from SIX Maps¹ and Free Map Tools² indicated that the Site is located at approximately 138 - 144 m AHD.

The general area surrounding the Site declines to the north-east at a rate of approximately 4%. The Site itself follows the general slope of the area, with a decline towards the north-east.

3.4 Hydrology and Hydrogeology

The SMEC Report describes the Hydrology and Hydrogeology of the Site as follows³:

"A search of the Department Natural Resources (DNR) groundwater database was also performed to identify wells in the vicinity of the site. The search results identified no registered groundwater monitoring wells within 1 km of the site.

Based on the observations made during our on-site soil sampling activities, the results of the groundwater database search and our review of the site geology and regional groundwater conditions, a summary of the site hydrogeology is summarised in Table 5.1.

TABLE 5.1 – SITE HYDROGEOLOGY

Aquifer Type and Lithology:	Clay and Shale ^{1,2}
Perched groundwater:	Not expected to be present ^{1,2}
Depth to Aquifer at Site:	Approximately 5-10 m ^{1,2}
Local Groundwater Flow Direction:	South-East ¹
	(Canopy's addition: see below discussion)
Regional Groundwater Flow Direction:	East to South-East ¹
	(Canopy's addition: see below discussion)
Receiving Environments:	Local creek, located approximately 800 m to
	the east of the site ¹ .

Inferred conditions based on site/regional geology and geomorphology.



² Actual conditions based on observations made during on-site drilling."

http://maps.six.nsw.gov.au/

 $^{^2 \}qquad https://www.free map tools.com/elevation-finder.htm$

Table 5.1 is only to be used as a reference to the SMEC report table 5.1 and it's findings

Canopy also conducted an additional search of the NSW Office of Water Online Database⁴ to identify if any recent groundwater bores had been created within the vicinity of the Site, since the STS Report was generated. The search indicated that there were no additional boreholes within a 1,000 m radius of the Site.

In their 2017 groundwater assessment, STS installed and sampled three monitor wells at the service station site. The recorded depths to groundwater in the three wells ranged between 3.5 m below the top of the PVC pipe in MW3 to 4.42 m in MW2.

The closest surface water body to the Site is Spring Creek located approximately 750 m east of the Site. Spring Creek leads into Georges River a which is a further 900 m south-east of the Site. Stormwater runoff can conceivably reach Spring Creek and then end in Georges River which makes both the Creek and Georges River potential receptors. Considering the large distances of those receptors from the Site would indicate that impact sourced from the Site reaching these receptors is unlikely. This is commensurate with NEPM (2013) which provides a distance of 500 m from a site as a general guide for identification of potential ecological receptors.

The direction of groundwater flow cannot reliably be estimated from the data provided in the above table, but groundwater flow direction in general follows the surface gradient towards the nearest water body. As such it is discerned that groundwater would most likely flow towards the northeast or east.

We acknowledge that STS in their 2017 Groundwater Assessment Report provide an inferred groundwater flow direction in a south-eastern to eastern direction. Considering the local topography which distinctly slopes in a northern to north-eastern direction and the placement of STS's monitor wells, we consider the information regarding groundwater flow direction by STS (see above table) to be a typographic or template error.

3.5 Geology and Soils

The SMEC Report describes the Geology of the Site as follows:

"The Geological Survey of NSW 1:100,000 Wollongong Geological Map (Sheet 9029-9129) shows that the site is underlain by the Triassic Age 'Ashfield Shale' formation, which comprises laminate and dark grey siltstone. The natural soils encountered during the investigation predominantly comprised light grey and orange/red-brown silty clays, which are consistent with residual soils weathered from the regional geological formation. Shale bedrock was also encountered in the boreholes at depths between 0.9 m and 4.5 m below the land surface."

Canopy has reviewed geology and soils and concurs with SMEC's findings.

3.6 Acid Sulfate Soil Risk

The SMEC Report describes the Acid Sulfate Soil risk of the Site as follows:

"Further, our review of the Acid Sulfate Soil (ASS) risk maps available on the EPA NSW Natural Resources Atlas shows that the site is located in an area that is not expected to be affected by ASSs. This is supported by the geology and geomorphology of the site."

⁴ https://realtimedata.waternsw.com.au/water.stm





Canopy concurs with the Acid Sulfate Soils Risk findings as contained in the SMEC Report.

3.7 Per and Poly-Fluoroalkyl Substances (PFAS)

PFAS have been globally identified as chemicals of high concern to human health and the environment due to their persistence and bioaccumulation. PFAS in Australia, are mainly used as mist suppressants in the metal plating industry, hydraulic fluid in aircraft, surfactants in the photographic industry, and in some types of fire-fighting foams (Aqueous Film-Foaming Foams (AFFF). Appendix B of the PFAS National Environmental Management Plan⁵ documents a range of activities and sources of PFAS.

Information published by NSW Health⁶ provides the following information:

NSW Environment Protection Authority (EPA) has established a PFAS Investigation Program and is prioritising sites around NSW where PFASs were used in significant quantities. The investigation is focussing on airports, firefighting training facilities and some industrial sites, particularly those sites where it is determined that there are exposure pathways to these chemicals through bore water usage, surface water usage or fishing.

The EPA's PFAS Investigation Program⁷ lists a number of sites across NSW to identify the use and impacts of legacy PFAS. The Site in question is not located close to one of the sites listed in the Investigation Program.

The detailed historical research program described in Section 4 did not indicate that the Site would be a candidate for possible PFAS impact. Based on the above information, PFAS impact on the Site appears unlikely.



PFAS National Environmental Management Plan Version 2.0', Heads of EPA Australia and New Zealand 2020

http://www.health.nsw.gov.au/environment/factsheets/Pages/pfos.aspx

https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

4 History

4.1 General History

The original inhabitants of St Helens Park were the Dharawal People. The earliest land grants in the region were acquired by Samuel Larken and John Wild in 1816, consisting of 90 acres and 110 acres respectively. By 1837, Denfield Homestead had been constructed, which became a focus of farming in the area. This homestead is still standing and is found approximately 230 m south of the Site. By 1886, Larken's parcel of land was combined with surrounding parcels and was sold to George Westgarth. Westgarth soon constructed a private dam across Spring Creek, which is also still standing, approximately 800 m north-east of the Site. By 1887, St Helens Park House had been constructed. The mansion, from which the suburb's name originates, can be seen today, approximately 300 m north-east of the Site. Towards the end of the 19th Century, free settlers bought land closer to the river, where they settled to establish small farms.

By the 1940s, the property that Westgarth had acquired had become known as 'Blowfly Farm' as it was used as a fly spray testing laboratory until 1949. Throughout the majority of the 20th Century, St Helens Park was primarily comprised of bushland and farmland. In 1975, Campbelltown Council decided to facilitate suburban development in the area, and in 1976, St Helens Park was officially created. In the same year, a rubbish tip, located approximately 1.5 km north-east of the Site was converted into a baseball complex. Development remained slow throughout the late 20th Century; in the 1980s, parts of the suburb were still being used for grazing.

Historical aerial photographs indicate that the Site was a rural property throughout the majority of the 20th Century. Development around the Site seems to have begun in the 1980s and steadily continued until the present day. In 2016, development of a service station began in the southwestern section of the greater Property, which was completed by 2018.

Sources and supporting information are provided in Appendix F.

4.2 Heritage Registers

The Site or any of its structures were not listed (at the time of preparation of this report) as a heritage item under Australian and NSW Heritage registers or under Schedule 5 of Council's LEP. The search identified two heritage buildings, Denfield Homestead, located on Appin Road, approximately 230 m south of the Site, and St Helens Park House, located at 66 St Helens Park Drive, approximately 350 m north-west of the Site, as items of national or state significance in the vicinity of the Site. Given the distances from the Site and several residential buildings and roads between, the potential for the proposed development impacting these heritage buildings is considered low.

The results of the heritage database search are provided in Appendix C.



4.3 EPA Records

A search was conducted of various NSW EPA Contaminated Land Databases 8 9 10 to identify if the Site itself or any surrounding sites within a 500 m radius, are or have previously been registered with the EPA for any contaminated land related activities. The search concluded that the Site itself or within the defined radius were not listed within any of the above databases.

The results of the NSW EPA Contaminated Land Databases search are provided in Appendix D.

4.4 SafeWork NSW Records

Based on the information obtained as part of Canopy's Site History Research procedure along with site observations, a search of records of SafeWork NSW was not considered to be necessary for this Site.

4.5 Historical Land Title Search

SMEC undertook a search of current and past land titles for the Property. Canopy reviewed and was in agreement with the searches undertaken by SMEC and performed additional searches. Results are summarised in Table 2 below¹¹:

Table 2: Summary of Historical Land Titles Information

Year	Purchaser/Leasers /Activity
"1911 - 1939	Leila Helen Roberts"
"1939 - 1972	Mary Olivia Riley wife of William Riley (farmer)"
"1972 – present	J.M Associated Investments (Dulwich Hill) Pty Limited and G.M Amalgamated Investments (Dulwich Hill) Pty Limited"
Leased in 2019	7-Eleven Stores Pty Ltd

The title certificates revealed that the Property has been owned by various individual entities up until 1972. After 1972, the Property itself has had numerous deposited plans summitted, with the most recent property size of approximately 7,625 m² in 2017. In 2019 the Property was leased by 7-Eleven Stores Pty Ltd.

There are no indicators that the Site has been used for any purposes that would cause excessive contamination. Copies of the selected historical property searches, recent deposited plans and lease certificates as reviewed by Canopy are included in Appendix E.

¹¹ Reasonable effort has been made to ensure titling accuracy to the extent practicable of the landowner/ ID, approximate date of land transfer and previous land sizes and format. However, the sole purpose and intent of the searches is to establish either general or any specific activities on the subject Site which may have a reflection on the potential for contaminated land. Therefore, information herein should not be relied upon for titling or any other purposes whatsoever.



⁸ NSW EPA Contaminated Land List Data Source: Environment Protection Authority - List of NSW contaminated sites notified to EPA.

Ontaminated Land Records of Notice Data Source: Environment Protection Authority - Contaminated Land: Records of Notice.

¹⁰ POEO Licence Data Source: Environment Protection Authority - Public register under the Protection of the Environment Operations Act 1997

4.6 Aerial Photographs

SMEC undertook a search for historical aerial photographs for the Site. Canopy reviewed these and was in agreement with the searches undertaken by SMEC but also performed additional searches. Additional searches were sourced from Google Earth Pro, Six Maps, NSW Department of Land Property Information (LPI) and Nearmap. All historic photographs are shown in Appendix F, a summary of SMEC's findings and additional aerials added by Canopy are described in the table below.

Table 3: Summary of Historical Aerial Photograph Information

Year	Site Description and Surrounding Area
1947	The SMEC Report states: "The site comprises cleared rural land that is covered in grasses with isolated trees. Further, furrow patterns on the land surface suggest that the orchards may have once occupied the site. The surrounding land is vacant and is being used for agricultural purposes, either grazing or orchard use. Appin Road is visible along the western boundary of the site."
1969	The furrow patterns are no longer apparent on the Site. A dam has been constructed to the east of the Site. There also appears to be some light development to the south of the Site.
1994	Vegetation growth has increased on-site. Residential development is evident to the west of the Site. A roundabout has been constructed directly north-west of the Site.
2005	The SMEC Report states: "the grass cover is sparse in several areas of the site and exposed earth is visible." Residential development is evident to the east of the Site. Kellerman Drive has been constructed to the north of the Site. The aforementioned roundabout has been replaced by an intersection. A small dam has been constructed adjacent to the north-eastern corner of the Site.
2007	The northern portion of the Site appears to have been resurfaced. The dam appears to have been filled.
2014	Grass cover has been established over the majority of the Site. What appear to be vehicle tracks are prevalent on the Site. Residential development has continued to the east of the Site and power lines are now apparent neighbouring the Site to the west.
2016	The ground surface in the southern section of the Site appears bare, and several vehicles and small structures are present here. There appears to be stockpiles, potentially of soils, towards the Site's eastern boundary. A road has been constructed to the south of the Site and residential development has continued to the east of the Site.
2017	There are numerous stockpiles of soil throughout the Site, including one large stockpile of several different soils in the northern portion of the Site. Stockpiles of what appear to be building materials can be seen just within the Site's northern and western boundaries. Construction of the service station has begun on the Property, west of the Site. There appears to be a stockpile of soil on a property neighbouring the Site to the south-east.
2021	The Site contains a concreted access way from Kellerman Drive. The majority of the Site is vacant and grassed. A service station is apparent on the Property, west of the Site. Residential development has increased to the east and south of the Site.

Note: Additional aerials of the intervening years as reviewed by Canopy are available on request



4.7 Summary of Historical Research

The SMEC Report summarises the Historical Research for the Site as follows:

"Based on the historical information reviewed, the site has remained cleared rural land since at least 1947. However, there is evidence that orchards may have occupied the site during the 1940s and earlier."

Canopy's review of historical sources from 2014 (after the SMEC report) until the present indicated that there are no indications that the Site has been used for activities that would raise concern from a contamination point of view. The location of the Site directly down-gradient of an active service station poses a potential for on-site contamination that requires investigation.



5 Conceptual Site Model

A Conceptual Site Model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. Based on the information presented above, the following Conceptual Site Model is presented.

5.1 Potential Contamination Sources, Areas and Contaminants of Concern

Based on the Site history review and the observations made during the Site visits, potential Areas of Environmental Concern (AECs) associated with Contaminants of Potential Concern (CoPCs) that have been identified to potentially be present on-site are summarised in the below table:

Table 4: Summary of AEC

Potential AECs / Activity	Contaminants of Potential Concern
Possible fill layer present across the Site and/or underneath the building footprint	Polycyclic Aromatic Hydrocarbons (PAH), Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Asbestos, Organochlorine Pesticides (OC), Organophosphorus Pesticides (OP), heavy metals, and Polychlorinated BiPhenols (PCB), Asbestos
History of agricultural and market garden land use	Heavy metals, OC/OPs
Presence of a UST near the western boundary to centre of the Site.	BTEX, TRH, lead, PAH

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The following table summarises the mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC as presented above.

Table 5: Conceptual Site Model Summary

Item	Description
Potential mechanism for contamination	Fill material – importation of impacted material, 'top-down' impacts (e.g. placement of fill, leaching from surficial material etc), or subsurface release (e.g. impacts from buried material); Use of pesticides during use for agricultural purposes – 'top-down' and spills (e.g. during normal use, application and/or improper storage); Active service station next door to the Site. 'Bottom up' impacts from leaking tanks and underground pipes. Hydrocarbon impact may be present in the tank pits (most likely the base) and surrounding soils; contamination may be associated with the fill material surrounding the tank, the fill lines and soils bordering those areas.



Affected Media	Soil/soil vapour and groundwater have been identified as potentially affected media.
Receptor identification	Human receptors include site occupants/users (adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas).
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene, BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the Site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, or inhalation of vapours within enclosed spaces such as buildings.
Potential Exposure Mechanism	The following have been identified as potential exposure mechanisms for site contamination: Vapour intrusion into the existing and proposed buildings (either from soil contamination or volatilisation of contaminants from groundwater); Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and Migration of groundwater onto the Site.
Presence of preferential pathways for contaminant movement	Sewers and other utility lines and the associated sewer trench/trench backfill is a potential preferential pathway for contaminant migrations. This could occur via groundwater/seepage if present, or via soil/vapour migration through the sewer and/or trench backfill.



6 Field Works and Supplementary Sampling Program

6.1 Site Inspection

A site inspection was undertaken by Dr Gunnar Haid, Canopy's Senior Environmental Engineer, on 9 March 2021. The Site is irregularly shaped and is void of any structures with the exception of a concrete covered access road to the neighbouring service station. See site photographs in Appendix B.

The concrete driveway was in reasonably good condition, the rest of the Site is covered with dirt which is grass covered along Appin Road and overgrown with weeds and poorly maintained grass in the remaining areas.

The property boundaries towards the west and north are unfenced and open. Both the eastern and southern boundaries are fenced off with colorbond fences.

The Site is approximately 5,440 m². The NSW EPA Sampling Design Guidelines (SDG) state a minimum of 15 borehole locations are required to be drilled (across the subject site) to satisfactorily characterise a site of that size. However, the SDG guidance is generally applicable in the event a Detailed Site Investigation (DSI) is required to be undertaken. Furthermore, the Site had been assessed previously (see Section 2.1). Provided the main goals of this investigation (as outlined in Section 2.3) and based on the results of the desktop research as described in the sections above, the sampling program designed and considered adequate by Canopy for this investigation consisted of nine soil boring locations (see Site Map in Appendix B).

6.2 Supplementary Sampling Program

The supplementary sampling program included the advancement of nine boreholes (B1-B9). Borehole locations were drilled as shown in the Site Map as contained within Appendix B.

The locations for drilling were cleared of underground utilities before carrying out the drilling activities. Boreholes were advanced using a truck mounted drill rig using solid flight augers (B1 to B3) and a hand auger tool for all other borings. Shallow soil samples were obtained directly from the auger. On all deeper samples a Sand and Sludge Sampling Probe was used by advancing the probe from the bottom of the borehole for another 150 mm into the undisturbed soil. The probe was retrieved, the stainless steel sample part of the probe opened, and the sample retrieved.

All sampling was carried out using fresh disposable gloves at each sampling event and to the extent possible making sure that cross contamination between layers and boreholes was avoided. Augers and the sampling tool were brushed and if necessary, rinsed off between boreholes and samples.

Samples were placed into laboratory supplied sample jars with Teflon-lined lids. Soil sample jars were fully filled in an attempt to minimise head space, labelled and immediately placed in an electrically (battery and/or mains) powered portable refrigeration unit for storage during field work and for transport to the laboratory. A chain of custody (CoC) form was filled in with the sample names, project ID, sampling date and required analyses. This documentation and the samples were then delivered to the laboratory on the day after sampling by the Canopy representative without the use of couriers or third parties. CoC documentation is presented in Appendix G.



The subsurface of the Site consisted broadly speaking of a layer of fill material (dark brown to light brown gravelly silty clay and silty clay of low plasticity). This layer was between 3 m (Boring B3) and 4.25 m (B2) thick. This fill layer was followed by natural and what appeared undisturbed orange-brown to grey silty clay which was followed by dark grey shale. The maximum depth reached was 9.0 mbgl. Bore logs providing more information about the subsurface geology are provided in Appendix H.

No staining or other abnormal soil discolouring was encountered in any of the bore holes. There were no signs of underground storage tanks present at the Site (notwithstanding the presence of USTs on the neighbouring service station). Groundwater in form of a distinct wet layer was only encountered in Boring B3 at a depth of approximately 8.5 mbgl. All borings were left open for a minimum of 2 hrs before being backfilled. No water accumulated in Borings B1 and B2. Water accumulating in Boring B3 was sampled.

A total of 13 primary soil samples was collected from the borings at various depths and submitted to the laboratory for analysis. Samples were submitted to NATA accredited laboratory Envirolab Services in Chatswood, NSW. Analytical methods complied with NEPM and NSW EPA requirements, with Practical Quantitation Limits (PQLs) used in the laboratory tests less than the adopted site investigation criteria.

The surface of the Site and all soil from the boreholes were inspected for the presence of ACM. No signs of ACM sheets or fragments thereof were noticed on the surface or in any of the soil samples. Samples were analysed for as per the analytical schedule summarised in the below table.

Table 6: Analytical Schedule

Matrix type	Sample ID	TRH/ BTEX	РАН	Metals (8)	РСВ	OC/OP	Asbestos	
Soil	B1 0.15m	X	X	X	X	X	X	
Soil	B1 7.3m	X	-	-	-	-	-	
Soil	B2 0.15m	X	X	X	X	X	X	
Soil	B2 2.1m	X	-	-	-	-	-	
Soil	B2 8.2m	X	-	-	-	-	-	
Soil	B3 0.15m	X	X	X	X	X	X	
Soil	B3 8.7m	X	-	-	-	-	-	
Soil	B4 0.2m	X	X	X	X	X	X	
Soil	B5 0.2m	-	-	X	-	X	-	
Soil	B6 0.2m	-	-	X	-	X	-	
Soil	B7 0.2m	-	-	X	-	X	-	
Soil	B8 0.2m	-	-	X	-	X	-	
Soil	B9 0.2m	-	-	X	-	X	-	
Soil	D1	-	-	X	-	-	-	
Water	B3W	X	-	-	-	-	-	
Water (off-site)	MW1	X	-	-	-	-	-	
Water (off-site)	MW2	X	-	-	-	-	-	
- = Sample not analysed X = Sample analysed								

6.3 Water Sampling

Prior to sampling, the depth to the standing water level was measured. Following this, MW1 and MW2 were sampled by lowering a hyrdasleeve sampler into the well to a depth of at least 2 m below the water table. The hyrdasleeve sampler was retrieved in one motion and the contents emptied into the prepared sample containers.

A small amount of groundwater accumulated in Boring B3 and Water from Boring B3 (Sample B3W) was obtained without the installation of a monitor well. A BTEX vial was lowered into the well in a string a number of times and used to retrieve enough water to fill a second BTEX vial which was submitted for analysis.

6.4 Assessment Criteria

Assessment criteria relevant to residential (with minimal opportunities for soil access) land use were selected from Schedule B 1 Guidelines on Investigation Levels for Soil and Groundwater (National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013).

Additional screening criteria were adopted from the Cooperative Research Centre for Contaminant Assessment and Remediation of the Environment (CRC CARE) Health Screening Levels (HSLs) for Petroleum Hydrocarbons in Soil and Groundwater (Friebel & Nadebaum, 2011).

The CRC CARE guidance provides the latest approach for assessing the risks of petroleum mixtures for a variety of land use scenarios, and in particular the evaluation of the direct contact and vapour migration intrusion pathways. Consistent with CRC CARE (2013) Petroleum Vapour Intrusion guidance, soil HSLs were applied to the Site, as detailed below.

The guidelines selected as relevant screening criteria for soil include those designed for the inhalation of vapour and for direct contact, considering:

- Health Investigation levels (HILs) for soil contaminants Residential B (HIL-B);
- Soil HSL B for Vapour Intrusion for soil specific to the Site (clay <1 m);
- Soil Health Screening Levels for Direct Contact (CRC Care 2011); and

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) were used for an 'minimal opportunities for soil access' exposure scenario as outlined in NEPM (2013) and adjusted for the soil type.

EILs for selected metals were calculated based on the conservative added contaminant limit (ACL) values for soils with a pH of 5.5 or more (neutral to slightly acidic soils) presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values¹² (50th percentile for background levels in old suburbs with high traffic).



Olszowy, H, Torr, P, Imray, P 1995, Trace element concentrations in soils from rural and urban areas of Australia, Contaminated sites monograph no. 4, South Australian Health Commission.

Guidelines for the classification of waste were used using the 2014 NSW EPA Waste Classification Guidelines Part 1: Classifying Waste.

Water

Groundwater analytical data for this assessment has been compared against the following groundwater criteria:

The NEPM (2013) Groundwater Investigation Levels (GILs) for freshwater and marine aquatic ecosystems were adopted as one component of the groundwater investigation criteria. It is noted that the NEPM (2013) GILs apply to typical slightly to moderately disturbed ecosystems and have been adopted from the Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000), National Water Quality Management Strategy, Australian Water Quality Guidelines for the Protection of Aquatic Ecosystems (ANZECC/ARMCANZ, 2000). ANZECC/ARMCANZ (2000) has been superseded by ANZG (2018).

Given the urban nature of the area where the Site is located, the presence of a reticulated water supply, and absence of water bodies within 250m of the Site with the potential to support recreation, it is unlikely that groundwater in the area would be extracted for drinking water, stock, recreation and irrigation purposes. In addition, no domestic, stock, irrigation or recreation bores have been identified within 500 m of the Site (refer to 3.4). However, the NSW EPA (2015) Duty to Report Guidelines reference NEPM (2013) criteria, including the NEPM (2013) Drinking Water criteria. Therefore, the results will also be compared to the NEPM (2013) Drinking Water criteria.

To evaluate the potential risk posed from vapour intrusion (VI) from groundwater, analytical results have been compared to the NEPM (2013) Health Screening Levels (HSLs) for VI from groundwater. The NEPM (2013) HSLs have generally adopted the CRC CARE (2011) HSLs for evaluation of VI risk posed from groundwater with some minor deviations. Based on the intended land use of the Site, the analytical results will be compared to the HSL B criteria for VI which will be selected for the appropriate soil type encountered in the subsurface.

The HSLs do not also directly apply to water levels shallower than 2 m, but as an initial screening measure, the results will be compared to the sand HSLs for depth range 2 to 4 m. The NEPM (2013) groundwater HSLs have been drafted as a screening tool to determine whether further investigation is necessary. This means that should the identified concentrations be below the adopted HSLs then no further investigation is required. However, should the identified concentrations be above the HSLs it is noted that this is a trigger value requiring further detailed assessment.



7 Quality Control and Quality Assurance

7.1 Field QC Samples

Intra-laboratory field duplicate (blind or field duplicates) samples are used to determine the precision associated with all or part of the sample collection and measurement process. They also provide an indication heterogeneity of the sample matrix. They are two independent samples collected as nearly as possible, from the same point in space and time. The two samples are collected from the same source using the same type of sampling equipment. Each field duplicate is collected and stored in separate sample containers and transported in the same shipping container¹³.

The results of the analyses on blind duplicate sample pairs are assessed by calculating the Relative Percent Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

RPD values are considered acceptable if they are less than:

- 30% for inorganics and 50% for organics for results greater than ten times the laboratory's practical quantitation limit (PQL);
- 50% for inorganics and 70% for organics for results between five and ten times the PQL; and
- 100% for results less than five times the PQL.

The RPDs obtained as a result of this investigation are summarised as follows:

Table 7: Calculated RPDs for Intra Laboratory Blind Duplicates

Analyte	Parent	Dupli- cate	PQL [mg/kg]	Parent [mg/kg]	Duplicate [mg/kg]	Accepted RPD %	RPD % [rounded]	
Arsenic	B9, 0.2 m	D1	4	4	<4	NA	NA	
Cadmium	B9, 0.2 m	D1	0.4	0.5	< 0.4	NA	NA	
Chromium	B9, 0.2 m	D1	1	8	8	50	0	
Copper	B9, 0.2 m	D1	1	22	21	30	5	
Lead	B9, 0.2 m	D1	1	29	35	30	19	
Mercury	B9, 0.2 m	D1	0.1	< 0.1	< 0.1	NA	NA	
Nickel	B9, 0.2 m	D1	1	7	5	50	33	
Zinc	B9, 0.2 m	D1	1	74	87	30	16	
* RPD values a	* RPD values are only calculates where both results are above the laboratory Practical Quantitation Limit (PQL)							

The above RPDs all fall within the acceptable levels and results are hence considered acceptable for the purpose of this investigation.

 $^{^{\}rm 13}$ Lee, C C. Environmental Engineering Dictionary. 4th ed., Government Institutes, 2005.





Inter-laboratory duplicate samples are field duplicate samples submitted to two different laboratories to provide a check of the analytical performance of the primary laboratory and specifically, the reproducibility of primary laboratory data.

The laboratory chosen for the analysis of all samples is NATA registered and has a rigorous quality program in place (See laboratory reports in Appendix G). It is regularly audited as part of the NATA registration. Considering the nature of this investigation, it is Canopy's opinion that the quality control implemented by the laboratory is sufficiently rigorous for this type of investigation, hence inter-laboratory duplicate samples, trip blanks and trip spikes (mainly used when volatile substances are of primary concern) were not submitted as part of this investigation.

Potential cross contamination between sampling locations can be an issue at contamination assessments. Rinsate samples are used to assess the effectiveness of decontamination procedures. Levels of contaminants resulting from cross contamination between sample locations would in all likelihood over-estimate site impact rather than mask the presence of contaminants. No rinsate samples were submitted as part of this investigation which was for the reasons given above considered acceptable for this investigation.

7.2 Laboratory Quality Program

Laboratory QA/QC is provided in the laboratory reports in Appendix G. Laboratory QC analytical results are summarised below:

- Laboratory analysis of soil samples was undertaken by a NATA accredited environmental testing laboratory.
- All soil samples were extracted and analysed within holding times.
- No target analytes were detected in any of the method blanks.
- RPDs for the laboratory duplicate soil samples were within the acceptable range for all samples.
- Percentage recovery results for laboratory control samples were within the acceptable range for all samples.
- Percentage recovery results for surrogate samples were within the acceptable range for all samples.
- Percentage recovery results for matrix spikes were within the acceptable range for all samples.



8 Analytical Results

A summary of laboratory results from the investigation is provided below (the laboratory reports are included in Appendix G).

8.1 Human Health Criteria Assessment

A brief summary of the analysis result when compared to the Site Criteria for human health (see Section 6.4) is provided below.

• BTEX / TRH:

All samples reported concentrations below the adopted Site Criteria.

• Eight Priority Heavy Metals:

All samples reported concentrations below the adopted Site Criteria.

• PAHs:

Total PAHs concentrations in all samples were below the adopted Site Criteria.

• **Benzo(a)pyrene as TEQ** (a calculation that combines weighted concentrations of a number of select PAHs):

All samples reported concentrations below the adopted Site Criterion.

• OCP, OPP & PCBs:

All samples reported concentrations below the adopted Site Criteria.

Asbestos:

All samples reported no asbestos fibres detected

A summary of the results and investigation criteria applied to this investigation is provided below. A table summarising all analysis results is presented in Appendix G.



Table 8 Assessment Criteria and Results Summary

Analyte	Criteria	Maximum Concentration [mg/kg]	Exceedance	Samples exceeding criteria
Arsenic	500 ¹	7	No	NA
Cadmium	150 ¹	0.5	No	NA
Chromium	500 ¹	15	No	NA
Copper	$30,000^1$	39	No	NA
Lead	1,200 ¹	35	No	NA
Mercury	120 ¹	<0.1	No	NA
Nickel	1,200¹	15	No	NA
Zinc	$60,000^1$	87	No	NA
F1 (TRH C6- C10 less BTEX)	45 ²	<25	No	<100
F2 (TRH C10- C16 less Naphthalene)	110 ²	<50	No	<100
C16 – C34	$5,800^3$	<100	No	<100
C34 – C40	$8,100^3$	<100	No	NA
Benzene	0.5^{2}	< 0.2	No	NA
Ethyl benzene	55 ²	<1	No	NA
Toluene	160^{2}	< 0.5	No	NA
Xylene	40^{2}	<1	No	NA
Naphthalene	3^2	<1	No	NA
Total PAH	400^{1}	< 0.05	No	NA
PAHs (as BaP TEQ)	41	<0.5	No	NA
PCBs	1 ¹	<0.1	No	NA
ОСР	Various (see results tables)	BDL	No	NA
OPP	Various (see results tables)	BDL	No	NA
Asbestos in soils	-		None detected	1

¹ Health Investigation Levels (HILS) for soil contaminants – Residential B (HIL-B)



² Health Screening Levels (HSL) for soil contaminants in sand and at a depth of 0m < 1m (NEPM 2013)

³ Soil Health Screening Levels for Direct Contact HSL-B (CRC Care 2011)

⁴ No limit provided 5 BDL = Below Detection Limit

8.2 Environmental and Ecological Assessment

A brief summary of the analysis result when compared to the Ecological and Environmental Site Criteria (see Section 6.4) is provided below.

• BTEX / TRH:

All samples reported BTEX and TRH concentrations below the adopted site criteria.

• Eight Priority Heavy Metals:

All samples reported heavy metals concentrations below the adopted site criteria.

• PAHs:

All samples reported PAH concentrations below the adopted site criteria.

• OCP:

All analysed samples reported concentrations of DDT below the adopted site criterion.

A table summarising all analysis results is presented in Appendix G.

8.3 Groundwater Results

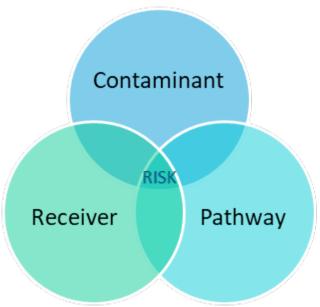
All analysed groundwater samples reported concentrations below the adopted site criteria. A table summarising all analysis results is presented in Appendix G.



9 Tier 1 Risk Assessment

The below diagram shows the three key conditions that need to be met for a contamination risk to exist. There needs to be a contaminant present, a receiver (i.e. human, animal, plant) who can reasonably be impacted by that contaminant and a pathway between the two. If one of the components if missing, the potential for adverse risk is low.

Risk may vary over time, as the contributing conditions change. Understanding this model is central to the development of the CSM, the assessment of results and formation of conclusions in this report.



9.1 Contaminants of Potential Concern

All analytes were found to be below the adopted Site Criteria (provided in Section 6.4). The Site is hence considered to pose a low risk to receptors.



10 Summary of Findings

Based on the results of the investigation and subject to the limitations in Section 13 (noting the investigation is concerned with soils only) the following conclusions are made:

- 1. The Site is located in a predominantly residential area with the exception of the service station neighbouring the Site to the west. The Site has a size of approximately 5,440 m².
- 2. The Site's history can reasonably be summarised as a block of land that was possibly used for agricultural purposes, which may have included orchard farming. In circa 2017, a service station was constructed on the Property. The Site itself has remained vacant until the present day.
- 3. No stress was observed in the vegetation and no surface staining or olfactory evidence of contamination were encountered.
- 4. The Site is not located in an Acid Sulfate prone area and no further investigation into potential ASS is considered necessary.
- 5. A total of nine boreholes were drilled across the Site as part of the investigation's sampling program, with a total of 13 primary soil samples and three water samples submitted to the laboratory and analysed for a broad range of contaminants.
- 6. The subsurface of the Site was found to consist of a layer of fill material ranging in thickness from 3.0 m and 4.25 m and was followed by natural silty clay of colours varying between orange-brown to grey. This was followed by dark grey shale.
- 7. Groundwater in form of a distinct wet layer was only encountered in Boring B3 at a depth of approximately 8.5 mbgl. No water accumulated in Borings B1 and B2. Water accumulating in Boring B3 was sampled.
- 8. Groundwater flow direction is inferred to be in a north to north-eastern direction;
- 9. The sampling program conducted as part of this investigation targeted a wide range of target contaminants in shallow fill materials found across the Site.
- 10. Results of the laboratory analysis undertaken showed concentrations of all analytes to be below the adopted site criteria.



11 Conclusions

Based on the results of the investigation the following conclusions are provided:

1. Canopy considers that the subject Site is similar in nature to the greater Property, as described in the SMEC Report prior to development of the now adjoining service station. The SMEC Report therefore is considered relevant to the investigation herein given the site-specific circumstances. Canopy's findings, recommendations and conclusions are generally commensurate with those in the SMEC Report, noting in particular the key conclusion of the SMEC Report which stated as follows:

'Based on the results of this DSI, the site is considered to be suitable for a commercial/industrial land use, including the service station development which is proposed. However, the operator of the service station should be requested to provide confirmation that an appropriate environmental performance monitoring program will be implemented as a condition of their lease agreement. As a minimum, this should include a leak detection system for underground petroleum storage systems (UPSSs) in accordance with EPA's Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (UPSS Regulations), a key component of which is the installation of, and regular sampling from, groundwater monitoring wells. The performance monitoring program should be documented in an Environment Protection Plan (EPP), prepared in accordance with the UPSS Regulations'

- 2. Based on the above Canopy considers the Site suitable for the proposed land use without further environmental assessment.
- 3. As a matter of prudence, the following key requirements are noted:
 - The Construction Environmental Management Plan (CEMP) (or equivalent document) should include an 'unexpected finds' protocol.
 - Should any evidence become apparent during site/earth works that asbestos or asbestos fragments (or other contaminants including hydrocarbon odours) are present in soils then appropriate actions should be undertaken in accordance with relevant guidelines and regulations.
 - All soils to be taken offsite must be classified in accordance with the EPA Waste Guidelines Part 1: Classifying Waste (2014) prior to being disposed of at a landfill facility authorised to receive the material.

As a general note, the fact that the Site is located immediately down-gradient of an operating service station, should be taken into consideration as part of any site assessment and future development. Service stations and associated underground tanks/pipework are one of the most common reasons for significant site contamination and form the majority of sites that are on the list of contaminated sites notified to the NSW EPA.

The Client may consider the installation of a number of vapour monitor wells along the boundary with the service station (near Borings B1-B3) and to also request from the service station operator that the results of the mandatory six-monthly UPSS monitoring be made available to the Site owner.



Regular monitoring of the vapour wells together with a review of the UPSS monitoring would be a relatively inexpensive, yet highly effective way to become aware of subsurface impact migrating onto the Site due to a spill or leak at the service station. Such a program can be implemented without incurring significant costs while the results would ensure that the Site owner does not have to rely on the (typically) delayed response and notification procedures deployed by some fuel distribution companies.

Becoming aware early in the process of a contamination incident arising from off-site will significantly lessen the impact such an incident can have on the operations conducted at the Site which can be instrumental in remedial actions. The consideration of this advice or guidance is particularly pertinent given what Canopy understands there to be a relatively complex ownership and stakeholder profile across the whole property including the Service Station.

The conclusions and recommendations should be read together in conjunction with the full report and the Limitations.



12 List of Key Guidelines and Regulations

- National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 referred to as NEPM (2013);
- NSW EPA Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (April 2020);
- Contaminated Sites: Sampling Design Guidelines, NSW EPA, 1995 (EPA 1995);
- State Environmental Planning Policy No. 55;
- EPA Waste Guidelines Part 1: Classifying Waste (2014);
- PFAS National Environmental Management Plan Version 2.0', Heads of EPA Australia and New Zealand 2020
- Ahern C R, Stone, Y, and Blunden B (1998). Acid Sulfate Soils Assessment Guidelines Published by the Acid Sulfate Soil Management Advisory Committee, Wollongbar, NSW, Australia (Acid Sulfate Soils Guidelines);
- CRC CARE 2017, Risk-based management and remediation guidance for benzo(a)pyrene, CRC CARE Technical Report no. 39, CRC for Contamination Assessment and Remediation of the Environment, Newcastle, Australia;
- Olszowy, H, Torr, P, Imray, P 1995, Trace element concentrations in soils from rural and urban areas of Australia, Contaminated sites monograph no. 4, South Australian Health Commission.



13 List of Abbreviations

A list of the common abbreviations that may be used throughout this report is provided below.

ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AHD	Australian Height Datum
B(a)P	Benzo(a)pyrene
bgl	Below Ground Level
BTEX	Benzene, toluene, ethylbenzene and xylenes
CEMP	Construction Environmental Management Plan
CoPCs	Contaminants of Potential Concern
CoC	Chain of Custody
CRC	Cooperative Research Centre for Contaminant Assessment and Remediation of the
CARE	Environment
CSM	Conceptual Site Model
DA	Development Application
DP	Deposited Plan
DQOs	Data Quality Objectives
DSI	Detailed Site Investigation
EMP	Environmental Management Plan
EPA	NSW Environment Protection Authority
ha	Hectare
HIL	Health based investigation level
HSL	Health screening levels
LOR	Limit of Reporting
NEPM	National Environment Protection Measures
NHMRC	National Health and Medical Research Council
OC	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PFAS	Per- and Poly-Fluoroalkyl Substances
PCB	Polychlorinated Biphenyl
PQL	Practical Quantification Limit
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
PSI	Preliminary Site Investigation
SAP	Sampling Analysis Plan
TCLP	Toxic Characteristic Leaching Potential
VOC	Volatile Organic Compounds
TRH	Total Recoverable Hydrocarbons



14 Limitations

The findings of this Report are based on the Scope of Work as defined herein, noting the investigation is concerned with the surface and sub-surface conditions (notwithstanding limited observations of structures if relevant due to the potential for the presence of ACMs). Canopy Enterprises Pty Ltd (Canopy) performed services in a manner consistent with industry standards and general expectations for the undertaking of similar works. The assessment was undertaken with regard to the proposed development and land use.

No sampling or analysis was undertaken as part of the Scope of Works. Even in the cases were sampling and analysis is undertaken it is <u>not</u> possible to identify all hazardous or toxic materials which may be present on the Site and this assessment should not be interpreted as a guarantee that hazardous or toxic materials (including any hazardous or toxic materials not referred to) or other Areas of Environmental Concern (AEC) exist across the Site.

Canopy accepts no liability for use or interpretation by any person or entity other than reasonable use and interpretation by the Client or their representative who engaged the works or relevant third parties and which relates directly to the intended purposes of the investigation.

All conclusions and considerations regarding this property represent the professional opinions of Canopy's personnel involved with the project and should not be considered a strictly legal interpretation of existing environmental guidelines or regulations.

Canopy assumes no responsibility or liability for errors in the public data utilised, statements from sources outside of Canopy or any consequential developments arising outside of the scope of this project. In the unlikely event however that Canopy was proven to be in error, given the nature, scale and cost of the assessment in comparison to the costs of the underlying works Canopy's liability for consequential damage is limited to the value of Canopy's engagement to the extent the law permits.

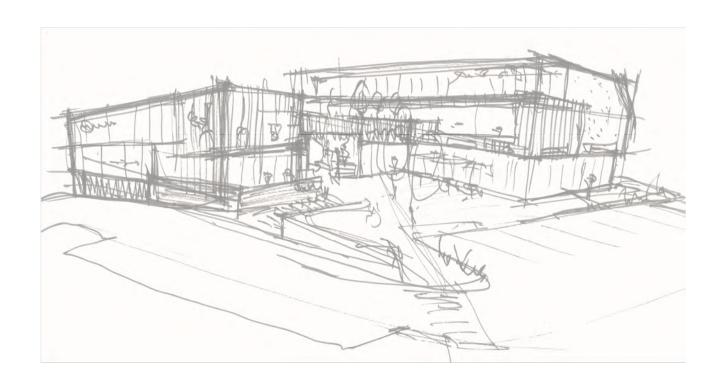
This Report may only be used for the specific purposes for which it was commissioned and in accordance with the terms of engagement. Canopy retains unfettered ownership of the Report, and its contents, to the extent the law permits, until all payment obligations have been fulfilled. In the unlikely event that any outstanding debts are referred to a third- party debt collector all additional costs associated with the collection of the debt will be borne by the Client, including any commission payable by Canopy or any unawarded legal expenses.

The Report should not be reproduced in part or full without joint authorisation from the Client and Canopy unless related to its intended purposes, in which case all relevant acknowledgements should be included.



Appendix A Architecturals





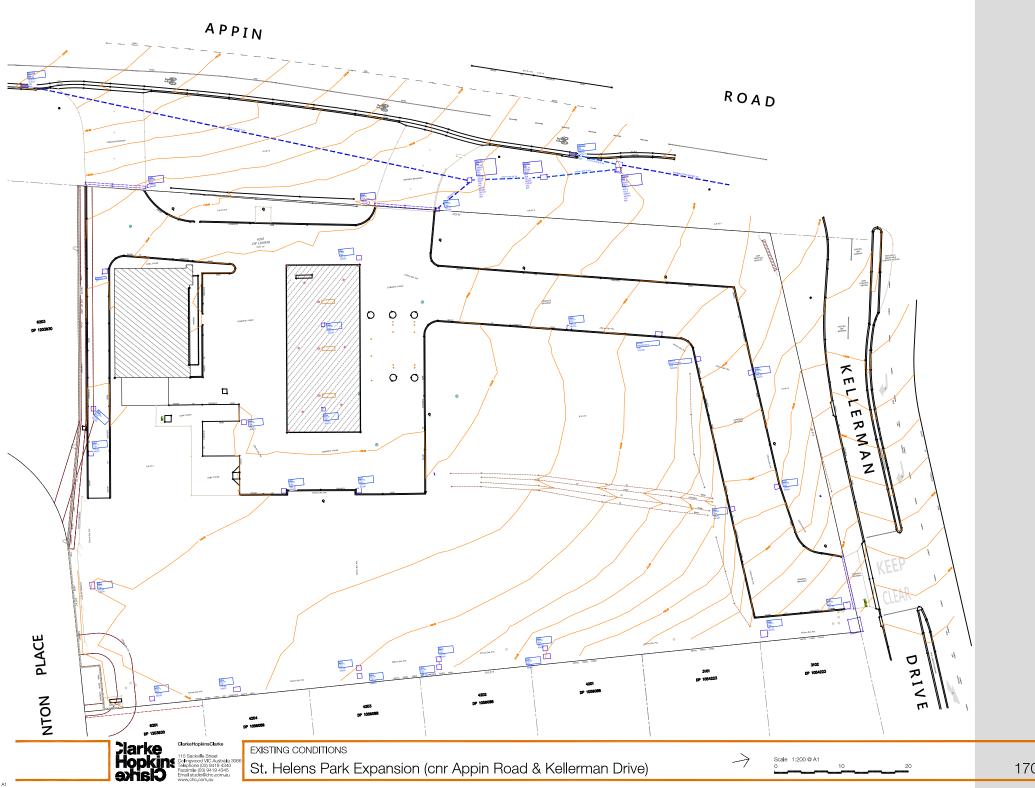
Concept Package

January 2019

MIR GROUP

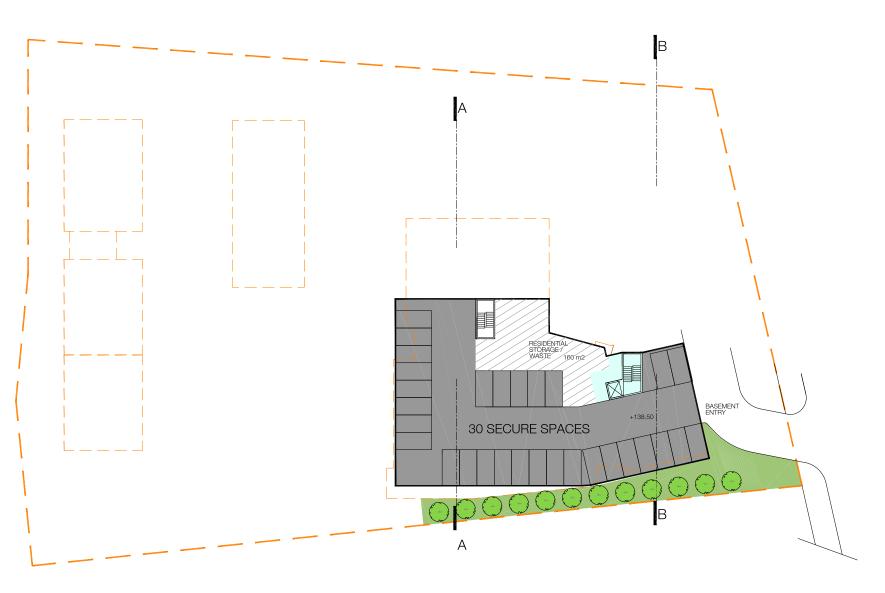
Cnr Appin Rd & Kellerman Dr, Campbelltown NSW 2560





5 October 2018 170164/SK01

ClarkeHopkinsClarke 200



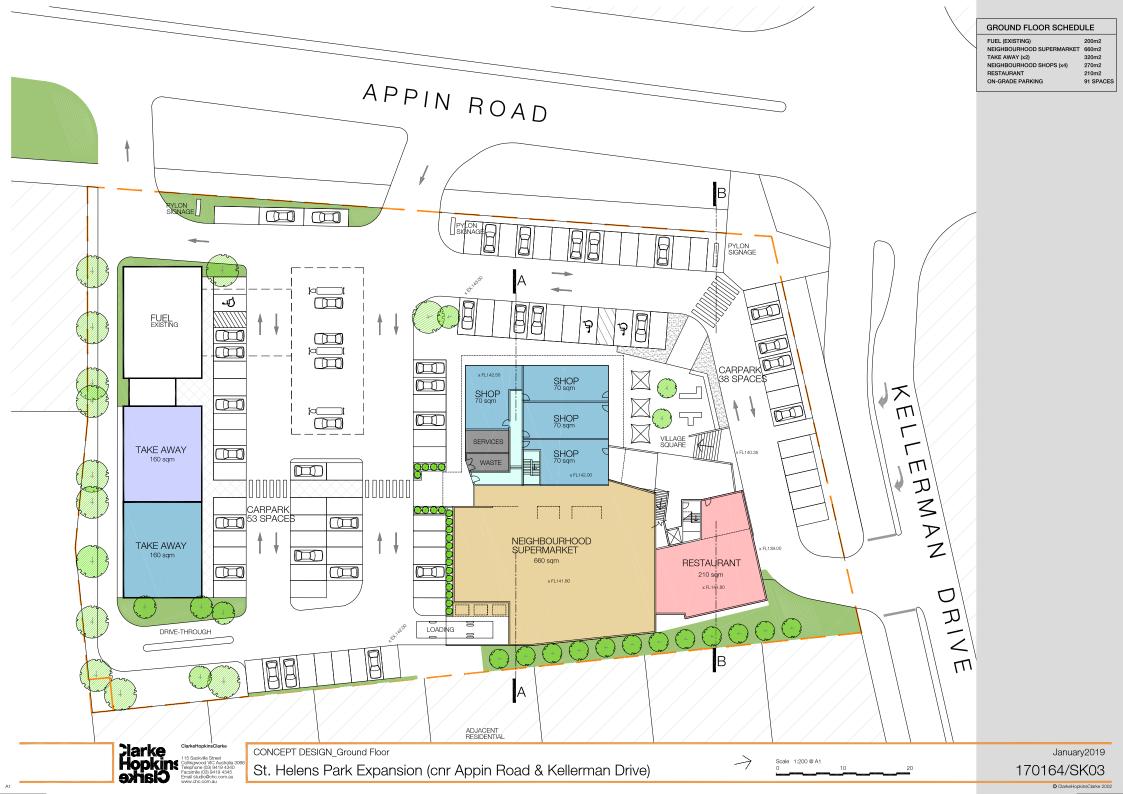
ClarkeHopkinsClarke
Hopkins
116 Sackville Street
Colingwood VIC Austreet
Plephone (03) 9419 44
Facsimle (03) 9419 44
Facsimle (03) 9419 43
Facsimle (03) 9419 43

LOWER GROUND

St. Helens Park Expansion (cnr Appin Road & Kellerman Drive)



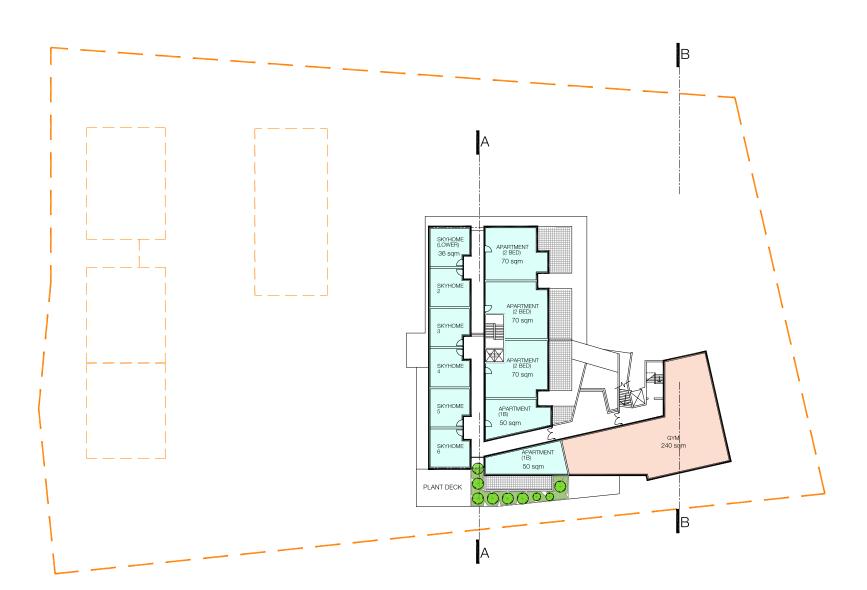
January 2019 170164/SK02



FIRST FLOOR SCHEDULE

6 NO. SKYHOMES

(LOWER LEVEL) 36m2 EA
3 NO. 2 BED APARTMENTS 70m2 EA
2 NO. 1 BED APARTMENTS 50m2 EA
GYM 240m2





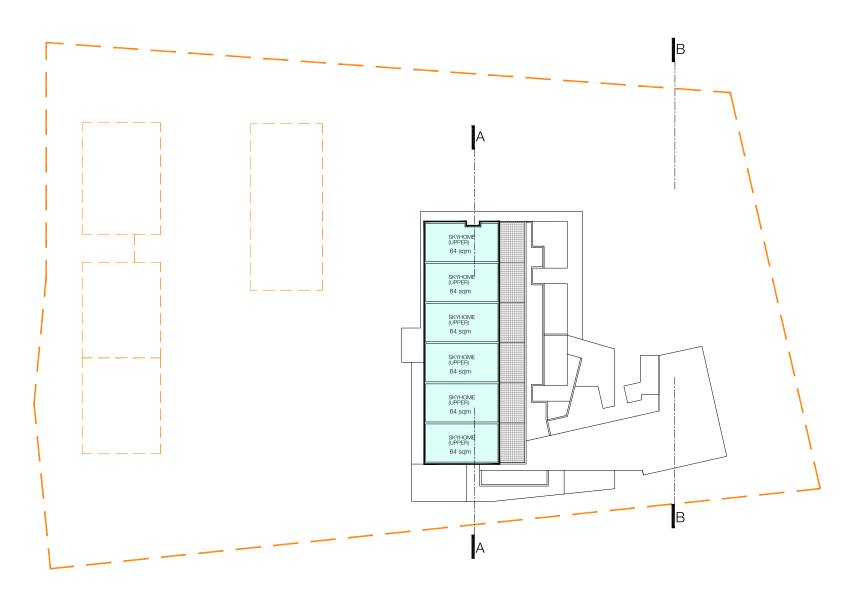
CONCEPT DESIGN_First Floor

St. Helens Park Expansion (cnr Appin Road & Kellerman Drive)



SECOND FLOOR SCHEDULE

6 NO. SKYHOMES
(UPPER LEVEL) 64m2 EA



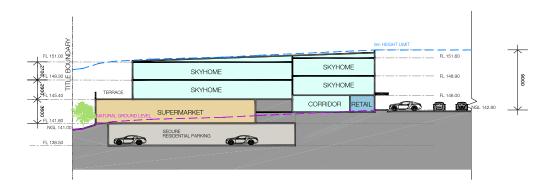


CONCEPT DESIGN_Second Floor

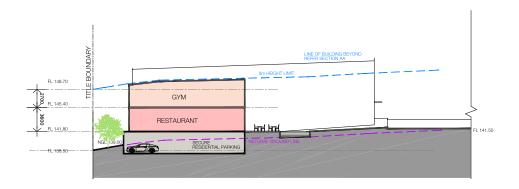
St. Helens Park Expansion (cnr Appin Road & Kellerman Drive)



January 2019 170164/SK05



SECTION AA

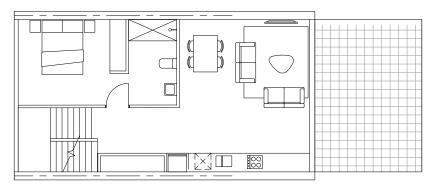


SECTION BB

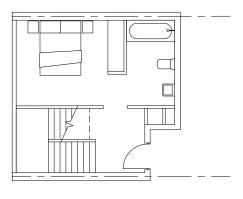
Development Schedule MIXED USE			C	AR PARKING	
SITE AREA (approximate)	m² 7560	COMP WITH CAMBELL	LIANT TOWN DCP 2105	DESIGNED	ENGINEERED
	m²	RATE	REQ'D		
SERVICE STATION (existing)	200	1/25	8	8	-
NEIGHBOURHOOD SUPERMARKET	660	1/25	27	20	-
TAKE AWAY (160 x 2)	320	1.5/20	24	20	-
NEIGHBOURHOOD SHOPS	270	1/25	11	8	-
RESTAURANT	210	1.5/10	32	28	-
GYM	240	1/25	10	7	-
TOTAL AREA	1,900	-	-		
TOTAL SPACES REQUIRED			112	91	-

Development Schedule RESIDENTIAL		C	AR PARKING		
	m²	COMPL	IANT	DESIGNED	ENGINEERED
SITE AREA (approximate) 7560					
RESIDENTIAL					
6# 2-BED SKYHOMES	100	1EA	6	12	-
3# 2-BED APARTMENTS	70	1EA	3	6	-
2# 1-BED APARTMENTS	50	1EA	2	2	-
TOTAL SPACES REQUIRED			11	20	-

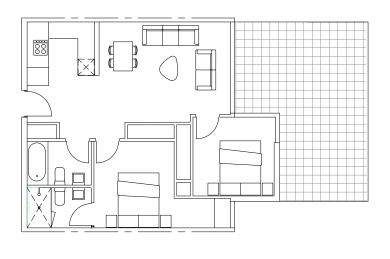
Development Schedule CAR PARKING		
BASEMENT GROUND	30 91	- -
TOTAL SPACES REQUIRED	121	-



UPPER LEVEL



LOWER LEVEL



LOWER LEVEL

TYPICAL SKYHOME LAYOUT

TYPICAL 2 BED LAYOUT

Appendix B Site Map, Sampling Locations, Site Photographs





Site Map

Note: Red line is the approximate boundary of Site, red dots show approximate sampling locations

Source: Nearmap





Photo 1:
View of the service station from the south-western corner. Appin Road is on the left hand side of the frame



Photo 2

The Site as seen from the north-western corner with Appin Road on the right.



Photo 3

Looking south with Kellerman Drive in the back of the frame

Appendix C Heritage Register Search Results





Search the State Heritage Inventory

Search for NSW heritage

Return to search page where you can refine/broaden your search.

Statutory listed items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into three sections.

- **Section 1** contains Aboriginal Places declared by the **Minister for the Environment** under the National Parks and Wildlife Act. This information is provided by Heritage NSW.
- **Section 2** contains heritage items listed by the **Heritage Council of NSW** under the Heritage Act. This includes listing on the State Heritage Register, an Interim Heritage Order or protected under section 136 of the Heritage Act. This information is provided by Heritage NSW.
- **Section 3** contains items listed by **local councils** on Local Environmental Plans under the Environmental Planning and Assessment Act and **State government agencies** under s.170 of the Heritage Act. This information is provided by local councils and State government agencies.

Section 1. Aboriginal Places listed under the National Parks and Wildlife Act.

Your search did not return any matching results.

Section 2. Items listed under the Heritage Act.

Your search did not return any matching results.

Section 3. Items listed by Local Government and State Agencies.

Your search returned 4 records.

Item name ▲	Address	Suburb	LGA	Information source
Denfield Homestead	Appin Road	St Helens Park	Campbelltown	LGOV
<u>St Helens Park Dam</u>	Ironside Avenue	St Helens Park	Campbelltown	LGOV
<u>St Helens Park House</u>	66 St Helens Park Drive	St Helens Park	Campbelltown	LGOV
St Helens Park House and Dam	St Helens Park Drive	St Helens Park	Campbelltown	LGOV

There was a total of 4 records matching your search criteria.

Key:

LGA = Local Government Area

GAZ= NSW Government Gazette (statutory listings prior to 1997), HGA = Heritage Grant Application, HS = Heritage Study, LGOV = Local Government, SGOV = State Government Agency.

Note: While Heritage NSW seeks to keep the Inventory up to date, it is reliant on State agencies and local councils to provide their data. Always check with the relevant State agency or local council for the most up-to-date information.

Appendix D EPA Register Search Results



Search results

Your search for: Suburb: ST HELENS PARK

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the <u>planning process</u>.

Search Again Refine Search

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under <u>section 149 of the Environmental Planning and Assessment Act</u>.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register. POEO public register.

For business and industry ^

5 March 2021

For local government ^

Contact us

131 555 (tel:131555)

Online (https://yoursay.epa.nsw.gov.au/epa-website-feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Accessibility (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index)
Disclaimer (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer)
Privacy (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy)
Copyright (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright)

in (https://au.lin environmentprotection-

Find us on

autlority (https://divititier/./cvo)

<u>Home Public registers POEO Public Register Licences, applications and notices search</u>

Search results

Your search for: General Search with the following criteria

Suburb - st helens park

returned 0 result

Search Again

For business and industry ^

For local government ^

Contact us

131 555 (tel:131555)

Online (https://yoursay.epa.nsw.gov.au/epa-website-feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Accessibility (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index)
Disclaimer (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer)
Privacy (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy)
Copyright (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright)



Find us on

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
SPRINGVALE	Springvale Colliery	Castlereagh HIGHWAY	Other Industry	Regulation under CLM Act not required	-33.40334736	150.1070462
ST CLAIR	7-Eleven (former Mobil) Service Station	4 Endeavour AVENUE	Service Station	Regulation under CLM Act not required	-33.79430926	150.7885793
STIVES	7-Eleven (former Mobil) St Ives Service Station	157-159 Mona Vale Road, corner Putarri AVENUE	Service Station	Regulation under CLM Act not required	-33.73265301	151.1563899
STIVES	Caltex Service Station	452 Mona Vale ROAD	Service Station	Regulation under CLM Act not required	-33.70752272	151.187545

Appendix E Land Title Search Results





NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE -----5/3/2021 3:51PM

FOLIO: 6202/1203930

First Title(s): OLD SYSTEM
Prior Title(s): 6111/1203927

Recorded	Number	Type of Instrument	C.T. Issue
8/9/2017	DP1203930	DEPOSITED PLAN	FOLIO CREATED EDITION 1
26/8/2019 26/8/2019 26/8/2019 26/8/2019	AP158557 AP158558 AP158559 AP158560	LEASE LEASE LEASE LEASE	
26/8/2019	AP158561	LEASE	EDITION 2
10/9/2019	AP523629	DEPARTMENTAL DEALING	EDITION 3
24/9/2019	AP558445	DEPARTMENTAL DEALING	EDITION 4
22/10/2019	AP622407	DEPARTMENTAL DEALING	EDITION 5

*** END OF SEARCH ***

Helens-AP21

PRINTED ON 5/3/2021

Search Date/Time: 05/03/2021 3:51PM



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

5/3/2021 3:58PM

FOLIO: 6111/1203927

First Title(s): OLD SYSTEM
Prior Title(s): 5210/1193880

Recorded	Number	Type of Instrument	C.T. Issue
6/9/2017	DP1203927	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
8/9/2017	DP1203930	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

*** END OF SEARCH ***

Helens-AP21

PRINTED ON 5/3/2021

Search Date/Time: 05/03/2021 3:58PM



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

6/3/2021 10:58AM

FOLIO: 5210/1193880

First Title(s): OLD SYSTEM
Prior Title(s): 5324/1189779

EDITION 1

6/9/2017 DP1203927 DEPOSITED PLAN FOLIO CANCELLED

*** END OF SEARCH ***

Helens-AP21

PRINTED ON 6/3/2021

Search Date/Time: 06/03/2021 10:58AM



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

6/3/2021 11:02AM

FOLIO: 5324/1189779

First Title(s): OLD SYSTEM
Prior Title(s): 5125/1178566

 Recorded
 Number
 Type of Instrument
 C.T. Issue

 16/10/2013
 DP1189779
 DEPOSITED PLAN
 FOLIO CREATED EDITION 1

 12/3/2014
 DP1193880
 DEPOSITED PLAN
 FOLIO CANCELLED

*** END OF SEARCH ***

Helens-AP21

PRINTED ON 6/3/2021

Search Date/Time: 06/03/2021 11:02AM



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

6/3/2021 11:04AM

FOLIO CANCELLED

FOLIO: 5125/1178566

16/10/2013

First Title(s): OLD SYSTEM
Prior Title(s): 4314/1056091

Recorded Number Type of Instrument C.T. Issue
-----28/9/2012 DP1178566 DEPOSITED PLAN FOLIO CREATED

EDITION 1

*** END OF SEARCH ***

DP1189779 DEPOSITED PLAN

Helens-AP21

PRINTED ON 6/3/2021

Search Date/Time: 06/03/2021 11:03AM



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

6/3/2021 11:06AM

FOLIO: 4314/1056091

First Title(s): OLD SYSTEM
Prior Title(s): 4214/1056088

Recorded	Number	Type of Instrument	C.T. Issue
24/7/2003	DP1056091	DEPOSITED PLAN	FOLIO CREATED EDITION 1
25/9/2012	АН241645	RELEASE OR EXTINGUISHMENT OF RESTRICTION ON THE USE OF LAND	
25/9/2012	AH241646	RELEASE OR EXTINGUISHMENT OF RESTRICTION ON THE USE OF LAND	
28/9/2012	DP1178566	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

*** END OF SEARCH ***

Helens-AP21

PRINTED ON 6/3/2021

Search Date/Time: 06/03/2021 11:06AM

F	PLAN FORM 2	Plan Drawing only to appear in this space	
	SIGNATURE AND SEALS ONLY. Stall A.C.N. 000 699 221	SCHEDULE OF SSM CONNECTIONS SCHEDULE OF SSM CONNECTIONS	* DP1056091 Registered 24.7.2003 * Title System: TORRENS Purpose: SUBDIVISION Ref Map: U9322 - 9, U8222 - 7 Last Plan: DP1056088
	Common A C.N. 212 N. A. C.N. 212 N.	SSM 42233 FD / SSM TO COR S S R R 80 N N N N N N N N N N N N N N N N N N	PLAN OF SUBDIVISION OF LOT 4214 IN DP 1056022 Lengths are in metres. Reduction Ratio 1:2500 L G A CAMPBELLTOWN Suburb/Locality: St HELENS PARK Parish: St PETER
LRS /Pgs:ALL /Prt:06-Mar-2021 11:07 /Seq:1 of 2 /Ref:HELENS-AP21		Section Sect	County: CUMBERLAND This is sheet 1 of my plan in 2 sheets. (Delete if inapplicable) Surveyors (Practice) Regulation 2001 I, GORDON PATRICK WREN OF GRINSELL & JOHNS PTY LTD a surveyor registered under the Surveyors Act, 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 2001 and was completed on
/NSW REAM	Crown Lands Office Approval PLAN APPROVED	Y. 275°23'36"-565.034 P.M 33064 FD D. SEE 19.445 DIAG. "A" SSM 112139 FD. SSM	drainage reserves, easements, restrictions on the use of land or positive covenants. IT IS INTENDED TO DEDICATE LOVELY PLACE TO THE PUBLIC AS ROAD PURSUANT TO SEC.88B OF THE CONVEYANCING ACT 1919-1964 AS
56091 P /Rev rar-General	hereby certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the roposed SUBDIVISION * (Insert_"subdivision" or "new road") * Authorised Person/General Manager/Accredited Certifier Consent Authority.	(C) DRAINAGE EASEMENT FOR OVERLAND FLOWPATH 2.5 WIDE - DP1056086 PARISH OF R.M.D.H.&.W'S FD 296°13'25"-4.365 & 15.41 (D.P.881519) (D.P.881519) MENANGLE (O.4) PARISH (O.4) PROPRIEM (O.4	AMENDED IT IS INTENDED TO CREATE: I. EASMENT TO DRAIN WATER 1.5m WIDE 2. RESTRICTION ON USE OF LAND 3. RESTRICTION ON USE OF LAND
0£	Date of endorsement: 3AD JUNE 2003 Accreditation no: Subdivision Certificate no: 42 of 2003 File no. 79092-3 Note: When the plan is to be lodged electronically in the land Titles Office it should include a signature in an electronic or digital format approved by the Registar-General.	M G A TABLE ZONE 56 COMBINED SEA LEVEL & SCALE CORR. FACTOR 1.000086 STATION E N CLASS SOURCE DATE SSM27473 297371.966 6224708.346 B SCIMS DEC.02 PM 33064 297161.220 6224009.005 B SCIMS DEC.02 SSM42233 297160.084 6224353.447 B SCIMS DEC.02	CAMPBELLTOWN CITY COUNCIL ACCEPTED GENERAL MANAGER/AUT FORISED PERSON
<u> </u>	* Delete whichever is inapplicable	10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 Toble of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390	
გ ⊚	SURVEYOR'S REFERENCE: S662-STG4-3DP "C"	WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION	

PLAN FORM 2 (A2)^{DP1203930} Sheet 1 of 3 sheets WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION REFERENCE MARKS Line Table RΜ BEARING DP DESC SSM133477 - SSM172169 SVY 220°26'43" - 158.23 Length Line # Direction KELLERMAN DRIVE SSM133477 - SSM133476 MGA 15°10'39" - 92.155 158°26'40' 0.51 GIP FD DP239386 SVY 85°10'23" - 274.197 SSM167141 - SSM19699 MGA 85°10'26" - 274.175 204°26'30" 20.060 CORS 41 SSM133477 FD 334°54'45" 2.06 CONC BLK FD DP746652 SSM133476 - SSM172169 SVY 248°09'54" - 84.577 7.780 CORS 209*27'00" SSM133476 - SSM167140 SVY 195°12'17" - 180.241 (19 WIDE & VARIABLE) 187°37'15" 1.605 CONC BLK FD DP746652 SSM167140 - SSM172170 SVY 89°32'54" - 84.372 131°39'00" 6.190 CORS 3.415 & 15.915 DH&W FD DP1054223 194°36′30′ SSM172170 - SSM19699 SVY 252°05'02" - 89.066 SSM19699 - SSM172169 SVY 218°57'19" - 219.303 187°45′ 3.4 & 15.75 DP1054223 DH&W FD 112 *55'00" 14.415 CORS SSM172169 - SSM172170 SVY 200°21'51" - 152.682 72°05′ 1.7 & 6.55 DH&W FD DP1056088 55M133476 - 55M197613 5VY 186°31'38" - 52.537 295°52′50″ 19.248 CORS 27 / H / M / DP 1054223 SSM197613 - SSM167140 SVY 198°44'24" - 128.549 187°45′ 3.35 & 11.55 DH&W FD DP1056088 104°36'30' 3.35 & 11.5 DH&W FD DP1056088 135°43′ 3.9 & 13.45 DP1056088 DH&W FD ATERWOR 104°36'30' 3.3 & 11.445 DH&W FD DP1178566 4201 : 85 7°46'40" 3.305 & 11.655 DH&W FD DP1178566 3.355 & 11.405 DP1178566 5°36′ DH&W FD 6202 3.45 & 11.525 12°48'30" DH&W FD DP 10 06597 7625m² 4202 355°13'10" 7.02 & 26.57 DH&W FD DP1006597 DP1056088 **\S** 70°13'40" 3.66 DH&W PLACED SSM133476 FD 55°57'20" 19.74 SSM172170 PLACED MGA 273 * 36'32" - 84.435 SVY 273 * 36'23" - 84.441 3.575 100°02' DH&W PLACED S 5 M 13 3 4 7 5 FD HERITAGE HEIGHTS CIRCUIT MGA 294.11'34" - 190.347 101°12'40" 11.255 DH&W PLACED 56" 10' 40" 4204 131°09'20" 4.1 DH&W PLACED 5.985 CORS 103°34'50' 11.25 DH&W PLACED SSM172169 PL 4206 APPIN ROAD 107°48'10" 3.565 DH&W PLACED 6204 DP1056088 110°05'10" 11.25 PLACED DH&W 97°15′40″ 3.68 PLACED DH&W IJ 6205 ∕SSM133472 F 52L 55M197613 FD 59°20'-16°2' 5207 96°52′10″ 11.58 DH&W PLACED 6230 161°12'20" 3.97 DH&W PLACED 6206 6231 154°29'50' 12.2 SSM172169 PLACED 6229 6207 205°'34'30" 3.635 DH&W PLACED 5206 6110 RM BB 11.37 PLACED 191°24'50" DH&W 6228 6208 DH&W FD 316°03'50' 4.075 DP1203927 5205 6109 74°05' 2.025 DH&W FD DP 1068130 6227 4(F 6209 205°06'40' 3.4 DH&W FD DP1203927 5204 🝃 6108 ~ 152°44'20' 7.125 DH&W FD DP1203927 6226 ep-2017 /NSW LRS /Pgs:ALL /Prt:06-Ma LEGALSTREAM /Ref:HELENS-AP21 6210 ВВ 284°05' 3.55 DH&W PLACED PRUNTON, 6107 ∽ 5203 ~ 6225 6211 6106 <u>E</u> 6224 6212 5202 7 6105 6223 6213 HERI /DP1193880 5301 6104 6222 6214 146°11′30″ 5302 5.310 CORS /5303 6103 5304 6215 6221 5305 DP 1189779 5306 DP1204218 DP 1189 RM L 5307 /5308 /₅₃₀₉ /ssm<u>1721</u>70/PL 6220-6216 SVY 272 * 44 '41" - 104.228 -6102⁻ SSM167140 FD SSM19699 FD -6219 5 SM167141 FD HERITAGE HEIGHTS CIRCUIT 6217 DP1193880 SURVEYING AND SPATIAL INFORMATION REGULATION 2012 (LAUSE 42 6218 5208 6101 5209 5124 MGA COORDINATES 5123 MARK CLASS ORDER METHOD ZONE /5122 102 /5121 EASTING NORTHING DP 10 06597 /8251 \$\frac{1}{8} \frac{1}{8} 8250 297143.975 SSM19699 6224024.331 56 SCIMS DP1128548 SSM133472 297618.306 6224143.020 56 SCIMS 3 6224221.032 SSM133475 297444.663 56 3 SCIMS RMP 6224226.347 SSM133476 297360.389 56 3 SCIMS _282* 48′30″ 8258 44.735 CORS 297384.518 6224315.295 SCIMS SSM133477 56 (DENFIELD CIRCUIT 6224052.426 CAD TRAV SSM167140 297313.128 U SSM167141 297417.200 6224047.400 56 SCIMS CAD TRAV SSM172169 297281.893 6224194.889 56 Surveyor: ADRIAN BARDEN PLAN OF SUBDIVISION OF LOT 6111 IN DP1203927 LGA: CAMPBELLTOWN Registered Date of Survey: 27-06-2016 Locality: ST HELENS PARK 297228.766 6224051.761 56 CAD TRAV SSM172170 DP1203930 Surveyors Ref: S662-6-8-2 Subdivision No: 51 of 2017 08.09.2017 MGA COORDINATES ADOPTED FROM SCIMS AS AT 22 FEB 2016 Lengths are in metres. Reduction Ratio 1:1000 COMBINED SEA LEVEL & SCALE FACTOR 1.000079 10 20 30 40 50 Table of mm 80 90 100 110 120 130 140 150 REV F3 (6.09.2017)

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PLAN FORM 2 (A2) DP1203930 WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION Sheet 2 of 3 sheets Line Table Easement Line Table Easement Line Table Easement Line Table Chard Bearing | Chard Length Arc Length Curve ID Length Radius Line ID Bearing Length Bearing Bearing 107.50 18 29' 10" (109" 33' 10") (12.865) 22 (105 42' 00") (12.745) 196*09'54" 12.53 107.50 16" 40' 30" 12.54 (290° 10' 50") (2.155) {191° 38′ 00"} (0.710) {109° 33′ 10"} 192*13'45" 2.23 2.23 107.50 191° 38′ 00″ {105° 42' 00" {191° 38' 00"} {290° 10′ 50″ (7 29*27'47" 7.35 7.47 12.00 264 03 50" 5.000 (12.765) {102° 02' 30"} (191° 38' 00") (0.200) (290° 10′ 50″) (8 222*52'49" 1.85 1.85 12.00 241° 33′ 20″ 15 (102°02'30") (2.285) {191° 38' 00"} (0.200) (290° 10' 50") 196*15'58" 9.07 9.30 12.00 160 * 02' 50" {290° 10' 50" (191° 38' 00") 157*21'11" 11" 38' 00" 6.90 7.00 12.00 {191° 38' 00"} (0.200) (290° 10' 50") 125 * 24 ' 44 " 6.30 11" 38' 00' 12.00 (110° 10' 50") (290° 10′ 50″) (2.000) 90"06'52" 8.23 8.41 12.00 20 10 50" (110 * 10' 50") (290° 10′ 50″) 46 44 25" 9.50 12.00 23 197 18' 20" BRUNTON PLACE (290° 10′ 50″) 359*42'15" 9.94 12.00 197 18' 20" 163*16'16" 3.05 3.06 12.00 25 181° 43' 20" 181°06'16" C16 4.39 12.00 181" 43' 20" 5.875 4.41 26 HERITAGE HEIGHTS CIRCUIT 193*36'37" 6.38 6.38 92.50 27 181* 43' 20" 5.025 197*53'00" 7.42 7.42 92.50 181* 43' 20" 194 * 36′ 30″ 31"23'06" 6.93 12.00 7.03 **6224** 427.6m² (20 278 46 20" 216 09'57' 4.99 12.00 5.03 177 07'46" 10.91 11.32 12.00 7.00 133°08'27" 12.00 Easement Curve Table 6223 Chord Length Arc Length Radius Curve ID **C31** {199°53'49"} 107.50 5201 (32 (199*33'34") $\{0.20\}$ $\{0.20\}$ 107.50 6104 107.50 (33 {199°27'10"} $\{0.20\}$ $\{0.20\}$ 107.50 (196"06'42") (12.33) 146 11 30" 107.50 **C35** {196"06'42"} (12.33) (12.34) 5.310 CORS (36 107.50 (192*13'45") (2.23) (2.23) 6103 6221 (37 {221*16'47"} $\{0.75\}$ 12.00 (218*58'27") (0.21) $\{0.21\}$ 12.00 97° 46′ 40″ (39 (217*57'53") $\{0.21\}$ $\{0.21\}$ 12.00 13.705 CORS RMM" {174*32'30"} (0.20) 12.00 6220 12.00 (173*35'12") $\{0.20\}$ $\{0.20\}$ 55M167140 FD 49°48'10" -22.255 181° 43′ 20″ (42 (176°41'33") $\{0.70\}$ 12.00 $\{0.70\}$ (70°31'29") 12.00 $\{0.20\}$ 12.00 {69°34'11"} $\{0.20\}$ $\{0.20\}$ 12.00 C45 {67°25'09"} $\{0.70\}$ (0.70) 6217 SSM19699 FD 12.00 (173°23'10") 162*34'18" -6.432 SSM - COR-12.00 {171°05'19"} (0.22) $\{0.22\}$ CONC BLK WALL (0.31) 5 3 5209 37.640 CORS 187° 46' 40" 7515 ²/° 46′20″ {170°02'54"} (48 $\{0.22\}$ $\{0.22\}$ 12.00 LSSM - COR METAL PANEL FENCE 6218 6101 5208 63*03'13" -34.165 (49 (195*55'36") 92.50 $\{0.70\}$ $\{0.70\}$ 599.4m² 181" 43' 20" 10.655 92.50 (195*38'53") $\{0.20\}$ $\{0.20\}$ (A) RESTRICTION ON THE USE OF LAND 15 WIDE (No. 3) (E) EASEMENT FOR DRAINAGE OF WATER 2 WIDE 92.50 **C51** {195*31'27"} $\{0.20\}$ (0.20) 102 (F) EASEMENT FOR SUPPORT 0.2 WIDE 278° 46′ 20″ METAL PANEL FENCE 19.995 /Doc:DP 1203930 the Registrar-Ge (G) EASEMENT FOR ACCESS 0.9 WIDE 6223 DP1128548 (P) EASEMENT FOR SUPPORT VARIABLE WIDTH 278° 46′ 20″ (DP 1203927) 26.890 278 • 46' 20" 278 • 16' 10" EASEMENT FOR ACCESS 0.9 WIDE 38 7.520 (DP 1203927) DP100,6597 6222 8.910 REFER TO REFERENCE MARK TABLE ON SHEET 1 PLAN OF SUBDIVISION OF LOT 6111 IN DP1203927 Surveyor: ADRIAN BARDEN LGA: CAMPBELLTOWN Registered 6103 DIAGRAM A Locality: ST HELENS PARK Date of Survey: 27-06-2016 DP1203930 Surveyors Ref: \$662-6-8-2 DP1203927 Subdivision No: 51 of 2017 08.09.2017 NOT TO SCALE Lengths are in metres. Reduction Ratio 1:400 | 10 | 20 | 30 | 40 | 50 | Table of mm | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | REV F3 (6.09.2017)

PLAN FORM 2 (A2)^{DP1203930} WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION Sheet 3 of 3 sheets Line Table Easement Line Table Easement Line Table Easement Line Table Line ID Bearing Length Line ID Length Bearing Length Bearing Length Bearing 239* 36′ 30″ 5.655 {284° 36' 30"} (2.950) {104° 36' 20"} (3.000) (110° 10' 50") (2.000) REFER TO 24° 26′ 30″ 1.435 (284* 36' 20") (1.800) {104° 36' 30"} (7.515) (110° 10′ 50″) (9.860) DIAGRAM D 100 4204 21° 53′ 20″ 3.440 (284° 36′ 20″) (5.750) {194° 36' 30"} $\{2.300\}$ {110 ° 10' 50"} (3.145) 6202 21" 53' 20" 4.235 (284° 36' 30") (110° 10' 50") (194 * 36' 30") $\{2.700\}$ (2.000) 310 52′00″ 5.500 (284* 36' 20") (0.640) {110° 10′ 50″} (284* 36' 30") (5.510) 103 (10.085) REFER TO 12 200 10′50″ 4.180 (284 * 36' 30") (3.360) {284° 36' 30"} (4.595) 104 (110° 10' 50") (2.920) DIAGRAM B & C 62* 23′ 40″ 5.925 (24° 26' 30") (194° 36' 30") (2.750) (25 * 52' 50") (0.700) 123 (1.105) 149* 36' 30" 5.655 (290° 10' 50") {35.155} {194 ° 48′ 10″} | {2.095} {25° 52′ 50″} (0.200) 125 6201 295* 52′ 50″ | 19.250 555.6m² {194° 36' 30"} {115° 52' 50"} {127° 41′ 50"} (11.980) (3.970) (19.295) (14 * 36' 30") {115° 52' 50"} (19.260) BRUNTON PLACE (284° 48' 40") (110° 10' 50") (5.715) (34.990) (283" 49' 40") {110 ° 10′ 50"} (34.975) (3.195) APPIN ROAD 6205 {104° 36' 20"} (5.500) {24° 26′ 30"} (0.700) CONC BLK WALL 59 {195° 17' 20"} | {2.980} (24° 26' 30") (0.200) 6230 {24° 26' 30"} {194° 43′ 10″) (2.065) (0.200) (110° 10′ 50″) {14° 36′ 30″) (2.750) (2.005) SSM197613 6206 62 {194° 36′ 30″} | {3.680} {110° 10′ 50"} (11.370) 6231 59°20'-16.26 ဖ 402.2m2 Curve Table {110 ° 10′ 50″} (1.665) 6229 Chord Length Arc Length Radius (290° 10′ 50″) Curve ID Chord Bearing (2.005) 388.2m² /sed:3 19.00 {290° 10' 50"} (10.385) (1 252°11′01″ 20.35 21.48 6207 MGA (3 209"59'22" 6.47 19.00 (290° 10' 50") (2.635) 6.51 6110 \sim 5.00 C23 239*36'25" 7.07 7.85 {290° 10' 50"} (2.005) 6228 239*16'26" 4.21 4.67 3.00 (290° 10' 50") 396.0m² \circ 5.00 C25 290 22'32" 1.01 1.01 {290° 10' 50"} $\{2.540\}$ 6208 [26 310 00 742" 144.07 2.74 3.00 (110° 10′ 50″) (2.000) 0 :06-Mar 6109 C27 335*22'33" 6.32 6.85 5.00 (110° 10' 50") $\{9.890\}$ 6227 355*29'59" 3.00 (28 144.06 2.02 403.9m² (110° 10' 50") (3.115) 7.07 7.85 5.00 (29 149*36'24" /Pgs:ALL /Prt HELENS-AP21 5204 (30 142°51′38″ 3.71 4.01 3.00 0 RESTRICTION ON THE USE OF LAND 15 WIDE (No. 3) 6108 Easement Curve Table EASEMENT FOR PADMOUNT SUBSTATION VAR WIDTH 6226 RESTRICTION ON THE USE OF LAND (No. 6) Chord Bearing Chard Length Arc Length Curve ID Radius 411.8m² RESTRICTION ON THE USE OF LAND (No. 7) SHEET 2 EASEMENT FOR DRAINAGE OF WATER 2 WIDE (52 {283°13'47"} $\{0.91\}$ $\{0.91\}$ 19.00 EASEMENT FOR SUPPORT 0.2 WIDE (G) EASMENT FOR ACCESS 0.9 WIDE (221°27'25") (0.70) $\{0.70\}$ 19.00 (H) EASEMENT FOR SUPPORT 0.2 WIDE (DP1203927) 6107 5203 C54 (220°05′59") $\{0.20\}$ $\{0.20\}$ 19.00 (J) EASEMENT FOR ACCESS 0.9 WIDE (DP1203927) {219°29'47"} (0.20) $\{0.20\}$ 19.00 REFER TO REFERENCE MARK TABLE ON SHEET 1 {242*49'19"} (13.19) (13.47) 19.00 FACE OF WALL ON EASEMENT BOUNDARY (C) 6202 /Doc:DP 1203930 P /Rev:08-S the Registrar-General /Src: 6202 /¹²⁵/₈₃/₈₂ CORNER OF WALL ON BOUNDARY ROAD (0.18) DIAGRAM B (C) (D) CONC BLOCK WALL {E} CONC BLK WALL; SCALE 1:150 APPIN 86 6203 REFER TO DIAGRAM C (E) {E}{F} (C) (D) 6201 MGA {E} {A} (C) (D) 6201 {A} DIAGRAM C DIAGRAM D (D) NOT TO SCALE NOT TO SCALE BRUNTON PLACE Surveyor: ADRIAN BARDEN PLAN OF SUBDIVISION OF LOT 6111 IN DP1203927 LGA: CAMPBELLTOWN Registered :q:R464634 Office of Locality: ST HELENS PARK Date of Survey: 27-06-2016 DP1203930 Surveyors Ref: \$662-6-8-2 Subdivision No: 51 of 2017 08.09.2017 Lengths are in metres. Reduction Ratio 1:400 90 | 100 | 110 | 120 | 130 | 140 | 150 | REV F3 (6.09.2017)

PLAN FORM 6 (2013)

WARNING: Creasing or folding will lead to rejection

ePlan

DEPOSITED PLAN AD	MINISTRATION	N SHEET	Sheet 1 of 3 sheet(s)
Office Use Only			Office Use Only
Registered: 08.09.2017	Г)P120	3030
Title System: TORRENS	. L)F 12U	3330
Purpose: SUBDIVISION			
PLAN OF SUBDIVISION OF LOT 6111 IN	LGA:	CAMPBEL	LTOWN
DP1203927	Locality:	ST HELEN	IS PARK
	Parish:	ST PETER	l .
	County:	CUMBERL	AND
Crown Lands NSW/Western Lands Office Approval		Survey Cert	ificate
I,(Authorised Officer) in	l, Adrian Phillip Bard	en	
approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.	of Grinsell & Johns F	P/L PO Box 150 BA	NKSTOWN NSW 1885
Signature:	a surveyor registered 2002, certify that:	d under the <i>Surveyi</i>	ing and Spatial Information Act
Date:			veyed in accordance with the
File Number:		<i>Spatial Information I</i> vas completed on 2	Regulation 2012, is accurate 17 June 2016
Office:	*(b) The part of the k	and shown in the pl	an (*being/*excluding ^
Subdivision Certificate 1, Andrew MacGee *Authorised Person/*General/Manager/*Accordated Certifier, certify that	was surveyed in Information Reg completed on,	-accordance with thus alation 2012, is acc	ne Surveying and Spatial purate and the survey was part not surveyed was compiled
the provisions of s.109J of the <i>Environmental Planning and</i> Assessment Act 1979 have been satisfied in relation to the proposed		in this plan was co Spatial Information I	mpiled in accordance with the Regulation 2012.
subdivision, new roador, reserve set out herein.	Signature:	•	Dated: 25 July 2016
Signature:	Surveyor ID: 23	,	
Accreditation number:	Datum Line: X-Y	<u>.</u>	
Consent Authority: Camposity 10 Aug 2017	Type: *Urban/*Rural		
Date of endorsement: 10 Aug 2017 Subdivision Certificate number: 51 of 2017	The terrain is *Level-	-Undulating / *Stee	p-Mountainous.
File number: \$113/1997 - Stage 6.2	*Strike through if inapp	olicable.	
·	^Specify the land actual	aily surveyed or spec	ify any land shown in the plan that
*Strike through if inapplicable.	is not the subject of	the survey.	
Statements of intention to dedicate public roads create public reserves and drainage reserves, acquire/resume land.	Plans used in the pro	eparation of survey	/compilation.
IT IS INTENDED TO DEDICATE TO THE PUBLIC AS PUBLIC ROAD	DP2475 DP219698	DP1052540 DP1054223	DP1178566 DP1193880
1. BRUNTON PLACE	DP239386	DP1056088	DP1203927
	DP586076 DP746652	DP1068130 DP1074727	
	DP827578	DP1087825	
	DP878282 DP1006597	DP1110870 DP1110982	
·	DP1016375	DP1110962 DP1128548	
	DP1028117	-DP1154630	
	If space is	insufficient continu	ie on PLAN FORM 6A
Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A	Surveyor's Refer	ence: S662-6-8-	-2

PLAN FORM 6A (2012)

WARNING: Creasing or folding will lead to rejection

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DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 3 sheet(s)

Office Use Only

Office Use Only

Registered: (08.09.2017

PLAN OF SUDIVISION OF LOT 6111 IN DP1203927

DP1203930

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses See 60(c) SSI Regulation 2012
- Statements of intention to create and release affecting interests in accordance with section 88B Conveyancing Act 1919
- Signatures and seals- see 195D Conveyancing Act 1919
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: 5.1 of 2017

Date of Endorsement: 10 Aug 2017

STREET A	DDRESSES:
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Lot	Street number	Street name	Street type	Locality
6201	42	Heritage Heights	Circuit	St Helens Park
6202	Not Available	<u> </u>		
6203	10	Brunton	Place	St Helens Park
6204	12	Brunton	Place	St Helens Park
6205	14	Brunton	Place	St Helens Park
6206	16	Brunton	Place	St Helens Park
6207	18	Brunton	Place	St Helens Park
6208	20	Brunton	Place	St Helens Park
6209	22	Brunton	Place	St Helens Park
6210	24	Brunton	Place	St Helens Park
6211	26	Brunton	Place	St Helens Park
6212	28	Brunton	Place	St Helens Park
6213	30	Brunton	Place	St Helens Park
6214	32	Brunton	Place	St Helens Park
6215	34	Brunton	Place	St Helens Park
6216	36	Brunton .	Place	St Helens Park
6217	38	Brunton	Place	St Helens Park
6218	27	Brunton	Place	St Helens Park
6219	25	Brunton	Place	St Helens Park
6220	23	Brunton	Place	St Helens Park
6221	21	Brunton	Place	St Helens Park
6222	19	Brunton	Place	St Helens Park
6223	17	Brunton	Place	St Helens Park
6224	15	Brunton	Place	St Helens Park
6225	13	Brunton	Place	St Helens Park
6226	11	Brunton	Place	St Helens Park
6227	9	Brunton	Place	St Helens Park
6228	7	Brunton	Place	St Helens Park
6229	5	Brunton	Place	St Helens Park
6230	3	Brunton	Place	St Helens Park
6231	44	Heritage Heights	Circuit	St Helens Park

If space is insufficient use additional annexure sheet

Surveyor's Reference: \$662-6-8-2

PLAN FORM 6A (2012)

WARNING: Creasing or folding will lead to rejection

ePlan

DEPOSITED PLAN A	OMINISTRATION SHEET Sheet 3 of 3 sheet(s)
Office Use Only	Office Use Only
Registered: 08.09.2017	DD12020
PLAN OF SUDIVISION OF LOT 6111 IN	DP1203930
DP1203927	
	 This sheet is for the provision of the following information as required: A schedule of lots and addresses - See 60(c) SSI Regulation 2012 Statements of intention to create and release affecting interests in accordance with section 88B Conveyancing Act 1919
Subdivision Certificate number:51 of 2017. Date of Endorsement:10 Aug 2017.	 Signatures and seals- see 195D Conveyancing Act 1919 Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.
PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919 A CREATE: 1. RESTRICTION ON THE USE OF LAND	S AMENDED IT IS INTENDED TO 12. POSITIVE COVENANT
2. RESTRICTION ON THE USE OF LAND 3. RESTRICTION ON THE USE OF LAND 15 WIDE (A) 4. RESTRICTION ON THE USE OF LAND 5. EASEMENT FOR PADMOUNT SUBSTATION (B) YAR WID 6. RESTRICTION ON THE USE OF LAND (C)	13. RESTRICTION ON THE USE OF LAND 14. RESTRICTION ON THE USE OF LAND 15. RESTRICTION ON THE USE OF LAND 16. RESTRICTION ON THE USE OF LAND 17. POSITIVE COVENANT
7. RESTRICTION ON THE USE OF LAND (D) 8. EASEMENT FOR SUPPORT 0.2 WIDE (F) 9. EASEMENT FOR ACCESS 0.9 WIDE (G) 10. EASEMENT FOR DRAINAGE OF WATER 2 WIDE 11. RESTRICTION ON THE USE OF LAND	
Executed by G.M. Amalgamated Investments (Dulwich Hill) Pty Limited 2 2001 (Cth) in the presence of:	ACN 000 699 221 in accordance with Section 127 of the Corporation Act
Signature of Director Director's Name	R 14/08/2017, DATE
,	
Signature of Director/Secretary Director/Secretary's N	
Executed by J.M. Associated Investments (Dulwich Hill) Pty Limited ACI 2001 (Cth) in the presence of:	N 000 699 212 in accordance with Section 127 of the Corporation Act
Signature of Director Director's Name	DATE 14/08/2017
ANTHONY Signature of Director/Secretary Director/Secretary's N	
lf space is insufficient use	e additional annexure sheet
Surveyor's Reference:S662-6-8-2	

All handwriting must be in block dapitals

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Form: 07L Release: 4·5

LEASE

New South Wales Real Property Act 1900



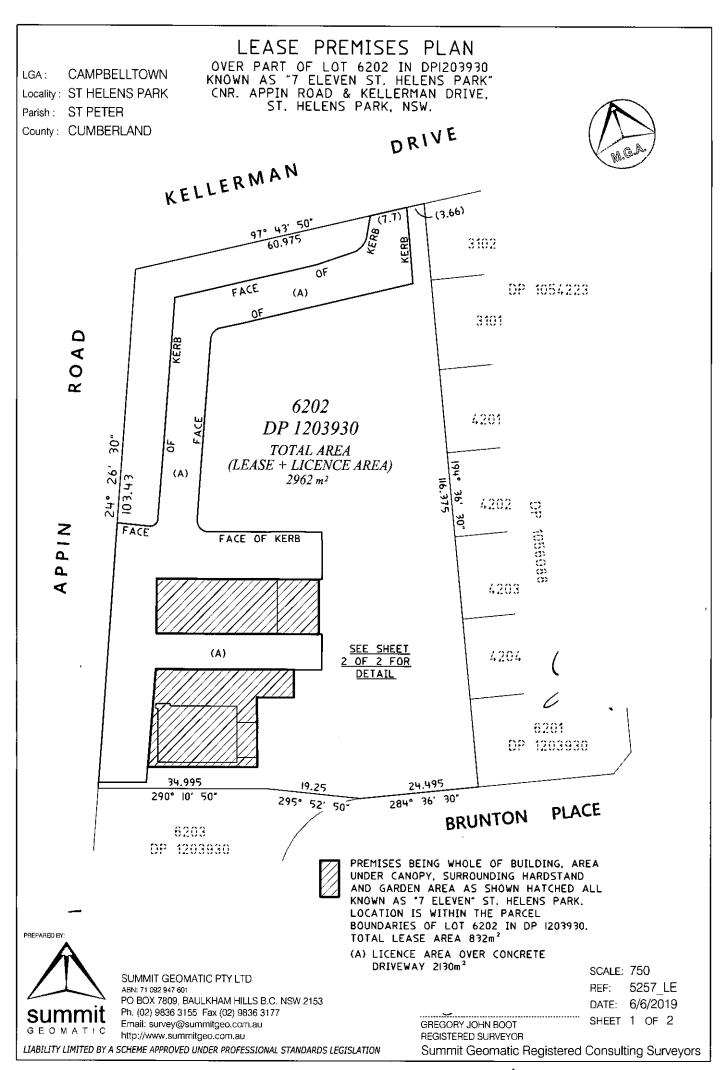
AP158557M

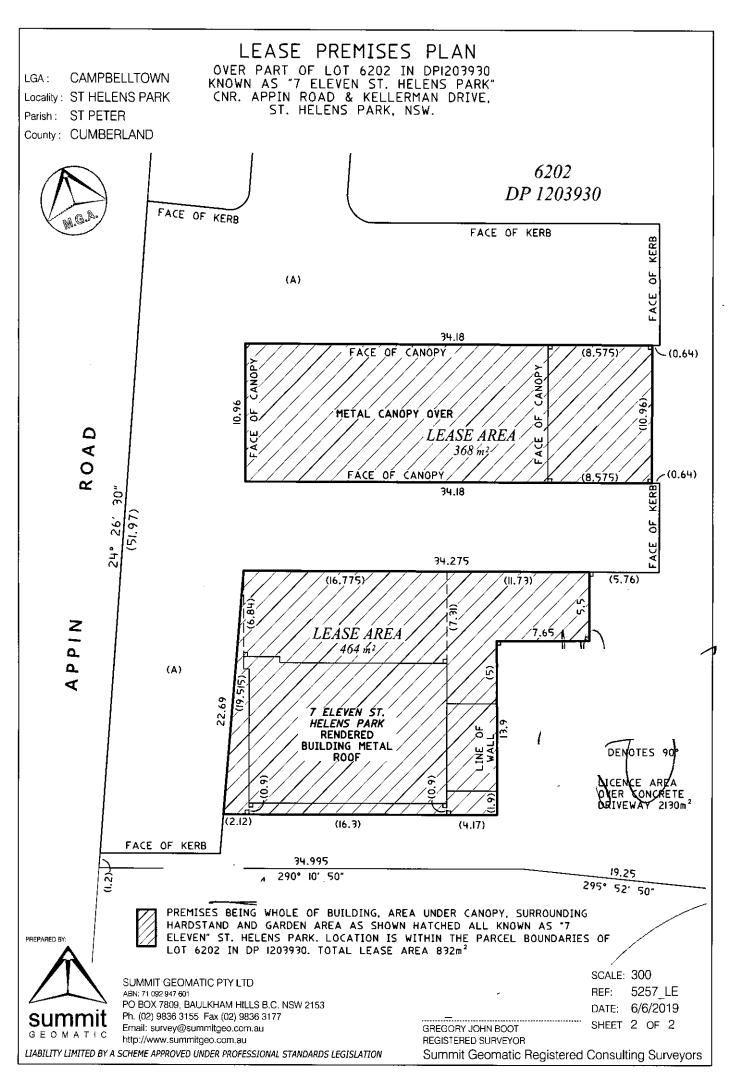
PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises th.

by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any

	- -	made available to any person for search upon payment of a fee, if any.
	STAMP DUTY	Revenue NSW use only
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(A)	TORRENS TITLE	Property leased
	. 10 to 41 to Tool	
	<i>NA EUZNETS</i> O uthoris ed	Plan attached as Annexure C and known as Cnr Appin Road and Kellerman
о та	ike this ndment	Drive, St. Helens Park NSW 2560 the whole of the Building, area
Signe	editor AK	under the canops, surrounding hardstand and garden area 95
Janec	d 18/7/2019	g shown hatched on the Plan attached as Annexure Cand known as 7-Eleven, CAR Appin Road and Kellerman Drive, St Helens Park,
		NSW 2250
(B)	LODGED BY	Document Name, Address or DX, Telephone, and Customer Account Number if any
		Collection SOMERSET RYCKMANS Box Level S, 142 CLARENCE STREET (0) 92992000
		1 SYONEY NOW SOOD
		Reference: 120 200
(C)	LESSOR	
		GM AMALGAMATED INVESTMENTS (DULWICH HILL) PTY LIMITED ACN 000 699 221 AND JM ASSOCIATED INVESTMENTS (DULWICH HILL) PTY LIMITED ACN 000 699 212
		•
		The lessor leases to the lessee the property referred to above.
(D)		Encumbrances (if applicable):
(E)	LESSEE	7 DI BURN (MODELS DEV. I INTERED. (200) 005 000 405)
		7-ELEVEN STORES PTY LIMITED (ACN 005 299 427)
Œ		TENANCY:
(F)		
(G)	-	VE (5) YEARS
	2. COMMENC	ING DATE 17 OCTOBER 2017 ING DATE 16 OCTOBER 2022
	3. TERMINAT	DISON TO DENEMA CONTRACTOR OF A CANADA
		ING DATE 17 OCTOBER 2017 ING DATE 16 OCTOBER 2022 PTION TO RENEW for a period of N.A. clause N.A. of N.A. PTION TO PURCHASE set out in clause N.A. of N.A. with and reserving the RIGHTS set out inclause N.A. of N.A. es the provisions or additional material set out in ANNEXURE(S) A hereto.
		PTION TO PURCHASE set out in clause N.A. of N.A.
		PTION TO PURCHASE set out in clause N.A. of N.A.
	-	es the provisions or additional material set out in ANNEXURE(S) A hereto.
	_	es the provisions or additional material set out in ANNEXURE(S) A hereto. es the provisions set out in N.A.
	No. N.A.	to the provisions set out in it.A.
		is set out in item No. 6 of SCHEDULE ATTACHED TO ANNEXURE A
	7. THE RENA	15 SCI OUT IN TOUR OF BUILDING ATTACHED TO ANNEAURE A

'age 1 of 33





EXECUTED BY GM AMALGAMATED INVESTMENTS (DULWICH HILL) PTY LIMITED (ACN 000 699 221) pursuant to section 127 of the Corporations Act 2001)))
Signature of Authorised Person	Signature of Authorised Person
DIRECTOR	•
Office held	Office held
ANTHONY MIR	
(Print) Name of Authorised Person	(Print) Name of Authorised Person
EXECUTED BY JM ASSOCIATED INVESTMENTS (DULWICH HILL) PTY LIMITED (ACN 000 699 212) pursuant to section 127 of the Corporations Act 2001)))
Signature of Authorised Person	Signature of Authorised Person
DIRECTOR	•
Office held	Office held .
ANTHONY MIR (Print) Name of Authorised Person	(Print) Name of Authorised Person
EXECUTED BY 7-ELEVEN STORES PTY)
LIMITED (ACN 005 299 427) pursuant to section 127 of the Corporations Act 2001)
300tion 127 of the corporations Act 2001)
X-	, (, \alpha_
Signature of Authorised Person C	Signature of Authorised Person OwOffice Island Person Secretary
Office held	owOffice lਿਸ਼ੀਵphen Scott Eyears
Director	Secretary
(Print) Name of Authorised Person	(Print) Name of Authorised Person

Appendix F Historical Research Information & Historical Aerials





St Helens Park House c. 1970



Denfield Homestead c. 1985



Research References:

Campbelltown City Council, History of St Helens Park, viewed 6 March 2021,

<a href="https://www.campbelltown.nsw.gov.au/AboutCampbelltown/History/Historyofoursuburbs/Historyofoursub

Campbelltown City Library, St Helens Park House, viewed 24 March 2021,

http://pictures.campbelltown.nsw.gov.au/OPIP/scripts/home.asp.

NSW Office of Environment & Heritage, Denfield Homestead, viewed 6 March 2021,

https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=1291167.

NSW Office of Environment & Heritage, St Helen's Park, viewed 6 March 2021,

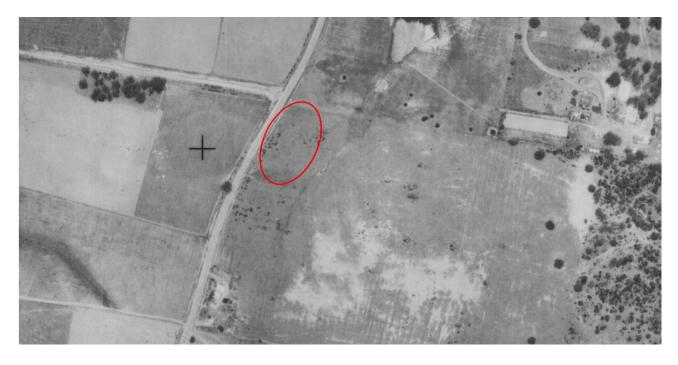
https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=5045441.

Richard Lawrence, 1985, Denfield, viewed 24 March 2021,

http://pictures.campbelltown.nsw.gov.au/OPIP/scripts/home.asp.

Wikipedia, St Helens Park, New South Wales, viewed 6 March 2021,

https://en.wikipedia.org/wiki/St_Helens_Park, New_South_Wales>.



NSW Department of Land Property Information 1947





NSW Department of Land Property Information 1969



NSW Department of Land Property Information 1994



NSW Department of Land Property Information 2005



Google Earth Pro 2007





Nearmap 2014



Nearmap 2016





Nearmap 2017



Nearmap 2021



Appendix G Laboratory Reports & Results Summary Tables



Summary Table Heavy Metals and Organics Results

	METALS								BTEX	IN .			PAHs		TRHs				Other		
Analyte	As	Cd	Cr(6+) ¹	Cu	Pb	Hg	Ni	Zn	Benzene	Toluene	Ethyl- benzene	Total Xylenes	Naphtha- lene	Total PAHs	Carcinogenic (as BaP TEQ ² (half LOR))	B(a)P	F1	F2	F3 (C16-C34)	F4 (C34-C40)	Asbestos
Unit of measurement	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% weight
Assessment criteria																					
NEPM Sch B1 (2013) HILB Table 1A(1)	500	150	500	30,000	1,200	120	1,200	60,000	NA	NA	NA	NA	NA	400	4	NA	NA	NA	NA	NA	Friable: 0.001
NEPM Sch B1 (2013) HSL A & B (Table 1A(3))	NA	NA	NA	NA	NA	NA	NA	NA	0.5	160	55	40	3	NA	NA	NA	45	110	NA	NA	Bonded: 0.01
NEPM Sch B1 (2013) EIL (Urban residential) ⁵	100	NA	203	158	1263	NA	36	363	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM Sch B1 (2013) ESL (Table 1B(5-6))	NA	NA	NA	NA	NA	NA	NA	NA	50	85	70	105	170	NA	NA	0.7	180	120	300	2800	NA
Laboratory Analysis																					
Limit of reporting (LOR)	4	0.4	1	1	1	0.1	1	1	0.2	0.5	1	3	1	0.05	0.5	0.05	25	50	100	100	
SAMPLE ID																					
B1 0.15m	5	BDL	7	37	21	BDL	15	63	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No fibres
B1 7.3m	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	BDL	BDL	-
B2 0.15m	5	BDL	8	32	21	BDL	10	58	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No fibres
B2 2.1m	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	BDL	BDL	-
B2 8.2m	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	BDL	BDL	-
B3 0.15m	4	BDL	12	27	20	BDL	11	53	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No fibres
B3 8.7m	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	BDL	BDL	-
B4 0.2m	BDL	BDL	5	14	9	BDL	5	24	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	No fibres
B5 0.2m	7	BDL	15	25	29	BDL	11	66	-	-	-	-	-	-	-	-	-	-	-	-	-
B6 0.2m	5	BDL	11	27	23	BDL	11	44	-	-	-	-	-	-	-	-	-	-	-	-	-
B7 0.2m	6	BDL	9	39	25	BDL	15	59	-	-	-	-	-	-	-	-	-	-	-	-	-
B8 0.2m	6	BDL	11	35	25	BDL	13	66	-	-	-	-	-	-	-	-	-	-	-	-	-
B9 0.2m	4	0.5	8	22	29	BDL	7	74	-	-	-	-	-	-	-	-	-	-	-	-	-
D1	BDL	BDL	8	21	35	BDL	5	87	-	-	-	-	-	-	-	-	-	-	-	-	-

										Gr	oundwater Resul	ts [μg/L]									
Analyte	As	Cd	Cr(6+) ¹	Cu	Pb	Hg	Ni	Zn	Benzene	Toluene	Ethyl-benzene	Xylenes	Naphthalene	Total PAH	Carcinogenic (BaP TEQ ²)	B(a)P	F1 ⁽³⁾	F2 ⁽⁴⁾	-	-	-
Unit of measurement	μg/L	$\mu g/L$	μg/L	$\mu g/L$	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	-	-	-
NEPM Sch B1 GIL Fresh Water 95%	24 (3+) 13 (5+)	0.2	1.0	1.4	3.4	0.06	11	8	950	-	-	200	16	-	-	-	-	-	-	-	-
NEPM Sch B1 GIL Marine Water 95%	-	0.7	27 (3+) 4.4 (6+)	1.3	4.4	0.1	7	15	500	-	-	-	50	-	-	-	1	-	-	-	-
NEPM Sch B1 HSL A&B Vapour Intrusion	-	-	-	-	-	-	-	-	4,000	-	-	-	-	-	-	-	6,000	-	-	-	-
ANZG (2018) Fresh water 95%	24 (3+)	0.2	3.3 (3+) 1.0 (6+)	1.4	3.4	0.6	11	8	950	180	80	75 (m) / 350 (o)	16	-	-	0.2	-	-	-	-	-
ANZG (2018) Marine water 95%	-	5.5	27 (3+) 4.4 (6+)	1.3	4.4	0.4	70	15	700	180	80	75 (m)	70	-	-	0.2	-	-	-	-	-
MW1	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	-	-	-
MW2	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	BDL	BDL	BDL	BDL	-
B3W	-	-	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	-	-	-	-	-	-	-	-
Key	Red Cells indicate values that exceed relevant Human Health Threshold Level Green shaded cells indicate an exceedance of an environmental or ecological threshold level BDL – Below Detection Limit (refer to laboratory reports for details) NA – Not applicable '-' - indicates not tested or no guideline level provided																				
Footnotes	2- HIL is 3- F1 is t 4- F2 is t																				

Summary Table Organochlorine and Organophosphorus Pesticides, Polychlorinated Biphenols Results

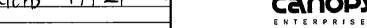
				00	CPs				OPPs	PCBs		
Analyte	DDD+DDE+DDT	Aldrin +Dieldrin ¹	Total Chlordane ²	Total Endosulfans ³	Endrin	Heptachlor	Hexachlorobenzene (HCB)	Methoxychlor	Chlorpyrifos	Total PCBs ⁴		
Unit of measurement	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
Assessment criteria												
NEPM Sch B1 (2013) HIL-B	600	10	90	400	20	10	15	500	340	1		
NEPM Sch B1 (2013) EIL (Table 1B(5))	180 (DDT only)	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Limit of reporting (LOR)	0.1	< 0.2	< 0.2	< 0.3	0.1	0.1	0.1	0.1	0.1	0.1		
SAMPLE ID		Laboratory results										
B1 0.15m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
B1 0.15m (Laboratory Duplicate)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
B1 7.3m	-	-	-	-	-	-	-	-	-	-		
B2 0.15m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
B2 2.1m	-	-	-	-	-	-	-	-	-	-		
B2 8.2m	-	-	-	-	-	-	-	-	-	-		
B3 0.15m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
B3 8.7m	-	-	-	-	-	-	-	-	-	-		
B4 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
B5 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-		
B6 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-		
B7 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-		
B8 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-		
B9 0.2m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-		
D1	-	-	-	-	-	-	-	-	-	-		
MW1	-	-	-	-	-	-	-	-	-	-		
MW2	-	-	-	-	-	-	-	-	-	-		
B3W	-	-	-	-	-	-	-	-	-	-		
Key	BDL – Below Detection NA – Not applicable	Yellow cells indicate values that exceed relevant levels. BDL – Below Detection Limit (refer to laboratory reports for details) NA – Not applicable -' - indicates not tested										
Footnotes	1- Laboratory does no 2- Laboratory does no 3- Laboratory does no 4- Positive values show	t analyse Total t analyse Total	Chlordane, but g	amma-Chlordane a	and alpha-Ch	lordane separate	ly. ulphate separately.					



Client: Canopy Enterprises

CHAIN OF CUSTODY

Canopy Enterprises - 0412 9	8/ 450			
	Canopy Reference:	Helens	-AP21	





Contact Person:	Fonn Hinchcliffe				Canor	y Com	ments		CIC.	rD_	- 1		-	-		canopy			
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Laboratory Sample ID	Client Sample ID or information	Depth -	Date sampled -	Type of sample	Priority Metals	PAH	0C/0b	Comb 6	Comb 6a	Cr Suite	втех/ткн	PFAS		•		Additional-Information			
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rint Name:	(Company): Canopy G Haid	rucei prises			$\overline{}$	Name:		pany <u>).</u>		1 1	<u> </u>	MC	CHIO CHI	M	 Sampl	es Received Cool or Ambient (circle one)			
ate & Time:	10/03/21	-			-	& Time			11	12/	U	<u>- · · ·</u>	Ba		Tempe	erature Received at: 60 (if applicable)			
Signature:		•			Signa			-		1 1			·			ported by: Hand delivered (courier)			



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Canopy Enterprises Pty Ltd
Attention	Fenn Hinchcliffe

Sample Login Details	
Your reference	Helens - AP21
Envirolab Reference	263849
Date Sample Received	10/03/2021
Date Instructions Received	10/03/2021
Date Results Expected to be Reported	17/03/2021

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	14 Soil, 3 Water, 3 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5
Cooling Method	Ice
Sampling Date Provided	YES

Comments	
Nil	

Please direct any queries to:

Aileen Hie	Jacinta Hurst				
Phone: 02 9910 6200	Phone: 02 9910 6200				
Fax: 02 9910 6201	Fax: 02 9910 6201				
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au				

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water
B1-0.15	✓	✓	✓	✓	✓	✓	✓	✓		
B1-7.3	✓	✓								
B2-0.15	✓	✓	✓	✓	✓	✓	✓	✓		
B2-2.1	✓	✓								
B2-8.2	✓	✓								
B3-0.15	✓	✓	✓	✓	✓	✓	✓	✓		
B3-8.7	✓	✓								
B4-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
B5-0.2				✓	✓		✓			
B6-0.2				✓	✓		✓			
B7-0.2				✓	✓		✓			
B8-0.2				✓	✓		✓			
B9-0.2				✓	✓		✓			
D1							✓			
MW1									✓	✓
MW2									✓	✓
B3W									✓	

The '\sqrt{'} indicates the testing you have requested. THIS IS NOT A REPORT OF THE RESULTS.

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.



Envirolab Services Pty Ltd

ABN 37 112 535 645 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201 customerservice@envirolab.com.au www.envirolab.com.au

CERTIFICATE OF ANALYSIS 263849

Client Details	
Client	Canopy Enterprises Pty Ltd
Attention	Fenn Hinchcliffe
Address	16/40 Hilly St, Mortlake, NSW, 2137

Sample Details	
Your Reference	Helens - AP21
Number of Samples	14 Soil, 3 Water, 3 Water
Date samples received	10/03/2021
Date completed instructions received	10/03/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details					
Date results requested by	17/03/2021				
Date of Issue	16/03/2021				
NATA Accreditation Number 2901. This document shall not be reproduced except in full.					
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *					

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Dragana Tomas, Senior Chemist Jaimie Loa-Kum-Cheung, Metals Supervisor Lucy Zhu, Asbestos Supervisor Manju Dewendrage, Chemist

Authorised By

Nancy Zhang, Laboratory Manager



vTRH(C6-C10)/BTEXN in Soil						
Our Reference		263849-1	263849-2	263849-3	263849-4	263849-5
Your Reference	UNITS	B1	B1	B2	B2	B2
Depth		0.15	7.3	0.15	2.1	8.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	97	88	95	105	96

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		263849-6	263849-7	263849-8
Your Reference	UNITS	В3	В3	B4
Depth		0.15	8.7	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021
TRH C6 - C9	mg/kg	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	115	101	105

svTRH (C10-C40) in Soil						
Our Reference		263849-1	263849-2	263849-3	263849-4	263849-5
Your Reference	UNITS	B1	B1	B2	B2	B2
Depth		0.15	7.3	0.15	2.1	8.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C10 -C16	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	96	82	73	89	83

svTRH (C10-C40) in Soil				
Our Reference		263849-6	263849-7	263849-8
Your Reference	UNITS	В3	В3	B4
Depth		0.15	8.7	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	87	75	107

PAHs in Soil					
Our Reference		263849-1	263849-3	263849-6	263849-8
Your Reference	UNITS	B1	B2	В3	B4
Depth		0.15	0.15	0.15	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	118	118	120

Organochlorine Pesticides in soil						
Our Reference		263849-1	263849-3	263849-6	263849-8	263849-9
Your Reference	UNITS	B1	B2	В3	B4	B5
Depth		0.15	0.15	0.15	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
нсв	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	101	100	101

Organochlorine Pesticides in soil					
Our Reference		263849-10	263849-11	263849-12	263849-13
Your Reference	UNITS	В6	В7	B8	В9
Depth		0.2	0.2	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
нсв	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	102	104

Organophosphorus Pesticides in Soil						
Our Reference		263849-1	263849-3	263849-6	263849-8	263849-9
Your Reference	UNITS	B1	B2	В3	B4	B5
Depth		0.15	0.15	0.15	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	101	100	101

Organophosphorus Pesticides in Soil					
Our Reference		263849-10	263849-11	263849-12	263849-13
Your Reference	UNITS	В6	В7	В8	В9
Depth		0.2	0.2	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	102	104

PCBs in Soil					
Our Reference		263849-1	263849-3	263849-6	263849-8
Your Reference	UNITS	B1	B2	В3	B4
Depth		0.15	0.15	0.15	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	101	100

Acid Extractable metals in soil						
Our Reference		263849-1	263849-3	263849-6	263849-8	263849-9
Your Reference	UNITS	B1	B2	В3	B4	B5
Depth		0.15	0.15	0.15	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2021	12/03/2021	12/03/2021	16/03/2021	12/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	16/03/2021	12/03/2021
Arsenic	mg/kg	5	5	4	<4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	8	12	5	15
Copper	mg/kg	37	32	27	14	25
Lead	mg/kg	21	21	20	9	29
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	10	11	5	11
Zinc	mg/kg	63	58	53	24	66

Acid Extractable metals in soil						
Our Reference		263849-10	263849-11	263849-12	263849-13	263849-14
Your Reference	UNITS	В6	В7	В8	В9	D1
Depth		0.2	0.2	0.2	0.2	
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
Arsenic	mg/kg	5	6	6	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	<0.4
Chromium	mg/kg	11	9	11	8	8
Copper	mg/kg	27	39	35	22	21
Lead	mg/kg	23	25	25	29	35
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	11	15	13	7	5
Zinc	mg/kg	44	59	66	74	87

Moisture						
Our Reference		263849-1	263849-2	263849-3	263849-4	263849-5
Your Reference	UNITS	B1	B1	B2	B2	B2
Depth		0.15	7.3	0.15	2.1	8.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
Moisture	%	5.8	15	8.6	20	13

Moisture						
Our Reference		263849-6	263849-7	263849-8	263849-9	263849-10
Your Reference	UNITS	В3	В3	B4	B5	В6
Depth		0.15	8.7	0.2	0.2	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021	12/03/2021
Moisture	%	12	16	11	15	7.4

Moisture					
Our Reference		263849-11	263849-12	263849-13	263849-14
Your Reference	UNITS	В7	В8	В9	D1
Depth		0.2	0.2	0.2	
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	11/03/2021	11/03/2021	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021	12/03/2021	12/03/2021
Moisture	%	9.8	11	6.2	4.6

Asbestos ID - soils					
Our Reference		263849-1	263849-3	263849-6	263849-8
Your Reference	UNITS	B1	B2	В3	B4
Depth		0.15	0.15	0.15	0.2
Date Sampled		09/03/2021	09/03/2021	09/03/2021	09/03/2021
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	15/03/2021	15/03/2021	15/03/2021	15/03/2021
Sample mass tested	g	Approx. 55g	Approx. 40g	Approx. 40g	Approx. 30g
Sample Description	-	Brown fine- grained soil & rocks			
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg			
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

vTRH(C6-C10)/BTEXN in Water				
Our Reference		263849-15	263849-16	263849-17
Your Reference	UNITS	MW1	MW2	B3W
Depth				
Date Sampled		09/03/2021	09/03/2021	09/03/2021
Type of sample		Water	Water	Water
Date extracted	-	12/03/2021	12/03/2021	12/03/2021
Date analysed	-	15/03/2021	15/03/2021	15/03/2021
TRH C ₆ - C ₉	μg/L	<10	<10	[NA]
TRH C ₆ - C ₁₀	μg/L	<10	<10	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	μg/L	<10	<10	[NA]
Benzene	μg/L	<1	<1	<1
Toluene	μg/L	<1	<1	<1
Ethylbenzene	μg/L	<1	<1	<1
m+p-xylene	μg/L	<2	<2	<2
o-xylene	μg/L	<1	<1	<1
Naphthalene	μg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	102	102
Surrogate toluene-d8	%	99	98	100
Surrogate 4-BFB	%	98	97	101

svTRH (C10-C40) in Water			
Our Reference		263849-15	263849-16
Your Reference	UNITS	MW1	MW2
Depth			
Date Sampled		09/03/2021	09/03/2021
Type of sample		Water	Water
Date extracted	-	11/03/2021	11/03/2021
Date analysed	-	12/03/2021	12/03/2021
TRH C ₁₀ - C ₁₄	μg/L	<50	<50
TRH C ₁₅ - C ₂₈	μg/L	<100	<100
TRH C ₂₉ - C ₃₆	μg/L	<100	<100
TRH >C ₁₀ - C ₁₆	μg/L	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	μg/L	<50	<50
TRH >C ₁₆ - C ₃₄	μg/L	<100	<100
TRH >C ₃₄ - C ₄₀	μg/L	<100	<100
Surrogate o-Terphenyl	%	88	81

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
	F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
	Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS.
	Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary							
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <pql "total="" 'eq="" +ve="" 2.="" 3.="" <pql="" a="" above.="" actually="" all="" and="" approach="" approaches="" are="" as="" assuming="" at="" be="" below="" between="" but="" calculation="" can="" conserv="" conservative="" contribute="" contributing="" false="" give="" given="" half="" hence="" individual="" is="" least="" lowest="" may="" mid-po="" more="" most="" negative="" not="" note,="" of="" pahs="" pahs"="" pahs.<="" positive="" pql="" pql'values="" pql.="" present="" present.="" reflective="" reported="" simply="" stipulated="" sum="" susceptible="" td="" teq="" teqs="" that="" the="" therefore="" this="" to="" total="" when="" zero'values="" zero.=""></pql>							
Org-023	Water samples are analysed directly by purge and trap GC-MS.							
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.							
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation L Soil and Groundwater.							
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a su of the positive individual Xylenes.							

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Du		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	[NT]
Date analysed	-			12/03/2021	1	12/03/2021	12/03/2021		12/03/2021	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	91	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	91	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	103	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	89	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	85	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	90	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	90	[NT]
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	96	1	97	102	5	97	[NT]

QUALITY CO	NTROL: svT	RH (C10	-C40) in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	
Date analysed	-			12/03/2021	1	12/03/2021	12/03/2021		12/03/2021	
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	112	
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	77	
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	130	
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	112	
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	77	
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	130	
Surrogate o-Terphenyl	%		Org-020	75	1	96	94	2	99	

QUA	LITY CONTRO	L: PAHs	in Soil			Du	plicate		Spike Rec	overy %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	
Date analysed	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	123	
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	121	
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	110	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	
Surrogate p-Terphenyl-d14	%		Org-022/025	106	1	102	100	2	123	

QUALITY CONT	ΓROL: Organo	QUALITY CONTROL: Organochlorine Pesticides in soil								Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]		
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021			
Date analysed	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021			
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90			
нсв	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89			
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70			
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	121			
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	118			
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116			
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	121			
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82			
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110			
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72			
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]			
Surrogate TCMX	%		Org-022/025	105	1	103	103	0	106			

QUALITY CONTR	ROL: Organopl	nosphorus	Pesticides in Soil			Du	plicate	Spike Recovery %			
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]	
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021		
Date analysed	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021		
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73		
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]		
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]		
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]		
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96		
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99		
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90		
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117		
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	110		
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]		
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	123		
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]		
Surrogate TCMX	%		Org-022/025	105	1	103	103	0	106		

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QUALIT	Y CONTRO	L: PCBs	in Soil			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	
Date analysed	-			11/03/2021	1	11/03/2021	11/03/2021		11/03/2021	
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	100	
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	
Surrogate TCMX	%		Org-021	105	1	103	103	0	106	[NT]

QUALITY CONT	QUALITY CONTROL: Acid Extractable metals in soil								Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			12/03/2021	1	12/03/2021	12/03/2021		12/03/2021	
Date analysed	-			12/03/2021	1	12/03/2021	12/03/2021		12/03/2021	
Arsenic	mg/kg	4	Metals-020	<4	1	5	4	22	117	
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	112	
Chromium	mg/kg	1	Metals-020	<1	1	7	6	15	112	
Copper	mg/kg	1	Metals-020	<1	1	37	33	11	114	
Lead	mg/kg	1	Metals-020	<1	1	21	18	15	112	
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	114	
Nickel	mg/kg	1	Metals-020	<1	1	15	13	14	116	
Zinc	mg/kg	1	Metals-020	<1	1	63	52	19	121	[NT]

QUALITY CONT	ROL: vTRH(C6-C10)/E	BTEXN in Water		Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]	
Date extracted	-			12/03/2021	[NT]		[NT]	[NT]	12/03/2021		
Date analysed	-			15/03/2021	[NT]		[NT]	[NT]	15/03/2021		
TRH C ₆ - C ₉	μg/L	10	Org-023	<10	[NT]		[NT]	[NT]	96		
TRH C ₆ - C ₁₀	μg/L	10	Org-023	<10	[NT]		[NT]	[NT]	96		
Benzene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	98		
Toluene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	96		
Ethylbenzene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	95		
m+p-xylene	μg/L	2	Org-023	<2	[NT]		[NT]	[NT]	95		
o-xylene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	95		
Naphthalene	μg/L	1	Org-023	<1	[NT]		[NT]	[NT]	[NT]		
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]		[NT]	[NT]	101		
Surrogate toluene-d8	%		Org-023	99	[NT]		[NT]	[NT]	100		
Surrogate 4-BFB	%		Org-023	100	[NT]		[NT]	[NT]	102		

QUALITY CON	ITROL: svTF	RH (C10-0	C40) in Water			Du	plicate		Spike Re	covery %
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			11/03/2021	[NT]		[NT]	[NT]	11/03/2021	
Date analysed	-			11/03/2021	[NT]		[NT]	[NT]	11/03/2021	
TRH C ₁₀ - C ₁₄	μg/L	50	Org-020	<50	[NT]		[NT]	[NT]	95	
TRH C ₁₅ - C ₂₈	μg/L	100	Org-020	<100	[NT]		[NT]	[NT]	93	
TRH C ₂₉ - C ₃₆	μg/L	100	Org-020	<100	[NT]		[NT]	[NT]	106	
TRH >C ₁₀ - C ₁₆	μg/L	50	Org-020	<50	[NT]		[NT]	[NT]	95	
TRH >C ₁₆ - C ₃₄	μg/L	100	Org-020	<100	[NT]		[NT]	[NT]	93	
TRH >C ₃₄ - C ₄₀	μg/L	100	Org-020	<100	[NT]		[NT]	[NT]	106	
Surrogate o-Terphenyl	%		Org-020	70	[NT]		[NT]	[NT]	77	

Result Definiti	ons
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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Quality Contro	ol Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.

We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples were sub-sampled from jars provided by the client.

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Appendix H Bore Logs



Project: Helens-AP21 Address: Kellerman Driv	ve, St Helens Par	k Date Logged: 9/3/2021			BOREHOLE NO.:	B1
Location: Refer to Site		Logged: JK/GH			Sheet 1 of 2	
S W T A A A M T B P E L L R E E	DEPTH (M)	DESCRIPTION (Soil type, colour, grain size, plasticity, minor compon	ents, observations)	S Y U M S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R
0.15	 	FILL: Gravelly Silty CLAY: Dark brown with dark grey, low plasticit	ty with some shale gravel	CL		D
	1.0	FILL: Silty CLAY: Orange brown with light brown and light grey, m trace of shale gravel	edium to high plasticity with a	СН		D-M
	2.0					
	3.0	Silty CLAY: Orange brown with light grey, medium to high plasticit	v	СН		M
	4.0	Silty CLAY: Light grey with orange brown, medium to high plasticit gravel	y with a trace of shale	CL		D-M
	5.0	SHALE: Dark grey with clay seams				D
	la stant	Contractor: Green Equipment: Edso Hole Diameter (n	on RP70 nm): 100			
ដ for environmental, no	t geotechnical p	Angle from Vertice Drill Bit: Spiral	al (0): U		ENTERPRISES	

Project: Helens-AP21 Address: Kellerman Drive, St Helens Pa	ark Date Logged: 9/3/2021			BOREHOLE NO.:	B1
Location: Refer to Site Map	Logged: JK/GH			Sheet 2 of 2	
S W T A A A M T B P DEPTH E L L R E E S	DESCRIF (Soil type, colour, grain size, plasticity		S Y S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R
7.3 m	SHALE: Dark grey with clay seams AUGER REFUSAL AT 7.5m ON SHALE BEDRO	DCK		signs of contamination	D
11.0		Contractor: Green Geotechnics Equipment: Edson RP70			
Disclaimer: This bore log is intended fo	or environmental, not geotechnical purposes	Hole Diameter (mm): 100 Angle from Vertical (o): 0 Drill Bit: Spiral		CANOPY	

Project: Helens-AP21 Address: Kellerman Drive, St Helens Park Date Logged: 9/3/2021					BOREHOLE NO.: B2		
			Logged: JK/GH			Sheet 1 of 2	
W T A A T B E L R E	S A M P L E	DEPTH (M)	DESCRIPTIO (Soil type, colour, grain size, plasticity, m		S Y S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R E
	0.15 m		FILL: Gravelly Silty CLAY: Dark brown with dark gre with some shale gravel	ey and orange brown, low plasticity	CL		D
	2.1 m		FILL: Silty CLAY: Dark grey with light grey, medium	to high plasticity with a trace of gravel	CH		M
		5.0	Silty CLAY: Orange brown with light grey, medium t	to high plasticity	CH		М
	Silty CLAY: Light grey with orange brown, medium to high plasticity with a trace of shale graves.		to high plasticity with a trace of shale gravel	CH		D-M	
			SHALE: Dark grey with light grey and clay seams				D
Contractor: Green Geotechnics Equipment: Edson RP70 Hole Diameter (mm): 100 If for environmental, not geotechnical purposes Angle from Vertical (o): 0							
Drill Bit: Spiral					ENTERPRISES		

Project: Helens-AP21 Address: Kellerman Drive, St Helens P	ark Date Logged: 9/3/2021		l	BOREHOLE NO.:	B2
Location: Refer to Site Map	Logged: JK/GH			Sheet 2 of 2	
S W T A A A M DEPTH (M) E L L (M) R E E S	DESCRII (Soil type, colour, grain size, plasticity		S Y U M S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R
8.2 m 8.2 m 8.0 9.0	AUGER REFUSAL AT 7.5m ON SHALE BEDRO	OCK			D
Disclaimer: This bore log is intended f	or environmental, not geotechnical purposes	Contractor: Green Geotechnics Equipment: Edson RP70 Hole Diameter (mm): 100 Angle from Vertical (o): 0		Canopy	
		Drill Bit: Spiral		ENIERPRISES	

Project: Helens-AP21 Address: Kellerman Drive, St Helens Park Date Logged: 9/3/2021			BOREHOLE NO.: B3				
Location: Refer to Site Map			Logged: JK/GH			Sheet 1 of 2	
W T A A T B E L R E	S A M P L E	DEPTH (M)	DESCRIPT (Soil type, colour, grain size, plasticity,		S Y S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R
	0.15 m		FILL: Gravelly Silty CLAY: Dark brown with light br	own and dark grey, low plasticity with	CL		D
	0.15 m some shale gravel						
		2.0					
							D-M
		3.0	Silty CLAY: Orange brown with light grey, medium	to high plasticity	СН		М
		5.0	Silty CLAY: Light grey with orange brown, medium	to high plasticity	CH		M
			SHALE: Dark brown with grey and orange brown, o	clay seams			D
for anying	nmental sca	gantochnical		Contractor: Green Geotechnics Equipment: Edson RP70 Hole Diameter (mm): 100			<u>, </u>
i ioi enviroi	iirientai, not	geotechnical p		Angle from Vertical (o): 0 Drill Bit: Spiral		ENTERPRISES	
				·	<u> </u>		

Project: Helens-AP21 Address: Kellerman Drive, St Helens Park Date Logged: 9/3/2021						BOREHOLE NO.:	В3
Location: Refer to Site Map Logged: JK/GH					Sheet 2 of 2		
W T A A T B E L R E	S A M P L E	DEPTH (M)	DESCRIF (Soil type, colour, grain size, plasticity		S Y U M S B C O L	CONSISTENCY (cohesive soils) or REL DENSITY (sands and gravels) Observations, odours signs of contamination	M O I S T U R E
		7.0	SHALE: Dark brown with grey and orange brown	, clay seams			D-M
		8.0					M-W
	8.7 m	9.0					D-M
		11.0	BOREHOLE DISCONTINUED AT 9.0m - LIMIT				
Disclaimer: Tl	his bore lo	g is intended fo	r environmental, not geotechnical purposes	Contractor: Green Geotechnics Equipment: Edson RP70 Hole Diameter (mm): 100 Angle from Vertical (o): 0		Canopy	
				Drill Bit: Spiral		ENIEKPRISES	