



# **Douglas Partners**

*Geotechnics | Environment | Groundwater*

Report on  
Preliminary Site Investigation for Contamination

Proposed Meriden Centre of Music & Drama  
13 Margaret Street, Strathfield

Prepared for  
Meriden School

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Integrated Practical Solutions



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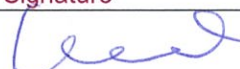
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## **Report on Preliminary Site Investigation for Contamination**

### **Proposed Meriden Centre of Music & Drama**

### **13 Margaret Street, Strathfield**

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## **1. Introduction**

This report presents the results of a preliminary site investigation for contamination (PSI) for the proposed Meriden Centre of Music and Drama development at Meriden School, 13 Margaret Street, Strathfield. The investigation was commissioned by Richard Arkell of Meriden School and was undertaken in accordance with Douglas Partners' proposal SYD180989.P.001.Rev0 dated 24 September 2018.

The objectives of the PSI were to:

- Identify potential sources of site contamination and the potential contaminants of concern from site history information and a site walkover;
- Identify potential receptors to contamination;
- Establish a preliminary conceptual site model (CSM);
- Provide a preliminary assessment of the contamination status of the site with respect to the proposed development from the collection and laboratory analysis of soil samples;
- Provide a preliminary waste classification assessment; and
- Provide recommendations for further work for the proposed development.

## **2. Scope of Work**

The scope of work for the PSI was as follows:

- Review relevant previous reports pertaining to the site;
- Review geological, soils and topography maps;
- Review registered groundwater bore information;
- Review historical aerial photographs;
- Review historical title deeds;
- Review NSW EPA public registers;
- Obtain and review Council's Planning certificate;
- Conduct a site walkover to observe site features, potential contamination sources and potential receptors;

- Analyse soil samples collected from a concurrent geotechnical investigation for combinations of the following:
  - Metals (arsenic, cadmium, chromium, lead, mercury, nickel and zinc);
  - Total recoverable hydrocarbons (TRH);
  - Benzene, toluene, ethylbenzene and xylenes (BTEX);
  - Organochlorine pesticides (OCP);
  - Organophosphorus (OPP);
  - Polychlorinated Biphenyls (PCB);
  - Phenols;
  - Asbestos;
  - pH;
  - Lead in toxicity characteristic leaching procedure (TCLP);
  - PAH in TCLP; and
- Prepare this PSI report.

### 3. Site Identification, Description and Proposed Development

The site for this PSI is the area covered by the proposed Meriden Centre of Music and Drama development which is approximately 1100 m<sup>2</sup>. It is understood that the proposed development involves the demolition of the existing building and construction of a three storey building over a two level stepped basement. Given the sloping nature of the site, the stepped lower basement level is expected to extend to depths of about 4.3 m to 5.8 m below existing ground level.

The site is located at the southern part of the Meriden Senior School grounds at 13 Margaret Street, Strathfield (Lot 101 Deposited Plan 862040). A site walkover was conducted by a DP environmental scientist on 3 October 2018. At the time of the walkover, the site was occupied by a one-story brick building which contained classrooms used for music and drama at the school. The immediate surrounds of the building included landscaped gardens, paved walkways and an asphalt driveway. There were no observed chemical stores at the site. Observed adjacent land uses included:

- North: School buildings;
- South: Margaret Street, then residential buildings and Meriden Prep School grounds;
- East: A large two-storey school building;
- West: A small one-storey school building, then a residential house.

Site photographs are provided in Appendix B.

## 4. Topography, Geology and Hydrogeology

The site is at approximately 18 m AHD. Gentle slopes in the vicinity of the site are generally down to the north.

According to the Sydney 1:100,000 Geology Sheet, the site is underlain by Ashfield Shale which comprises black to dark-grey shale and laminite.

According to the Sydney 1:100,000 Soils Landscape Sheet, the site is located within the Blacktown soil landscape which has residual (natural) soils.

According to NSW Acid Sulfate Soils Risk mapping data from NSW Department of Environment and Climate Change (1994-1998), the site is not located at or near an area associated with a risk of acid sulfate soils.

The nearest surface water body is Powells Creek which is located approximately 500 m to the north of the site. Powells Creek flows into Homebush Bay, approximately 4 km to the north of the site. Based on topography, it anticipated that groundwater at the site would flow towards the north in the direction of Powells Creek.

A search of the Water NSW website did not reveal any registered groundwater bores within 500 m of the site. The search result is provided in Appendix C.

## 5. Site History

DP, *Report on Preliminary Site Investigation (Contamination), Proposed Development, 10 – 28 Redmyre Road, Strathfield*, Project 73654.00 (Revision 1), February 2014 was undertaken for a project which included a new assembly hall and a new gymnasium at the Meriden Senior School. Some of the site history information sourced the report has been referenced in this section.

### 5.1 Historical Aerial Photographs

Historical aerial photographs from 1930, 1943, 1951, 1970, 1986, 1991, 1999, 2009, 2016 and 2018 were obtained and reviewed. Copies of the aerial photographs are provided in Appendix D and findings of the review are summarised below.

**1930:** Although difficult to determine from the low quality of the aerial photograph, it appears that the site was occupied by two residences. School buildings were present on adjacent land to the north, and the northernmost part of the site could have been part of the school grounds. Apart from the school grounds, it appears that properties surrounding the site were used for residential purposes.

**1943:** The site was occupied by two residences with sheds at the rear (north) of the two dwellings (presumed to be the two residences present in 1930). The northernmost part of the site was probably used as part of the school located on adjacent land to the north of the site. It appears that the surrounding land had not been subject to significant change since 1930.

**1951:** The site appears to have been similar to that in 1943, although the sheds at the northern part of the site may have been removed. It appears that the surrounding land had not been subject to significant change since 1943.

**1970:** Although difficult to determine from the low quality of the aerial photograph, it appears that modifications had occurred to the two buildings (present at the site in 1951). A large school building had been constructed on the adjacent land to the east of the site and a large school building had been constructed at the southern side of Margaret Street. Otherwise, the land surrounding the site had not been subject to significant change since 1951.

**1986:** Although difficult to determine from the low quality of the aerial photograph, it appears that the eastern building at the site (present in 1970) may have been expanded. School buildings had been constructed at nearby land to the north-east of the site. Otherwise, the land surrounding the site had not been subject to significant change since 1970.

**1991:** Although difficult to determine from the low quality of the aerial photograph, it appears that an awning (shade structure) had been added to the northern end of the eastern site building. The site and surrounding land had not been subject to significant change since 1986.

**1999:** It appears that the building at the western part of the site had been removed and replaced by an awning (shade structure) which was attached to the building at the eastern part of the site. A school building that was at adjacent land to the north (present in 1991) had been removed. A school building had been constructed at adjacent land to the west of the site.

**2009:** Additions to the western side of the site building may have occurred since 1999. The southern part of the site appears to have been asphalt covered and used for car parking. Adjacent land surrounding the site had not been subject to significant change since 1999.

**2016:** Construction activities were being undertaken at the school grounds. Awnings at the eastern and northern sides of the site building had been removed, presumably to make access for construction works. Building materials had been placed at the northern and western parts of the site. A site shed (or container) was present at the southern part of the site. Part of the adjacent school building to the east had been removed for the construction of a tennis court.

**2018:** Northern, southern and western parts of the site (adjacent to the site building) had been subject to landscaping and the addition of walkways. A building had been constructed on adjacent land to the north of the site. A tennis court had been removed from the school premises and replaced by apparent temporary structures (since 2016). Some construction activities appear to have been undertaken on the opposite side of Margaret Street (south).

## 5.2 Historical Title Deeds

Historical title deeds search results for the Meriden Senior School grounds from circa 1910 to 2013 are provided in Appendix E. A summary of historical title deeds relevant to the site are provided in Tables 1 to 4. Inferred possible land uses are also shown in the tables.

**Table 1: Summary of historical title deeds as regards to the northern part of the site (the part numbered 5 on the cadastre, Appendix E)**

<b>Date of Acquisition</b>	<b>Registered Proprietor(s) &amp; Occupations where available</b>	<b>Possible Land Use</b>
14.10.1918	Bertha Brailsford Turner (Spinster)	School
31.12.1925	Maitland Brown (Business Manager), Henry Davis (Solicitor), Frederic James Wallis (Merchant)	School
01.08.1929	Meriden School	School

Note: a web search indicated that Bertha Turner was Meriden School's Principal in 1908 – 1925.

**Table 2: Summary of historical title deeds as regards to the western part of the site (the part numbered 7 on the cadastre, Appendix E)**

<b>Date of Acquisition</b>	<b>Registered Proprietor(s) &amp; Occupations where available</b>	<b>Possible Land Use</b>
09.12.1918	Sydney Garratt (Builder)	Residential
04.11.1919	Charles Frederick Sanderson (Engineer)	Residential
14.05.1927	Alexander George Thompson (Bank Official)	Residential
28.03.1947	James Alexander Browning Thompson (Bank Official)	Residential
30.03.1977	Melvie Elaine Rutledge (Proprietor)	Residential
30.08.1978	Eunice Jean Pielt (Married Woman) (Transmission Application not investigated)	Residential
05.01.1984	Margaret Annette Le Masurier	Residential
03.04.1985	Meriden School	School

**Table 3: Summary of historical title deeds as regards to the north-western part of the site (the part numbered 8 on the cadastre, Appendix E)**

<b>Date of Acquisition</b>	<b>Registered Proprietor(s) &amp; Occupations where available</b>	<b>Possible Land Use</b>
09.12.1918	Sydney Garratt (Builder)	Residential
04.11.1919	Charles Frederick Sanderson (Engineer)	Residential
14.05.1927	Alexander George Thompson (Bank Official)	Residential
28.03.1947	James Alexander Browning Thompson (Bank Official)	Residential
30.12.1960	Meriden School	School

**Table 4: Summary of historical title deeds as regards to the eastern part of the site (the part numbered 9 on the cadastre, Appendix E)**

<b>Date of Acquisition</b>	<b>Registered Proprietor(s) &amp; Occupations where available</b>	<b>Possible Land Use</b>
03.10.1918	Ross Wilkins (Insurance Inspector)	Residential
04.03.1921	Jane Desborough (Married Woman)	Residential
09.04.1945	Meriden School	School

### 5.3 EPA Registers

A search of the NSW EPA website on 15 October 2017 indicated that:

- No Licences, applications, Notices, audits or pollution studies and reduction programs are listed for the site or adjacent properties under the *Protection of the Environment Operations Act, 1997*;
- No orders, voluntary management proposals or site audit statements have been issued for the site or nearby land under the *Contaminated Land Management Act, 1997*; and
- The site and nearby properties are not on the 'List of NSW contaminated sites notified to the EPA' under the *Contaminated Land Management Act, 1997*.

### 5.4 Planning Certificate

The Planning Certificate under Section 10.7 of the *Environmental Planning & Assessment Act 1979* for Lot 101 in Deposited Plan 862040 was obtained and reviewed. A copy of the certificate is provided in Appendix F. According to the certificate:

- The land is zoned R3 – Medium Density Residential;
- Council records do not indicate that the land is declared by the EPA to be significantly contaminated land under the *Contaminated Land Management Act 1997*;
- Council records do not indicate that the land is subject to a management order;
- Council records do not indicate that the land is the subject of an approved management proposal;
- Council records do not indicate that the land is subject to an ongoing maintenance order;
- Council records do not indicate that the land to which this certificate relates is subject of a site audit statement and a copy of such statement has been provided to Council; and
- An item of environmental heritage is situated on the land.

An attachment to the certificate lists *Strathfield Consolidated Development Control Plan 2005 Part K - Development on Contaminated Land* as one of the Development Control Plans that applies to the carrying out of development on the land. The document shows the locations of past landfill sites. It is noted that the site is not in close proximity to any of the past landfill sites.

## **6. Potential Contamination Sources and Preliminary Conceptual Site Model**

### **6.1 Potential Contamination Sources**

Based on current and previous site uses and DP's site observations, the potential sources of contamination and associated contaminants are summarised as follows:

- S1 - Imported contaminated filling used to form/level the site. Various potential contaminants are possible, such as metals, total petroleum hydrocarbons, BTEX, PAH, OCP, OPP, PCB, phenols and asbestos;
- S2 – Hazardous building materials. It appears that demolition works have occurred at the site in the past and hazardous building materials may have impacted surface soils from demolition works. The potential contaminants are lead (from lead-based paint), asbestos (from asbestos containing materials) and PCB (from capacitors in light fixtures and paint).

### **6.2 Potential Receptors**

Potential receptors of contamination for the proposed development have been identified to include:

- R1 – Future site users (students, school staff and visitors);
- R2 – Construction workers for the proposed development;
- R3 – Future maintenance workers;
- R4 – Adjacent land users (students, school staff, visitors and residents);
- R5 – Groundwater;
- R6 – Surface water body;
- R7 – Terrestrial ecology; and
- R8 – In ground building structures.

### **6.3 Potential Pathways**

Potential pathways for contamination to impact receptors include the following:

- P1 – Ingestion and dermal contact;
- P2 – Inhalation of dust;
- P3 – Inhalation of vapours;
- P4 – Surface water runoff;
- P5 – Leaching of contaminants and vertical migration into groundwater;
- P6 – Lateral migration of groundwater;
- P7 – Direct contact with terrestrial ecology; and
- P8 – Direct contact of contaminated ground with in ground structures.



## 6.4 Conceptual Site Model

A 'source-pathway-receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (complete pathways). The possible pathways between the above listed sources and receptors are provided in Table 5.

**Table 5: Preliminary Conceptual Site Model**

Potential Source of Contamination	Transport Pathway	Receptor	Notes
S1 – Imported contaminated filling	P1 - Ingestion and dermal contact P2 – Inhalation of dust P3 – Inhalation of vapours	R1 – Future site users R2 – Construction workers R3 – Future maintenance workers	Health-based assessment of soil contamination has been undertaken in this investigation.
	P2 – Inhalation of dust P3 – Inhalation of vapours	R4 – Adjacent land users	
	P5 – Leaching of contaminants and vertical migration into groundwater	R5 – Groundwater	Assessment of potential surface water and groundwater contamination has been limited to potential impacts from soils at the site.
	P4 – Surface water runoff P6 – Lateral migration of groundwater	R6 – Surface water body	
	P7 - Direct contact with terrestrial ecology	R7 – Terrestrial ecology	Ecological assessment of soil contamination has been undertaken in this investigation.
	P8 – Direct contact of contaminated ground with in ground structures	R8 – In ground building structures	Assessment of petroleum hydrocarbons in soil against management limits has been undertaken in this investigation.
S2 - Hazardous building materials from previous demolition	P1 - Ingestion and dermal contact P2 – Inhalation of dust	R1 – Future site users R2 – Construction workers R3 – Future maintenance workers	Health-based assessment of soil contamination has been undertaken in this investigation.
	P2 – Inhalation of dust	R4 – Adjacent land users	
	P5 – Leaching of contaminants and vertical migration into groundwater	R5 – Groundwater	Assessment of potential surface water and groundwater contamination has been limited to potential impacts from soils at the site.
	P4 – Surface water runoff P6 – Lateral migration of groundwater	R6 – Surface water body	
	P7 - Direct contact with terrestrial ecology	R7 – Terrestrial ecology	Ecological assessment of soil contamination has been undertaken in this investigation.

## 7. Field Work, Analysis and QA/QC

### 7.1 Sample Locations

As the investigation was preliminary in nature, field work was limited to the collection of soil samples from five test bores (BH101 to BH105) and five test pits (TP106, TP107, TP108A, TP 108B and TP109) undertaken for geotechnical purposes. Sample locations are shown on Drawing 1, Appendix A.

Test bores were drilled to an approximate depth of 8 m below ground level (bgl) using a bobcat-mounted drilling rig between 3 and 5 October 2018. BH101 and BH102 were drilled using a solid flight auger then rock coring. BH103 to BH105 were drilled using a solid flight auger, then rotary wash boring and rock coring. A groundwater monitoring well was installed at BH103. Well construction details are shown of the borehole log in Appendix G.

Test pits were excavated using hand tools on 4 and 5 October 2018 to depths ranging from 0.85 m to 1 m bgl.

### 7.2 Sampling Procedure

Soil samples were collected directly from the solid flight auger (for test bores) or by using hand tools (for test pits). Soil samples were collected at regular depth intervals and from different strata. All sampling data was recorded on DP's test pit logs and borehole logs, provided in Appendix G which also has notes about this report. The general sampling procedure adopted for the collection of soil samples for chemical analysis was:

- Collect soil samples using disposable gloves;
- Transfer samples into laboratory-prepared glass jars, completely filled to minimise the headspace within the sample jar, and capping immediately to minimise loss of volatiles;
- Label sample containers with individual and unique identification, including project number, sample location and sample depth; and
- Place the glass jars, with Teflon lined lids, into a cooled, insulated and sealed container for transport to the laboratory.

### 7.3 Analytical Rationale

Soil samples were selected for analysis based on field observations and the preliminary conceptual site model. Primarily filling samples were analysed as it was considered (based on observations and the conceptual site model) that filling or surface soils were more likely to be impacted by contaminants than underlying natural soils. In addition, samples were selected to provide data across the site.

## 7.4 Quality Assurance and Quality Control

The field QA/QC procedures for sampling were undertaken with reference to Douglas Partners' *Field Procedures Manual*. Field sampling comprised blind replicate sampling at a rate of approximately one replicate sample for every 10 samples. QA/QC also consisted of the use of a set of trip spike and trip blank. The comparative QA/QC results are summarised in Appendix H.

The analytical laboratory used is National Association of Testing Authorities (NATA) accredited and is required to conduct in-house QA/QC procedures. These are normally incorporated into every analytical run and include reagent blanks, spike recovery, surrogate recovery and duplicate samples. These results are included in the laboratory certificates in Appendix I and are evaluated in Appendix H.

## 8. Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in the investigation are informed by the preliminary conceptual site model which identified receptors to potential contamination (refer to Section 6). Analytical results are assessed (as a Tier 1 assessment) against the SAC comprising the investigation and screening levels of Schedule B1, *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (NEPC, 2013). The NEPC guidelines are endorsed by the NSW EPA under the *Contaminated Land Management Act 1997*.

The investigation and screening levels are applicable to generic land use settings and include consideration of, where relevant, the soil type and the depth of contamination. The investigation and screening levels are not intended to be used as clean up levels. Rather, they establish concentrations above which further appropriate investigation (e.g. Tier 2 assessment) should be undertaken. They are intentionally conservative and are based on a reasonable worst-case scenario.

### 8.1 Health Investigation and Screening Levels

The Health Investigation Levels (HIL) and Health Screening Levels (HSL) are scientifically-based, generic assessment criteria designed to be used in the first stage (Tier 1) of an assessment of potential human health risk from chronic exposure to contaminants.

HIL are applicable to assessing health risk arising via all relevant pathways of exposure for a range of metals and organic substances. The generic 'HIL C' are considered to be appropriate as SAC given that the site is within secondary school grounds.

HSL are applicable to selected petroleum compounds and fractions to assess the risk to human health via the inhalation pathway. The HSL depend on the soil types and depths to contamination. The generic 'HSL A' are considered to be appropriate as SAC given that a school building is proposed. Given that various soil types are present at the site, the most conservative HSL for clay, silt and sand type soils have been adopted as SAC.

The adopted HIL and HSL are shown in Table 6.

**Table 6: HIL and HSL for Soil Contaminants**

Contaminant	HIL C (mg/kg)	HSL A for vapour intrusion (mg/kg)
<b>Metals and Inorganics</b>		
Arsenic	300	-
Cadmium	90	-
Chromium (VI)	300	-
Copper	17 000	-
Lead	600	-
Mercury (inorganic)	80	-
Nickel	1200	-
Zinc	30 000	-
<b>TRH</b>		
C6 – C10 (less BTEX)	-	40
>C10-C16 (less Naphthalene)	-	110
<b>BTEX</b>		
Benzene	-	0.5
Toluene	-	160
Ethylbenzene	-	55
Xylenes	-	40
<b>PAHs</b>		
Benzo(a)pyrene TEQ	3	-
Naphthalene	-	3
Total PAHs	300	-
<b>Phenols</b>		
Phenol	40 000	-
Pentochlorophenol	120	-
Cresols	4000	-
<b>OCP</b>		
DDT+DDE+DDD	400	-
Aldrin + Dieldrin	10	-
Chlordane	70	-
Endosulfan (total)	340	-
Endrin	20	-
Heptachlor	10	-
HCB	10	-
Methoxychlor	400	-
<b>OPP</b>		
Chlorpyrifos	250	-
<b>Other Organics</b>		
PCBs (non dioxin- like PCB only)	1	-

Note: TEQ is Toxic Equivalency Quotient.

## 8.2 Ecological Investigation and Screening Levels

Ecological Investigation Levels (EIL) have been derived for selected metals and organic compounds and are applicable for assessing risk to terrestrial ecosystems (NEPC, 2013). EIL depend on specific soil physiochemical properties and land use scenarios and generally apply to the top 2 m of soil, which corresponds to the root zone and habitation zone of many species. The EIL is determined for a contaminant based on the sum of the ambient background concentration (ABC) and an added contaminant limit (ACL). The ABC of a contaminant is the soil concentration in a specific locality that is the sum of naturally occurring background levels and the contaminants levels that have been introduced from diffuse or non-point sources (e.g. motor vehicle emissions). The ACL is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required.

The EIL is calculated using the following formula:

$$\text{EIL} = \text{ABC} + \text{ACL}$$

EIL (and ACLs where appropriate) have been derived in NEPC (2013) for only a short list of contaminants comprising arsenic, copper, chromium (III), DDT, naphthalene, nickel, lead and zinc. The adopted EIL is shown in Table 7 and the following inputs and assumptions have been used to determine the EIL:

- The EIL are for urban residential and public open space land uses;
- Given the likely source of soil contaminants (i.e. previous filling) the contamination is considered as “aged” (>2 years);
- ABCs for copper, zinc, nickel, chromium (III) and lead have been sourced from Schedule B5c of NEPC (2013) and are for an old suburb in NSW with a high traffic volume;
- A pH of 8.4 has been used as an input value as this is the average of pH values (8.0 and 8.8) which were obtained from laboratory analysis of filling samples (see laboratory certificate 202702-A, Appendix I for pH values for BH108A, depth 0.2-0.4m and BD3/041018);
- For zinc, the most conservative ACL with respect to cation exchange capacity (CEC) (in the absence of site specific CEC data) from Table 1B(1) of Schedule B1 of NEPC (2013) has been adopted;
- For copper, the most conservative ACL with respect to CEC (in the absence of site specific CEC data) from Table 1B(2) of Schedule B1 of NEPC (2013) has been adopted; and
- The most conservative ACL for chromium (III) and nickel from Table 1B(3) of Schedule B1 of NEPC (2013) have been adopted (in the absence of site specific CEC and clay content data).

**Table 7: Ecological Investigation Levels (EIL)**

<b>Analyte</b>		<b>EIL – Urban Residential and Open Space (mg/kg)</b>
<b>Metals</b>	Arsenic	100
	Copper	125
	Nickel	35
	Chromium III	205
	Lead	1260
	Zinc	350
<b>PAH</b>	Naphthalene	170
<b>OCP</b>	DDT	180

Ecological Screening Levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. ESL generally apply to the top 2 m of the soil profile as for EIL. The adopted ESL, from Table 1B(6), Schedule B1 of NEPC (2013) are shown in Table 8 and are for urban residential and public open space land use scenarios. ESL for both fine and coarse soils are shown given that various soil types (sands and clays) were encountered in field investigations.

**Table 8: Ecological Screening Levels (ESL)**

<b>Analyte</b>		<b>ESL – Urban Residential and Open Space (mg/kg)</b>	
		<b>Coarse Soil Texture</b>	<b>Fine Soil Texture</b>
<b>TPH</b>	C6 – C10 (less BTEX)	180*	180*
	>C10-C16	120*	120*
	>C16-C34	300	1300
	>C34-C40	2800	5600
<b>BTEX</b>	Benzene	50	65
	Toluene	85	105
	Ethylbenzene	70	125
	Xylenes	105	45
<b>PAH</b>	Benzo(a)pyrene	0.7	0.7

Note: All ESLs are low reliability apart from those marked with \* which are moderate reliability

### 8.3 Management Limits for Petroleum Hydrocarbons

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

Management Limits to avoid or minimise these potential effects have been adopted in NEPC (2013) as interim Tier 1 guidance. The adopted Management Limits for a residential, parkland or public open space land use scenario from Table 1B(7), Schedule B1 of NEPC (2013) have been adopted and are shown in Table 9. Management Limits for both fine and coarse soils are shown in the table given that various soil types (sands and clays) have been identified in field investigations. The Management Limits generally apply to any depth within the soil profile.

**Table 9: Management Limits**

Analyte	Management Limit – residential, parkland or public open space (mg/kg)	
	Coarse Soil Texture	Fine Soil Texture
TPH C <sub>6</sub> – C <sub>10</sub>	700	800
TPH >C <sub>10</sub> -C <sub>16</sub>	1000	1000
TPH >C <sub>16</sub> -C <sub>34</sub>	2500	3500
TPH >C <sub>34</sub> -C <sub>40</sub>	10 000	10 000

### 8.4 Asbestos in Soil

Bonded asbestos-containing material (ACM) is the most common form of asbestos contamination across Australia, generally arising from:

- Inadequate removal and disposal practices during demolition of buildings containing asbestos products;
- Widespread dumping of asbestos products and asbestos containing fill on vacant land and development sites; and
- Commonly occurring in historical fill containing unsorted demolition materials.

Mining, manufacturing or distribution of asbestos products may result in sites being contaminated by friable asbestos including free fibres. Severe weathering or damage to bonded ACM may also result in the formation of friable asbestos comprising fibrous asbestos (FA) and/or asbestos fines (AF).

Asbestos only poses a risk to human health when asbestos fibres are made airborne and inhaled. If asbestos is bound in a matrix such as cement or resin, it is not readily made airborne except through substantial physical damage. Bonded ACM in sound condition represents a low human health risk, whilst both FA and AF materials have the potential to generate, or be associated with, free asbestos



fibres. Consequently, FA and AF must be carefully managed to prevent the release of asbestos fibres into the air.

A detailed asbestos assessment was not undertaken as part of this investigation. The presence or absence of asbestos at a limit of reporting of 0.1 g/kg as well as a visual assessment for the presence or absence of ACM has been adopted for this assessment as an initial screen.

## 9. Fieldwork Observations

Borehole logs and test pit logs are provided in Appendix G with notes about this report and should be referred to for detailed soil and rock descriptions.

Observed filling depths were variable, generally between 0.18 m and 0.66 m bgl, with the maximum observed filling depth of 1.2 m bgl being at BH101. Filling (including topsoil) mainly comprised grey, yellow-brown and grey-brown sand; and grey-brown, brown, orange-brown and grey clay. Roadbase filling, comprising grey-green igneous gravel, was observed at TP108A at a depth of 0.1 m to 0.18 m bgl. A layer of asphaltic concrete was observed at TP108A at a depth of 0.18 m to 0.2 m bgl; and at TP108B at a depth of 0.06 m to 0.11 m bgl. Anthropogenic materials were observed in some of the filling including at:

- BH101 with geofabric at a depth of 0.6 m bgl and ceramic inclusions at a depth of 0.7 m;
- BH102 with a tile inclusion at a depth of 0.15 bgl;
- BH106 with brick fragments at depth 0.05 m to 0.66 m bgl, concrete fragments at depth 0.25 m to 0.66 m bgl and yellow tape at a depth of 0.5 m bgl;
- BH107 with brick fragments at a depth of 0.3 m bgl;
- TP108A with ceramic fragments and slag at a depth of 0.2 m to 0.57 m bgl; and
- TP109 with brick fragments at a depth of 0.3 m to 0.55 m bgl and a concrete fragment at a depth of 0.42 m.

Although building materials were observed in the filling, no potential asbestos-containing materials were observed. It is noted that asbestos contamination can sometimes be associated with building rubble in filling. No odours were detected in the filling samples.

At BH101, BH102 and BH104, filling was observed to be underlain by grey and red-brown silty clay then grey and grey-brown laminite (to depths of 7.9 m bgl, 8.05 m bgl and 8.08 m bgl, respectively). At BH103, filling was underlain by orange-brown clay, then grey-brown silty clay, grey shaly clay then grey and brown laminite (to a depth of 8.03 m bgl). At BH105, topsoil was observed to be underlain by brown clay, then grey and red-brown silty clay, and brown and grey laminite (to a depth of 8 m bgl). At TP106, filling was underlain by grey and orange-brown slightly silty clay (to a depth of 0.85 m bgl). At TP107, filling was underlain by orange-brown clay and then orange-brown and grey silty clay (to a depth of 0.86 m bgl). At TP108A and TP108B, filling was underlain by red-brown, grey and brown silty clay (to depths of 0.9 m bgl and 0.95 m bgl). At TP109, filling was underlain by brown and grey clay (to a depth of 1 m bgl). No signs of contamination (such as odours or staining) were associated with the observed natural soil and rock.

No free groundwater was observed during auguring of boreholes. It is noted that rotary and coring techniques use water which precludes making groundwater observations during drilling. The groundwater at BH103 was observed to be at 3.36 m bgl on 8 October 2018, five days after the borehole was drilled and the groundwater monitoring well was installed.

Water seepage was observed at TP106 at a depth of 0.1 m bgl. Free groundwater was observed at TP108A at a depth of 0.79 m. Free groundwater was not observed at the other three test pits.

## 10. Analytical Results

Laboratory certificates are provided in Appendix I. Laboratory results are compared to the SAC in Table 10. For preliminary waste classification purposes, laboratory results are compared to criteria sourced from NSW EPA, *Waste Classification Guidelines*, 2014 in Table 11.

Table 10: Summary of Results of Soil Analysis (All results in mg/kg unless otherwise stated)

Sample Location (Test Pit / Borehole) or Sample ID	Sample Depth (m)	Soil Type	Metals								Polycyclic Aromatic Hydrocarbons				Petroleum Hydrocarbons										Organochlorine Pesticides										Organophosphorus Pesticides		PCBs (total)	Phenols (total)	Asbestos (fibres)		
			Arsenic	Cadmium	Chromium (III + VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Naphthalene	Total PAHs	TRH C6-C10 less BTEX	TRH >C10-C16 less Naphthalene	TRH C6-C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	Total Xylene	DDT	DDT+DDE+DDD	Aldrin + Dieldrin	Chlordane	Endosulfan (total)	Endrin	Heptachlor	HCB	Methoxychlor	Other OCP	Chlorpyrifos	Other OPP					
BH101	0.5-0.6	Filling (sand)	<4	0.5	4	8	21	0.2	3	31	0.06	<0.5	<0.1	0.5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	-	-	<0.1	-	NAD	
BD3/041018	0.5-0.6	Filling (sand)	<4	<0.4	3	4	18	<0.1	2	190	-	-	<1	-	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
BH102	0.07-0.09	Filling (sand)	5	<0.4	7	2	3	<0.1	5	11	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
BH103	0.1-0.2	Filling (sand)	<4	<0.4	12	17	31	0.1	12	59	0.5	0.7	<0.1	8.1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
BH103	0.9	Natural Clay	6	<0.4	9	12	11	<0.1	2	14	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
BH104	0.01-0.15	Filling (sand)	<4	<0.4	5	10	25	<0.1	3	46	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	-	-	<0.1	-	NAD
BH105	0.1-0.2	Filling (sand)	<4	<0.4	9	11	42	<0.1	6	49	0.86	1.3	<0.1	14	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	-	-	<0.1	-	NAD
TP106	0.5-0.6	Filling (sand)	<4	<0.4	3	5	12	<0.1	2	18	<0.05	<0.5	<0.1	0.2	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
TP108A	0.2-0.4	Filling (clay)	34	0.5	16	20	130	0.2	7	160	0.4	0.6	<0.1	5.4	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
TP109	0.5	Filling (sand)	38	<0.4	7	14	95	0.1	5	69	0.2	<0.5	<0.1	2.1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
Site Assessment Criteria																																									
HIL C			300	90	300 for Cr(VI)	17000	600	80	1200	30000	-	3	-	300	-	-	-	-	-	-	-	-	-	-	-	400	10	70	340	20	10	10	400	-	250	-	1	120*	-		
HSL A for vapour intrusion			-	-	-	-	-	-	-	-	-	-	3	-	40	110	-	-	-	-	0.5	160	55	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
EIL			100	-	205 for Cr(III)	125	1260	-	35	350	-	-	170	-	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ESL - Coarse Soil			-	-	-	-	-	-	-	-	0.7	-	-	-	180	-	-	120	300	2800	50	85	70	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ESL - Fine Soil			-	-	-	-	-	-	-	-	0.7	-	-	-	180	-	-	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Management Limit - Coarse Soil			-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	1000	2500	10000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Management Limit - Coarse Soil			-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1000	3500	10000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Notes

- BD3/041018    Blind replicate of BH103, depth 0.5-0.6 m
- BOLD**    Exceedance of ecological criterion
- NAD    No asbestos detected at limit of reporting (0.1g/kg)
- AD    Asbestos detected
- PQL    Practical Quantitation Limit
- \*    Value for pentachlorophenol
- Not tested / Not applicable
- TEQ    Toxicity Equivalent Quotient

Table 11: Summary of Results for Waste Classification

Sample Location (Test Pit) or Sample ID	Sample Depth (m)	Soil Type	Metals							Polycyclic Aromatic Hydrocarbons (PAH)			Total Recoverable Hydrocarbons (TRH)		BTEX				Asbestos	Total Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OCP)		Organophosphorus Pesticides (OPP)
			Arsenic	Cadmium	Chromium (III + VI)	Lead	Lead in TCLP	Mercury	Nickel	Benzo(a)pyrene	TCLP in Benzo(a)pyrene	Total PAH	C6-C9	C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylene			Endosulfan	All other OCP	All OPP
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			(mg/kg)	(mg/kg)	(mg/kg)
BH101	0.5-0.6	Filling (sand)	<4	0.5	4	21	-	0.2	3	0.06	-	0.5	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	-
BD3/041018	0.5-0.6	Filling (sand)	<4	<0.4	3	18	-	<0.1	2	-	-	-	<25	<250	<0.2	<0.5	<1	<1	-	-	-	-	-
BH102	0.07-0.09	Filling (sand)	5	<0.4	7	3	-	<0.1	5	<0.05	-	<0.05	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	<PQL
BH103	0.1-0.2	Filling (sand)	<4	<0.4	12	31	-	0.1	12	0.5	-	8.1	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	<PQL
BH103	0.9	Natural Clay	6	<0.4	9	11	-	<0.1	2	<0.05	-	<0.05	<25	<250	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<PQL	<PQL
BH104	0.01-0.15	Filling (sand)	<4	<0.4	5	25	-	<0.1	3	<0.05	-	<0.05	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	-
BH105	0.1-0.2	Filling (sand)	<4	<0.4	9	42	-	<0.1	6	0.86	<0.001	14	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	-
TP106	0.5-0.6	Filling (sand)	<4	<0.4	3	12	-	<0.1	2	<0.05	-	0.2	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	<PQL
TP108A	0.2-0.4	Filling (clay)	34	0.5	16	130	0.04	0.2	7	0.4	-	5.4	<25	<250	<0.2	<0.5	<1	<1	NAD	<0.1	<0.1	<PQL	<PQL
TP109	0.5	Filling (sand)	38	<0.4	7	95	-	0.1	5	0.2	-	2.1	<25	<250	<0.2	<0.5	<1	<1	NAD	-	-	-	-
General Solid Waste Criteria (without TCLP)																							
CT1			100	20	100 for Cr(IV)	100	-	4	40	0.8	-	200	100000	400000	10	288	600	1000	-	<50	60	<50*	250**
General Solid Waste Criteria (with TCLP)																							
SCC1			-	-	-	1500	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-
TCLP1			-	-	-	-	5	-	-	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-

Notes

CT1 Contaminant Threshold

SCC Specific Contaminant Concentration

TCLP Toxicity Characteristics Leaching Procedure

NAD No asbestos detected at reporting limit of 0.1g/kg

PQL Practical Quantification Limit

\* Value for scheduled chemicals

\*\* Value for moderately harmful pesticides

- Not Applicable / Not Defined / Not analysed

## 11. Discussion of Laboratory Results

### 11.1 Soil Contamination

Concentrations of metals were within the respective HIL and EIL.

Concentrations of PAH were within the respective HIL, HSL and EIL. Concentrations of benzo(a)pyrene were within the ESL except for the sample from BH105, depth 0.1-0.2 m which had a concentration (0.86 mg/kg) marginally above the (low reliability) ESL (0.7 mg/kg). CRC CARE, *Technical Report No. 39, Risk-based management and remediation guidance for benzo(a)pyrene*, 2017 provides a high reliability ecological guidelines of 33 mg/kg for fresh benzo(a)pyrene for urban residential sites and public open space (and the bioavailability and bio-accessibility of aged benzo(a)pyrene tends to be less than that of fresh benzo(a)pyrene which means that the ecological guideline is conservative for aged benzo(a)pyrene). All benzo(a)pyrene concentrations were well within this high reliability ecological guideline value.

Concentrations of TRH and BTEX were below the practical quantitation limits (PQL) and, hence, within the respective HSL, ESL and Management Limits.

Concentrations of OCP, OPP, PCB and phenols were below the PQL and, hence, within the respective HIL and EIL.

No asbestos was detected at the laboratory's limit of reporting.

### 11.2 Preliminary Waste Classification

#### 11.2.1 Filling

For filling samples (including topsoil), concentrations of arsenic, cadmium, chromium, mercury, nickel, TRH, BTEX, PCB, OCP and OPP were within the CT1 criteria for General Solid Waste. Concentrations of lead and benzo(a)pyrene were within the TCLP1 and SCC1 criteria for General Solid Waste. Asbestos was not detected at the limit of reporting or observed whilst sampling.

Based on results and observations, the filling including topsoil (as described in this report) has a preliminary waste classification of General Solid Waste (non-putrescible). For off-site disposal, as only limited sampling and analysis has been undertaken within the proposed basement footprint, the classification of filling to be bulk excavated for the proposed basement will need to be confirmed by additional sampling and analysis (post –demolition).

#### 11.2.2 Natural Soil

According to NSW EPA (2014), Virgin Excavated Natural Material (VENM) means natural material (such as clay, gravel, sand, soil or rock fines):

- *that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities;*

- *that does not contain sulfidic ores or soils, or any other waste;*

*and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.*

The analysed natural soil sample BH103, depth 0.9 m, had concentrations of cadmium, mercury, TRH, BTEX, PAH, PCB, OCP, OPP and total phenols below the PQL. Concentrations of arsenic, chromium, copper, lead, nickel, zinc are considered to be consistent with background ranges in the Sydney region [and are also within background ranges presented in National Environment Protection Measure (Assessment of Site Contamination) Schedule B1, Table 5-A, 1999].

Based on observations and the results, the natural soil (excluding topsoil) and underlying rock has a preliminary classification as VENM. For off-site disposal/re-use, as only limited sampling and analysis has been undertaken, the classification of natural soil to be bulk excavated for the proposed basement will need to be confirmed by additional sampling and analysis (post –demolition).

## 12. Conclusions and Recommendations

Site history information indicates that the site was used for residential purposes prior to its current use as a secondary school. Potential sources of contamination have been identified to include imported contaminated filling (to level the site) and hazardous building materials (impacting ground surfaces from previous demolition works). The potential for contamination from these sources is considered to be low.

Soil sampling from boreholes and test pits and laboratory analysis for common contaminants has indicated an absence of soil contamination. On this basis it is considered that the site is suitable for the proposed development from a contamination perspective.

Testing for waste classification purposes indicates that the filling has a preliminary classification as General Solid Waste (non-putrescible) and the underlying natural soil/rock is preliminarily classified as VENM. Further testing will need to be undertaken (post-demolition) to confirm these classifications for soil and rock that will be excavated for the proposed basement and disposed (or re-used) off-site.

A hazardous building materials survey should be undertaken (if not already completed) for demolition of the existing building.

## 13. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project at Meriden School, 13 Margaret Street, Strathfield in accordance with DP's proposal SYD180989.P.001.Rev0 dated 24 September 2018 and acceptance received from Richard Arkell of Meriden School dated 26 September 2018. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Meriden School for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated

above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in filling materials at the test locations sampled and analysed. Building demolition materials, such as concrete, brick and tile, were, however, located in below-ground filling, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical /



environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

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**Douglas Partners Pty Ltd**

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## Appendix A

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Drawing





# LEGEND

- Test pit location
- Borehole location
- Groundwater well

NOTE:  
1: Base image from Nearmap.com  
(Dated 23.10.2018)  
2: Test locations are approximate only and  
are shown with reference to existing features.





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## **Appendix B**

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Site Photographs



Photo 1 - Music and drama building



Photo 2 - Music and drama building

 <b>Douglas Partners</b> Geotechnics   Environment   Groundwater	<b>Site Photographs</b>		PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>		PLATE No: B1
	<b>13 Margaret Street, Strathfield</b>		REV: 1
	CLIENT: Meriden School		DATE: 29-May-19



Photo 3 - Eastern side of Music and drama building



Photo 4 - Adjacent school building



#### Site Photographs

**Meriden Centre of Music and Drama**

**13 Margaret Street, Strathfield**

CLIENT: Meriden School

PROJECT: 86568.01

PLATE No: B2

REV: 1

DATE: 29-May-19



Photo 5 - Gate access from Margaret Street to south of existing music and drama building

 <b>Douglas Partners</b> Geotechnics   Environment   Groundwater	<b>Site Photographs</b>		PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>		PLATE No: B3
	<b>13 Margaret Street, Strathfield</b>		REV: 1
	CLIENT: Meriden School		DATE: 29-May-19



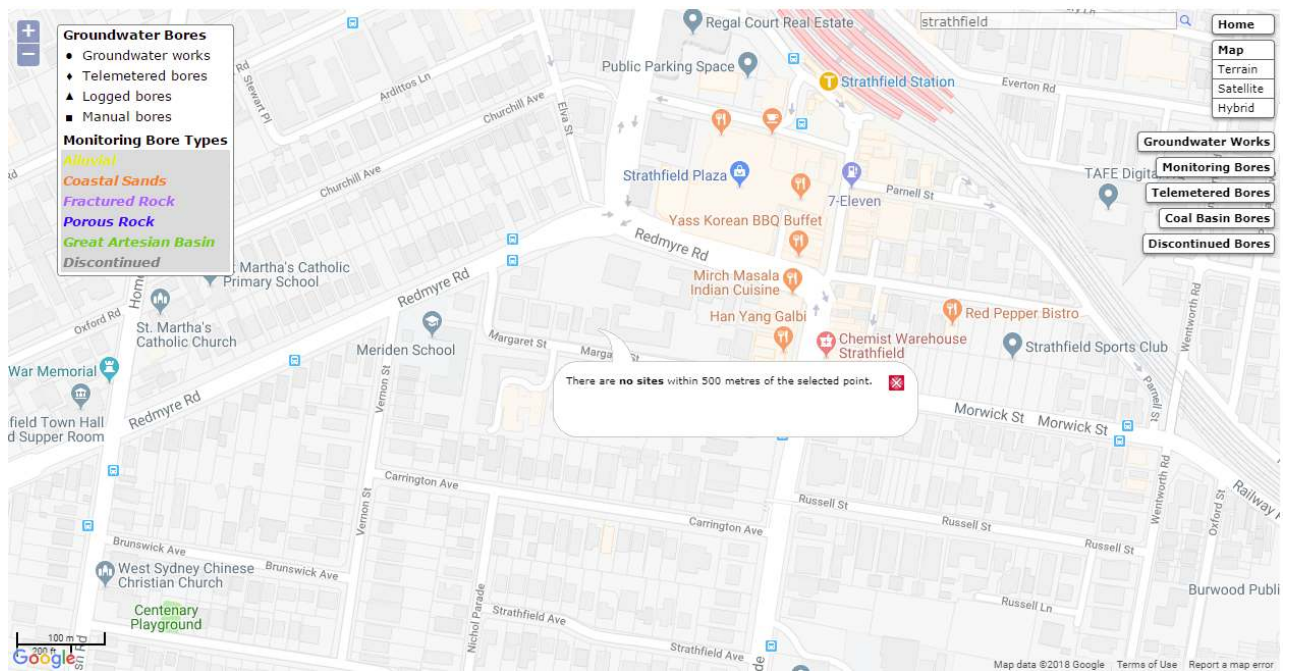
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## **Appendix C**

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### Search Results for Registered Groundwater Bores

## Results of Registered Groundwater Bore Search (15 October 2018)



<https://realtimedata.watnsw.com.au/>

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## Appendix D

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Aerial Photographs



#### Legend


 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>


 <b>Douglas Partners</b> <i>Geotechnics   Environment   Groundwater</i>	<b>1930 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D1
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19



**Legend**

 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>

	<b>1943 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D2
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19





#### Legend


 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>


 <b>Douglas Partners</b> <i>Geotechnics   Environment   Groundwater</i>	<b>1951 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D3
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19

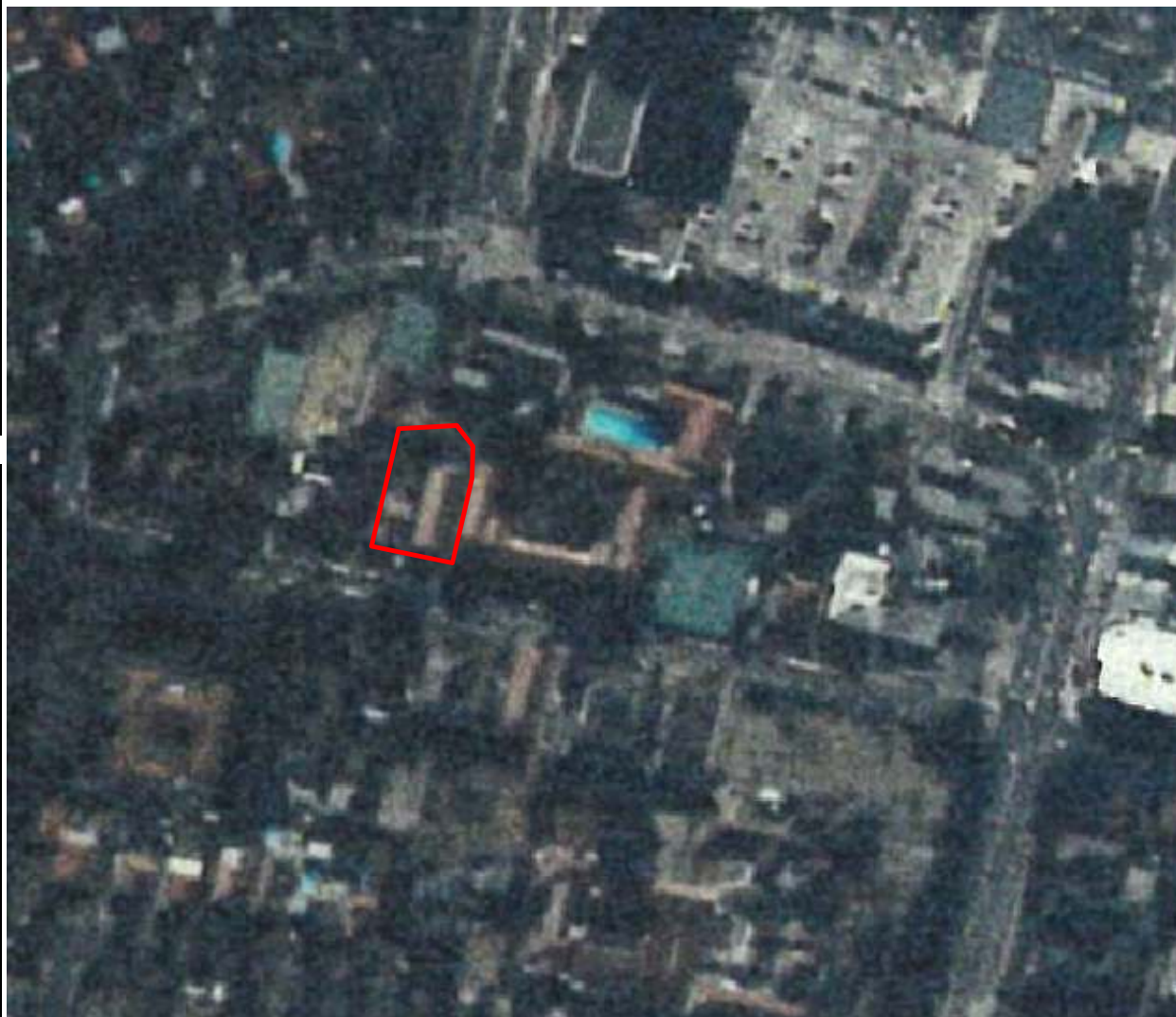


**Legend**


 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>


	<b>1970 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D4
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19



#### Legend

 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>

 <b>Douglas Partners</b> <i>Geotechnics   Environment   Groundwater</i>	<b>1986 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D5
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19




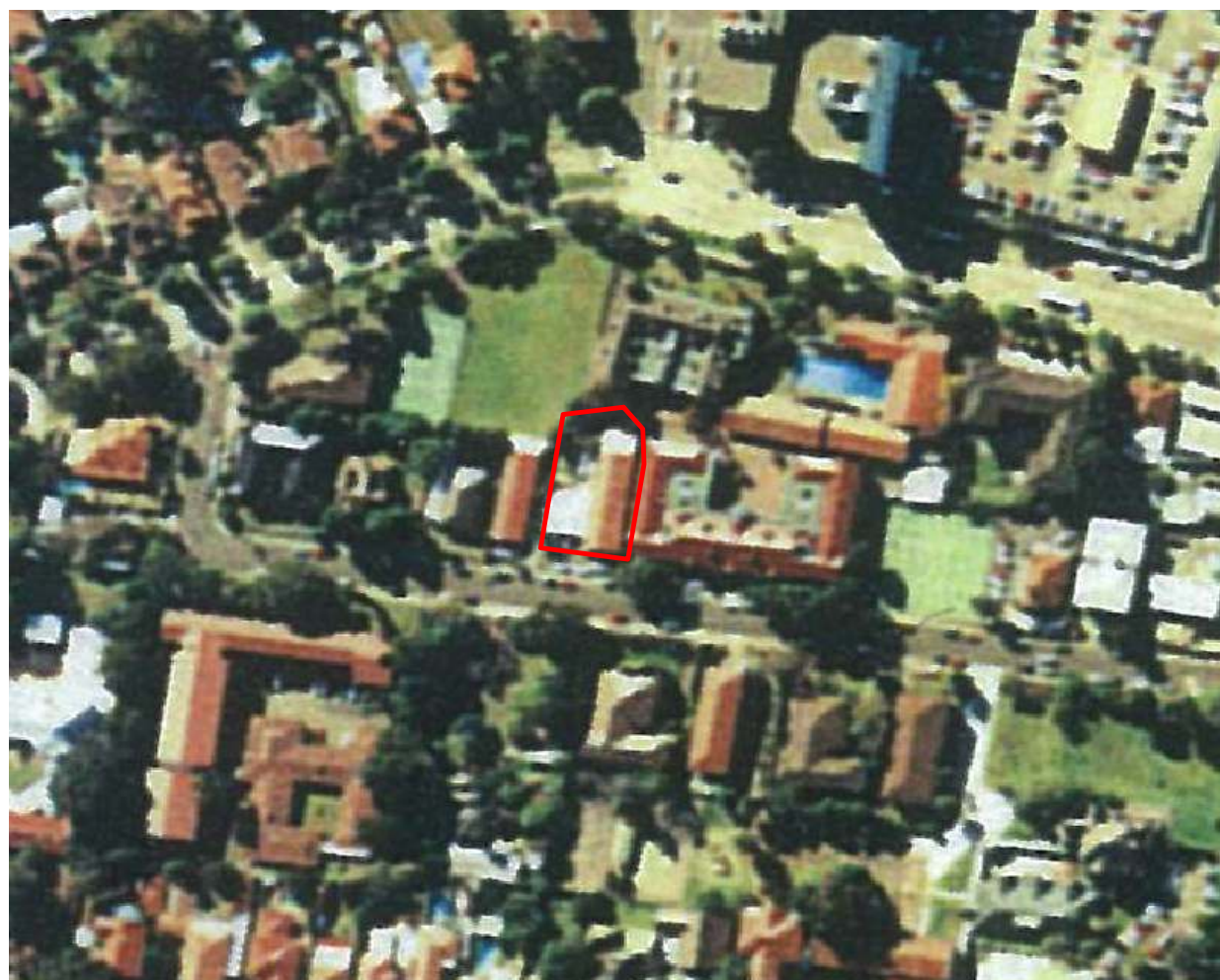


#### Legend


 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>


	<b>1991 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D6
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19



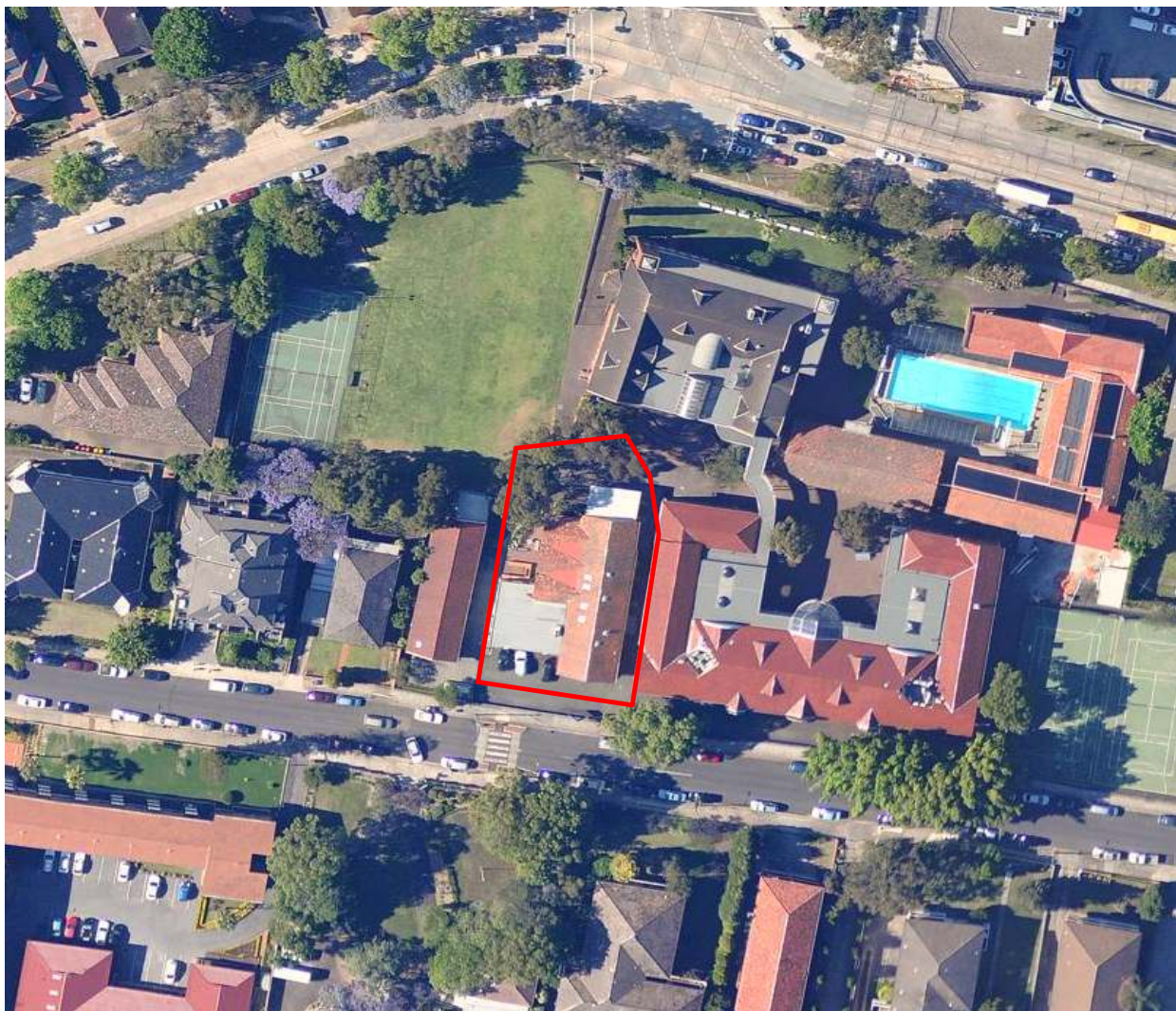
#### Legend

 Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>

 <b>Douglas Partners</b> <i>Geotechnics   Environment   Groundwater</i>	<b>1999 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D7
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19






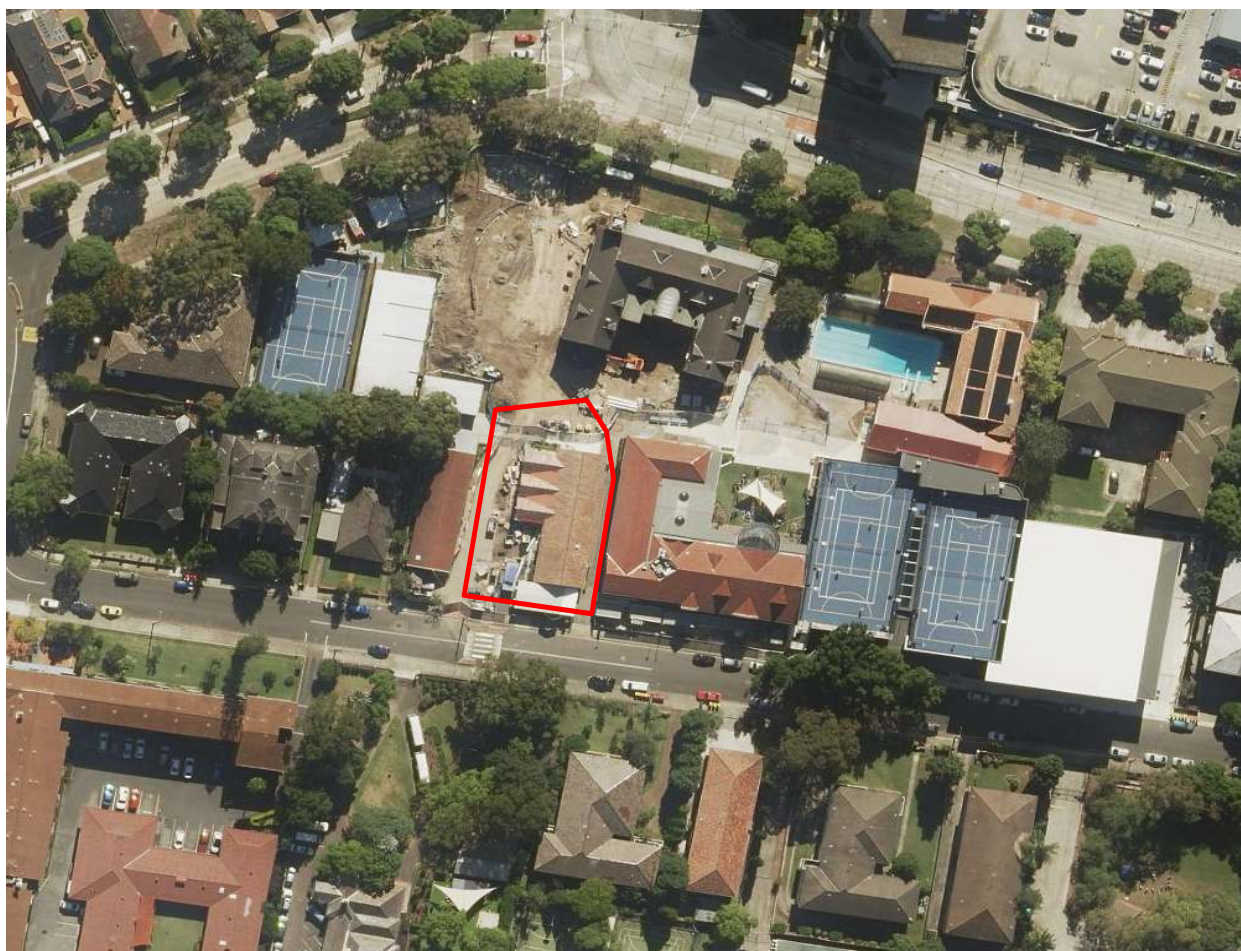
#### Legend

— Approximate site boundary

Source: <http://maps.au.nearmap.com/>

	<b>2009 Aerial Photograph</b>	PROJECT: 86568.01
	<b>Meriden Centre of Music and Drama</b>	PLATE No: D8
	<b>13 Margaret Street, Strathfield</b>	REV: 1
	CLIENT: Meriden School	DATE: 29-May-19





#### Legend

— Approximate site boundary

Source: <https://maps.six.nsw.gov.au/>



**2016 Aerial Photograph**  
**Meriden Centre of Music and Drama**  
**13 Margaret Street, Strathfield**

CLIENT: Meriden School

PROJECT: 86568.01

PLATE No: D9

REV: 1

DATE: 29-May-19






#### Legend

— Approximate site boundary

Source: <http://maps.au.nearmap.com/>

	<b>2018 Aerial Photograph</b> <b>Meriden Centre of Music and Drama</b> <b>13 Margaret Street, Strathfield</b>	PROJECT: 86568.01
		PLATE No: D10
	CLIENT: Meriden School	REV: 1
		DATE: 29-May-19

---

## **Appendix E**

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### Historical Title Deeds Search Results

## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

### Summary of Owners Report

LPI

Sydney

Address: - Redmire Road, Strathfield

Description: - Lot 101 D.P. 862040

As regards the part highlighted yellow and numbered (1) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
06.10.1900 (1900 to 1926)	George James Sly (Solicitor)	Vol 1332 Fol 56 Now Vol 2977 Fol 123
29.01.1926 (1926 to 1938)	Ada Crichton (Spinster) Now Ada Pettit (Married Woman)	Vol 2977 Fol 123 Now Vol 4306 Fol 90
22.02.1938 (1938 to 1941)	Jeannette Almira Grange (Married Woman) Ada Pettit (Married Woman)	Vol 4306 Fol 90 Now Vol 4921 Fol's 228 & 229
20.01.1941 (1941 to 1951)	Ada Pettit (Married Woman) Dorothy Eileen Grange (Spinster) (Transmission Application not investigated)	Vol 4921 Fol's 228 & 229
29.03.1951 (1951 to date)	# Meriden School	Vol 4921 Fol's 228 & 229 Now 101/862040

# Denotes current registered proprietor

#### Leases: -

- 16.09.1902 to Sydney Rundle Walford, Gentleman – Expired 02.10.1919
- 06.09.1923 to Ada Crichton, Spinster – merged 29.01.1926
- 22.07.1926 to Gertrude McFarlane, Widow - expired 07.03.1938

#### Easements: -

- 13.04.1966 Easement for Sewerage (K 278994)

As regards the part highlighted yellow and numbered (2) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
06.10.1900 (1900 to 1926)	George James Sly (Solicitor)	Vol 1332 Fol 56 Now Vol 2977 Fol 123
29.01.1926 (1926 to 1938)	Ada Crichton (Spinster) Now Ada Pettit (Married Woman)	Vol 2977 Fol 123 Now Vol 4306 Fol 90
22.02.1938 (1938 to 1941)	Jeannette Almira Grange (Married Woman) Ada Pettit (Married Woman)	Vol 4306 Fol 90 Now Vol 4921 Fol's 228 & 229
20.01.1941 (1941 to 1953)	Ada Pettit (Married Woman) Dorothy Eileen Grange (Spinster) (Transmission Application not investigated)	Vol 4921 Fol's 228 & 229 Now Vol 6395 Fol's 21 & 22



## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

Search continued as regards the part highlighted yellow and numbered (2) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
03.09.1953 (1953 to 1960)	Dorothy Eileen Grange (Spinster) Lois Marion Pettit (Spinster) (Transmission Application not investigated)	Vol 6395 Fol's 21 & 22
07.12.1960 (1960 to 1961)	Mortimer Sydney Joseph (Guest House Proprietor)	Vol 6395 Fol's 21 & 22 Now Vol 8158 Fol 46
18.07.1961 (1961 to date)	# Meriden School	Vol 8158 Fol 46 Now 101/862040

# Denotes current registered proprietor

### Leases: -

- 16.09.1902 to Sydney Rundle Walford, Gentleman – Expired 02.10.1919
- 06.09.1923 to Ada Crichton, Spinster – merged 29.01.1926
- 22.07.1926 to Gertrude McFarlane, Widow - expired 07.03.1938

### Easements: -

- 13.04.1966 Easement for Sewerage (K 278994)

---

As regards the part highlighted yellow and numbered (3) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
27.05.1914 (1914 to 1925)	Bertha Brailsford Turner (Spinster)	Vol 594 Fol 78 Now Vol 3832 Fol 13
31.12.1925 (1925 to 1929)	Maitland Brown (Business Manager) Henry Davis (Solicitor) Frederic James Wallis (Merchant)	Vol 3832 Fol 13
01.08.1929 (1929 to date)	# Meriden School	Vol 3832 Fol 13 Now 101/862040

# Denotes current registered proprietor

### Leases and Easements: - NIL



## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

As regards the part highlighted yellow and numbered (4) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
27.05.1914 (1914 to 1925)	Bertha Brailsford Turner (Spinster)	Vol 706 Fol 212 Now Vol 3832 Fol 13
31.12.1925 (1925 to 1929)	Maitland Brown (Business Manager) Henry Davis (Solicitor) Frederic James Wallis (Merchant)	Vol 3832 Fol 13
01.08.1929 (1929 to date)	# Meriden School	Vol 3832 Fol 13 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

As regards the part highlighted yellow and numbered (5) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.10.1918 (1918 to 1925)	Bertha Brailsford Turner (Spinster)	Vol 2883 Fol 194 Now Vol 3832 Fol 13
31.12.1925 (1925 to 1929)	Maitland Brown (Business Manager) Henry Davis (Solicitor) Frederic James Wallis (Merchant)	Vol 3832 Fol 13
01.08.1929 (1929 to date)	# Meriden School	Vol 3832 Fol 13 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

As regards the part highlighted yellow and numbered (6) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
09.12.1918 (1918 to 1922)	Sydney Garratt (Builder)	Vol 2896 Fol 218
18.10.1922 (1922 to 1925)	Cecil Patrick White (Solicitor)	Vol 2896 Fol 218
07.05.1925 (1925 to 1940)	Evelyn Esdaile Ward (Spinster) Bertha Newton Ward (Spinster)	Vol 2896 Fol 218
02.12.1940 (1940 to 1947)	Lilian Elizabeth Ward (Spinster) Evelyn Esdaile Ward (Spinster) Bertha Newton Ward (Spinster)	Vol 2896 Fol 218
17.07.1947 (1947 to 1949)	Lillian (or Lilian) Elizabeth Ward (Spinster) Evelyn Esdaile Ward (Spinster)	Vol 2896 Fol 218

## Service First Registration Pty Ltd

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Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

Search continued as regards the part highlighted yellow and numbered (6) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.03.1949 (1949 to 1959)	Lillian (or Lilian) Elizabeth Ward (Spinster)	Vol 2896 Fol 218
17.12.1959 (1959 to 1960)	Eric Arthur Carleton (Share Clerk)	Vol 2896 Fol 218
09.05.1960 (1960 to date)	# Meriden School	Vol 2896 Fol 218 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (7) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
09.12.1918 (1918 to 1919)	Sydney Garratt (Builder)	Vol 2896 Fol 219
04.11.1919 (1919 to 1927)	Charles Frederick Sanderson (Engineer)	Vol 2896 Fol 219
14.05.1927 (1927 to 1947)	Alexander George Thompson (Bank Official)	Vol 2896 Fol 219
28.03.1947 (1947 to 1977)	James Alexander Browning Thompson (Bank Official)	Vol 2896 Fol 219 Now Vol 8421 Fol 103
30.03.1977 (1977 to 1978)	Melvie Elaine Rutledge (Proprietor)	Vol 8421 Fol 103
30.08.1978 (1978 to 1984)	Eunice Jean Piert (Married Woman) (Transmission Application not investigated)	Vol 8421 Fol 103
05.01.1984 (1984 to 1985)	Margaret Annette Le Masurier	Vol 8421 Fol 103
03.04.1985 (1985 to date)	# Meriden School	Vol 8421 Fol 103 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

As regards the part highlighted yellow and numbered (8) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
09.12.1918 (1918 to 1919)	Sydney Garratt (Builder)	Vol 2896 Fol 219
04.11.1919 (1919 to 1927)	Charles Frederick Sanderson (Engineer)	Vol 2896 Fol 219
14.05.1927 (1927 to 1947)	Alexander George Thompson (Bank Official)	Vol 2896 Fol 219
28.03.1947 (1947 to 1960)	James Alexander Browning Thompson (Bank Official)	Vol 2896 Fol 219
30.12.1960 (1960 to date)	# Meriden School	Vol 2896 Fol 219 Then Vol 8157 Fol 157 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (9) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
03.10.1918 (1918 to 1921)	Ross Wilkins (Insurance Inspector)	Vol 2882 Fol 42
04.03.1921 (1921 to 1945)	Jane Desborough (Married Woman)	Vol 2882 Fol 42
09.04.1945 (1945 to date)	# Meriden School	Vol 2886 Fol 42 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

As regards the part highlighted yellow and numbered (10) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.12.1916 (1916 to 1937)	Louisa Wing (Married Woman)	Vol 564 Fol 134A
03.06.1937 (1937 to 1937)	Nellie Estelle Wing (Spinster) Ida Gertrude Alison Wing (Spinster) (Transmission Application not investigated)	Vol 564 Fol 134A
30.06.1937 (1937 to date)	# Meriden School	Vol 564 Fol 134A Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (11) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
14.12.1916 (1916 to 1937)	Louisa Wing (Married Woman)	Vol 668 Fol 243
03.06.1937 (1937 to 1937)	Nellie Estelle Wing (Spinster) Ida Gertrude Alison Wing (Spinster) (Transmission Application not investigated)	Vol 668 Fol 243
30.06.1937 (1937 to date)	# Meriden School	Vol 668 Fol 243 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (12) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
13.05.1912 (1912 to 1918)	Harold Meggitt (Manufacturer)	Vol 552 Fol 176
12.12.1918 (1918 to 1921)	Susan Anderson (Married Woman)	Vol 552 Fol 176
01.12.1921 (1921 to 1938)	William James Sinclair (Merchant)	Vol 552 Fol 176
07.07.1938 (1938 to date)	# Meriden School	Vol 552 Fol 176 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

## Service First Registration Pty Ltd

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

As regards the part highlighted yellow and numbered (13) on the attached cadastre (18" wide)

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
08.10.1919 (1919 to 1920)	Martha Elizabeth Marion Robinson (Widow)	Vol 2977 Fol 114
14.05.1920 (1920 to 1925)	Cecil Patrick White (Solicitor)	Vol 2977 Fol 114 Now Vol 3060 Fol 215
07.05.1925 (1925 to 1940)	Evelyn Esdaile Ward (Spinster) Bertha Newton Ward (Spinster)	Vol 3060 Fol 215
02.12.1940 (1940 to 1947)	Lilian Elizabeth Ward (Spinster) Evelyn Esdaile Ward (Spinster) Bertha Newton Ward (Spinster)	Vol 3060 Fol 215
17.07.1947 (1947 to 1949)	Lillian (or Lilian) Elizabeth Ward (Spinster) Evelyn Esdaile Ward (Spinster)	Vol 3060 Fol 215
14.03.1949 (1949 to 1959)	Lillian (or Lilian) Elizabeth Ward (Spinster)	Vol 3060 Fol 215
17.12.1959 (1959 to 1960)	Eric Arthur Carleton (Share Clerk)	Vol 3060 Fol 215
09.05.1960 (1960 to date)	# Meriden School	Vol 3060 Fol 215 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (14) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
31.05.1919 (1919 to 1928)	Bertha Brailsford Turner (Spinster)	Vol 706 Fol 235
31.08.1928 (1928 to 1928)	George Herbert Turner (Solicitor) (Transmission Application not investigated)	Vol 706 Fol 235
19.09.1928 (1928 to 1935)	Ella Hoad (Married Woman)	Vol 706 Fol 235
02.01.1935 (1935 to 1937)	Eileen Westhallen (Married Woman) Jessie Hoad (Spinster) (Transmission Application not investigated)	Vol 706 Fol 235 Now Vol 4838 Fol 97
05.03.1937 (1937 to date)	# Meriden School	Vol 4838 Fol 97 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

**Service First Registration Pty Ltd**

ACN: 108 037 029  
Ph: 02 9299 9969  
Fax: 02 9279 2185

Suite 804, Level 8, 46 Market Street.  
Sydney, NSW 2000  
PO Box 784 QVB Post Shop NSW 1230  
DX 189 Sydney

As regards the part highlighted yellow and numbered (15) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
27.10.1913 (1913 to 1922)	Christopher Frederick Rothschildt (Business Manager) Now Christopher Frederick Russell	Vol 2382 Fol 203
02.03.1922 (1927 to 1922)	Leah Frances Georgina Russell (Widow) (Transmission Application not investigated)	Vol 2382 Fol 203
02.03.1922 (1922 to 1939)	Margaret Cotter (Widow)	Vol 2382 Fol 203
27.04.1939 (1939 to date)	# Meriden School	Vol 2382 Fol 203 Then Vol 5058 Fol 123 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

---

As regards the part highlighted yellow and numbered (16) on the attached cadastre

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) &amp; Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
27.10.1913 (1913 to 1922)	Christopher Frederick Rothschildt (Business Manager) Now Christopher Frederick Russell	Vol 2382 Fol 203
02.03.1922 (1927 to 1922)	Leah Frances Georgina Russell (Widow) (Transmission Application not investigated)	Vol 2382 Fol 203
02.03.1922 (1922 to 1939)	Margaret Cotter (Widow)	Vol 2382 Fol 203 Now Vol 5058 Fol 124
28.12.1939 (1939 to 1955)	Dorothy May Gain (Widow) (& Her deceased estate)	Vol 5058 Fol 124
26.05.1955 (1955 to date)	# Meriden School	Vol 5058 Fol 124 Now 101/862040

# Denotes current registered proprietor

Leases and Easements: - NIL

Yours Sincerely  
Mark Groll  
14 November 2013  
(Ph: 0412 199 304)

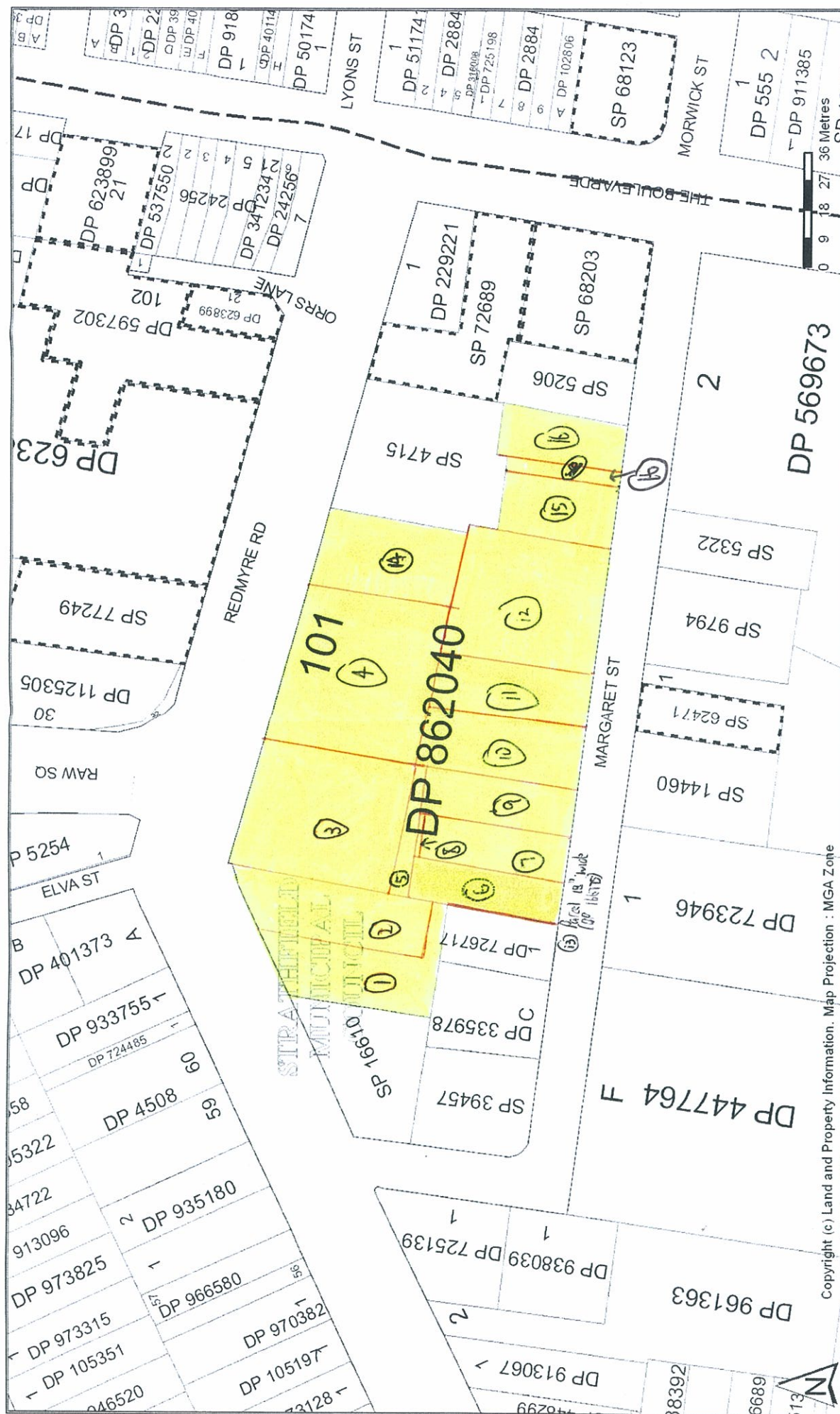


Locality: STRATHFIELD

LGA: STRATHFIELD

Parish : CONCORD

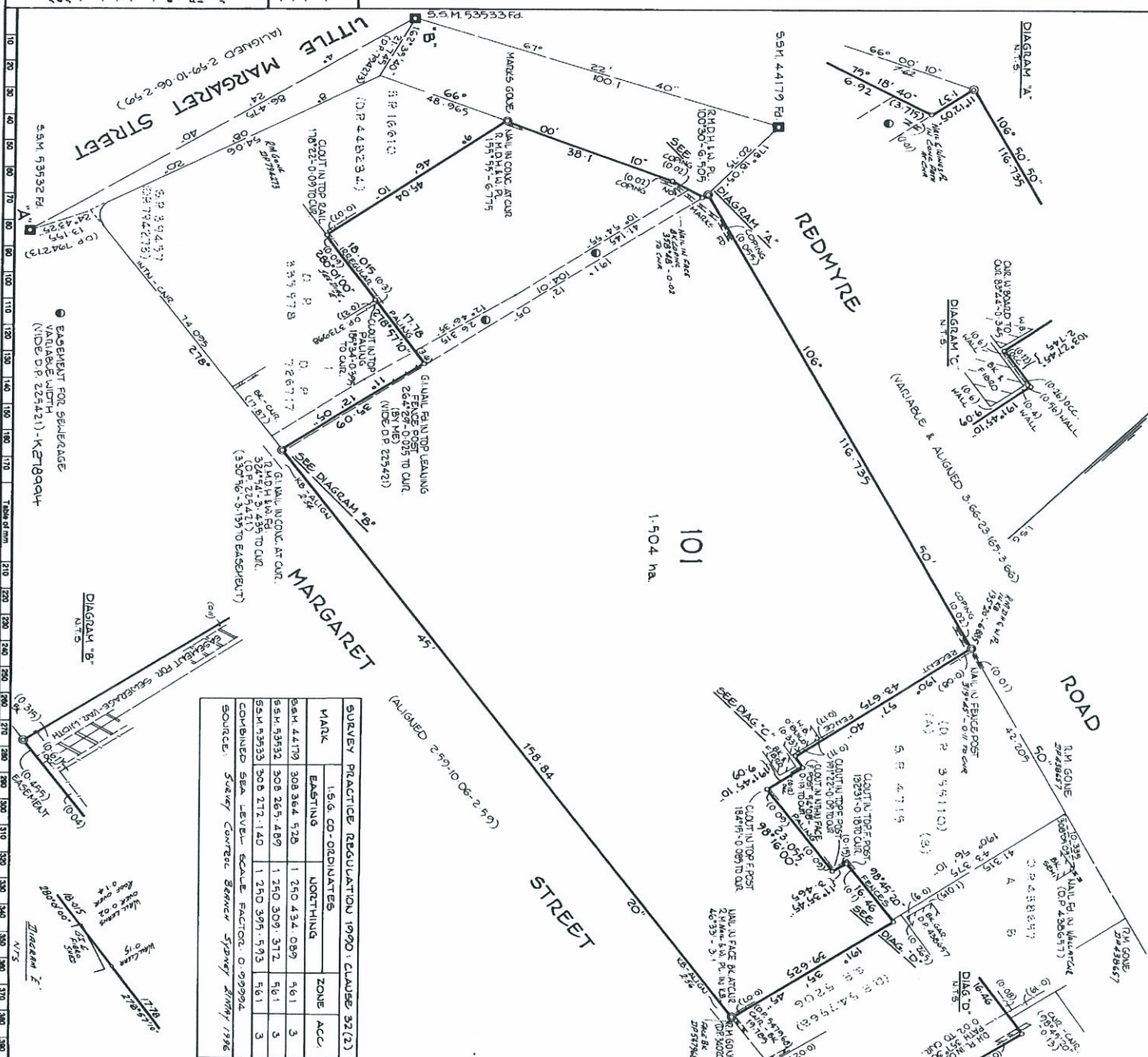
County : CUMBERLAND





SHANE WILLIAM CUTLER  
Tracy Lee Payne  
UNITED STATES AIR FORCE  
UNITED STATES AIR FORCE

<p><b>1/weekly entry filed -</b></p> <p>(a) the requirements of the Local Government Act 1919 (only the requirements of the Act that are relevant to the registration of a bill); and</p> <p>(b) the requirements of the Registration of Bills and Orders (1920) or Part 5 Division 7 of the Public Works Board (Competition) Act 1991.</p> <p>There has been compliance with by the applicant in relation to its proposed "new" submission or "considered" set out on item 10.</p> <p><b>Submission No.</b></p> <p><b>Date</b></p> <p><b>Signature</b></p> <p><b>Council Paid No.</b></p> <p><b>General Manager/Authorised Person</b></p>	<p><b>Council's Comments</b></p>
--	----------------------------------



SUNREY PRACTICE REGULATION 1970 : CLAUSE 30(2)				
MARK	1/8th CO-ORDINATES		ZONE	ACC.
	EASTING	NORTHING		
BM 44179	308 264 525	1 250 434 089	561	3
BM 453932	308 265 489	1 250 309 312	561	3
BM 453933	308 272 140	1 250 395 573	561	3
COMBINED SEA LEVEL SCALE FACTOR: 0.999924				
SOURCE : SUNREY CONTROL BANNER SPONGE DITCH 1976				

Plots placed in preparation of survey (*developmental*)  
 DP's, 17b, 10284, 2 102843, 165722,  
 166771, 225142, 1228721, 354976  
 342025, 1028410, 3133306, 41070,  
 438657, 448234, 99068, 517668  
 724665, 726717, 794273, 960337

PANEL FOR USE ONLY for statements of intention  
 to dedicate public roads, to create public recreation  
 drainage reserves, easements, restrictions on the  
 use of land or positive comments.

(Signature) \_\_\_\_\_  
 Surveyor registered under  
 the Surveyors Act 1923  
 Datum Line of Azimuth  
 "A" - "B" (15.6.)

KEVIN SULLIVAN  
H. RAMSAY & CO.  
DY 38407 BARRAMATTA

~~This is sheet 1 of my plan in \_\_\_\_\_ streets  
(Delete if inapplicable).~~

County: CUMBERLAND

Locality: 3114A1HF1E1C0

LEA STRATHFIELD

Lengths are in metres. Reduction Ratio 1:600

LOT 5 1.284 IN D.P. 960337, LOTS 1 & 2  
IN D.P. 419059, LOT 1 IN D.P. 166775.

LOT 5: 1.42 IN DP 124 AGG LOT 1: 111  
23 & 24 IN DP. 178, LOT 1 IN DP. 116521

02845 00340205  
00373008.D2419059.D28160337

Ref. Map: U0045-344  
DP7A DP102842 DP116522

Purpose: CONSOLIDATION

Title System: TOPPENS

761-6-144

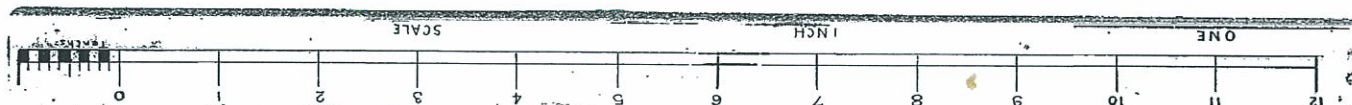
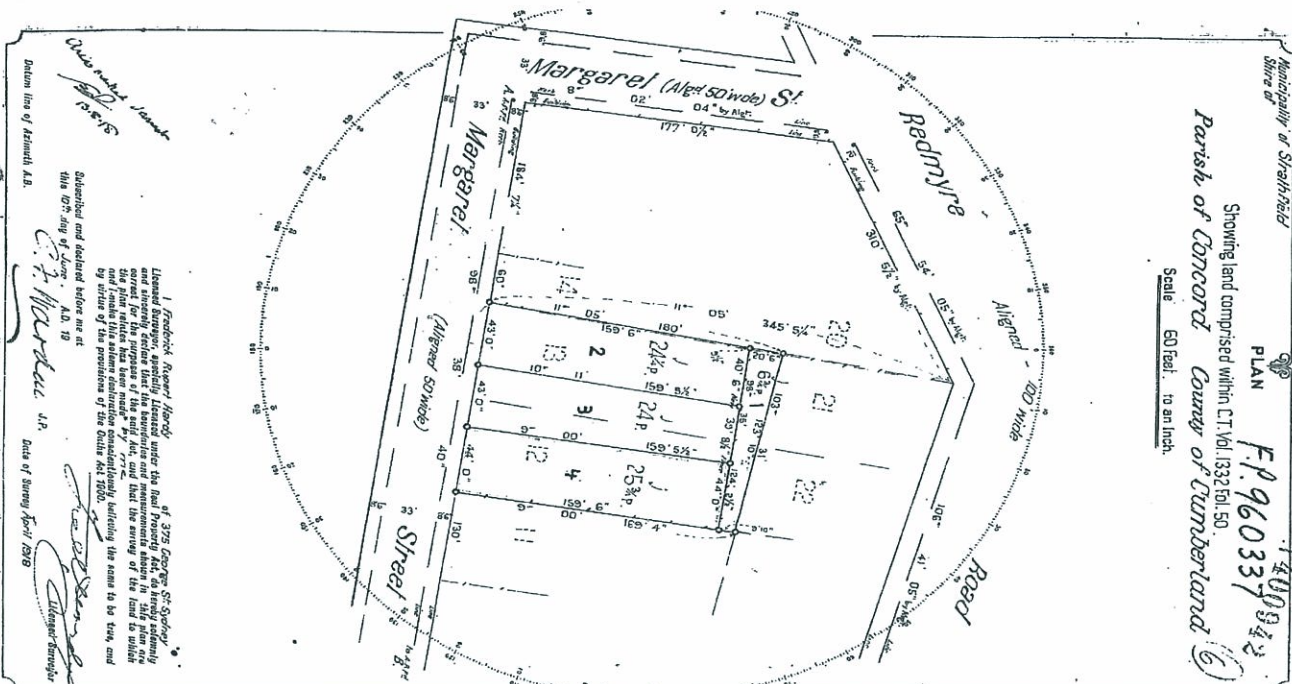
DP 002040

OFFICE USE ONLY





10	20	30	40	50	60	70	Table of mm	110	120	130	140
PLAN IN THE LAND TITLES OFFICE AMENDMENTS AND/OR ADDITIONS MADE ON											
This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 5th May, 1999											



H705620

H 705620

EP 419059(E)

1:500 from 1:500 (for compilations)

Municipality of Strathfield.  
Shire of (AT STRATHFIELD.)

D. P. 178.

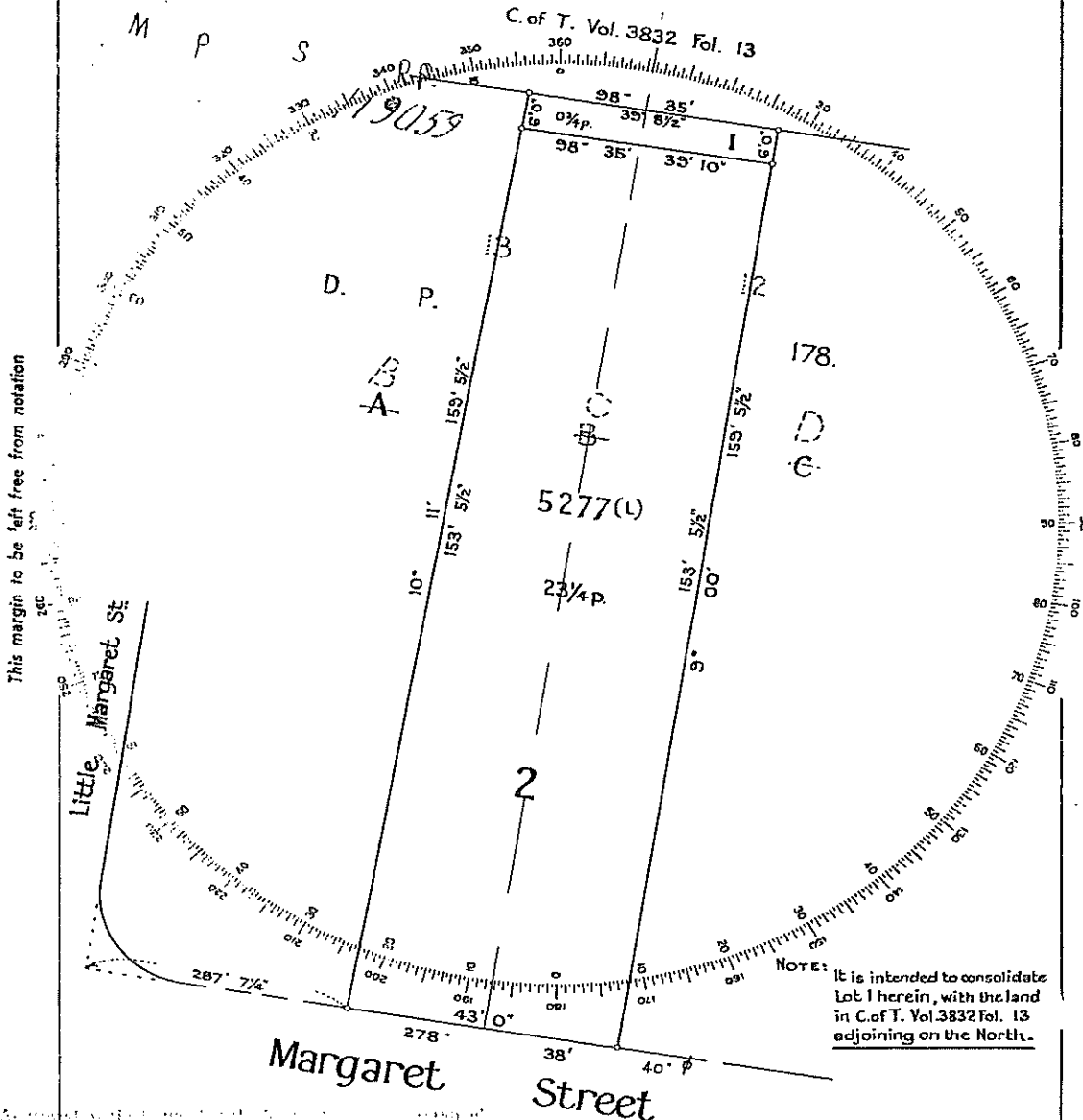
M.C.O.N.

PLAN

of Subdivision of land in Cert. of Title Vol. 2896 Fol. 219,  
Parish of Concord County of Cumberland

Scale 20 feet to an inch.

C. of T. Vol. 3832 Fol. 13



NOTE: It is intended to consolidate Lot 1 herein, with the land in C. of T. Vol. 3832 Fol. 13 adjoining on the North.

Margaret Street

I certify that this plan has been compiled from the information in

A400942 5377(1) and is accurate.

COLWELL, LARCOMBE & REIN Surveyor registered under Surveyors Act, 1929-46.  
REGISTERED SURVEYORS  
125 PITT ST SYDNEY 19th October 1960

Signatures of parties to be made in this margin.

Added by Office Notation. 1/24/61.

This is the plan marked "referred to in transfer from 4. 11/24/61" referred to in transfer from 4. 11/24/61

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 419059

FEET INCHES	METRES
1 1/4	0.032
6	1.829
10	3.048
38	11.582
39 8 1/2	12.103
39 10	12.141
43	13.106
153 1 1/2	46.775
159 5 1/2	48.603
287 7 1/4	87.662
1000	304.800
AC RD P	50 M
3 3/4	19
23 1/4	588.1



AMENDMENTS AND/OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.		I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 12th day of August, 1980.
---	--	--

CONVERSION TABLE ADDED IN  
DEPARTMENT OF LANDS

DP 102843

FEET	INCHES	METRES
0	6	0.152
1	4	1.219
2	6	1.829
3	10	3.048
4	55	16.764
5	73	19.812
6	75	21.641
7	75	22.860
8	156	46.582
9	164	47.892
10	169	51.813
11	169	51.813
12	169	51.813
13	169	51.813
14	169	51.813
15	169	51.813
16	169	51.813
17	169	51.813
18	169	51.813
19	169	51.813
20	169	51.813
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92	169	51.813
93	169	51.813
94	169	51.813
95	169	51.813
96	169	51.813
97	169	51.813
98	169	51.813
99	169	51.813
100	169	51.813

Form 1

DP 102843

OFFICE USE ONLY

PLAN OF Lot 11 Plots 12 and 10 DP 178

Copy of Plan formerly recorded as  
Plan in TS4476

Man./Place/Env. *Strathfield*

Town or Locality *Concord*

Parish *Cumberland*

County *Cumberland*

Scale 50 feet to one inch

Charting Map: *DP 178*

Ref. Map:

Diagram showing a rectangular plot divided into three sections labeled 1, 2, and 3. Section 1 is on the left, section 2 is in the middle, and section 3 is on the right. Dimensions are given for each section and the total plot. Section 1: 100' x 100'. Section 2: 100' x 100'. Section 3: 100' x 100'. Total plot: 300' x 100'.

Surveyor: *—*

Date: *18.1.1982*

Standard Tracing Prepared in  
Registrar General's Dept.: *—*

Emd.: *AK 694*



AMENDMENTS AND/OR ADDITIONS NOTED ON  
PLAN IN REGISTRAR GENERAL'S OFFICE.

I, Bruce Richard Davies, Registrar General for New South Wales, certify  
that this negative is a photograph made as a permanent record of a  
document in my custody, this 12th day of August, 1960

*Bruce Richard Davies*

CONVERSION TABLE ADDED IN  
DEPARTMENT OF LANDS

FEET	INCHES	METRES
6	-	1.4829
65	-	19.812
136	-	41.453
148	-	45.110
158	8	48.362
159	-	48.463
AC	RU	P
-	1	34 3/4
		1891



DP 102842

Scale 50 feet to one inch

PLAN OF Lots 8 and 9 and Pt lot 10  
D P 178

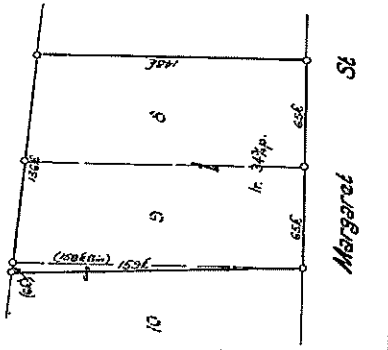
Hum./Shore/Coast Stretchfield  
Town or Locality Burwood  
Parish Concord  
County Cumberland

Copy of Plan formerly recorded as  
Plan in 151327

C.A.:

Charting Map: D P 178

Ref. Map:



Surveyed:  
Date: 17. 9. 1861

Standard Tracing Prepared in  
Registrar General's Dept.: 5042  
Exmd.: 18. 11. 1861

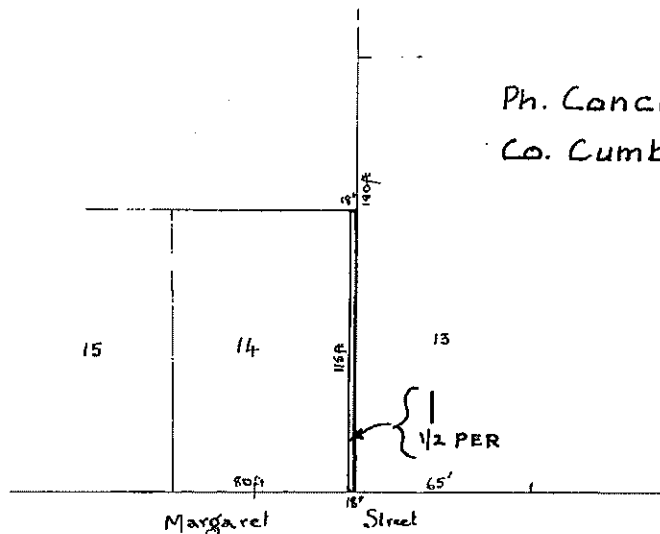


A574305.

F.P. 166775.  
 A574305

MUNICIPALITY OF CONCORD

Subdivision of Land in Certificate of Title  
 Volume 2977 Folio 114.



Ph. Concord.  
 Co. Cumberland.

Approved by the Council  
 of the Municipality of Stratford  
 May 4, 1920  
 J. P. Sheehy  
 Town Clerk

PX

PLAN AMENDED IN L.T.O. 5-7-93.

M



CONVERSION TABLE ADDED IN  
 DEPARTMENT OF LANDS

DP 166775

FEET	INCHES	METRES
1	6	0.457
18	-	5.486
65	-	19.812
80	-	24.384
115	-	35.052
180	-	54.864

AREA  
 0.5 PER. 12.65m<sup>2</sup>

C781047 FP 340205

Myatun, J. Lee

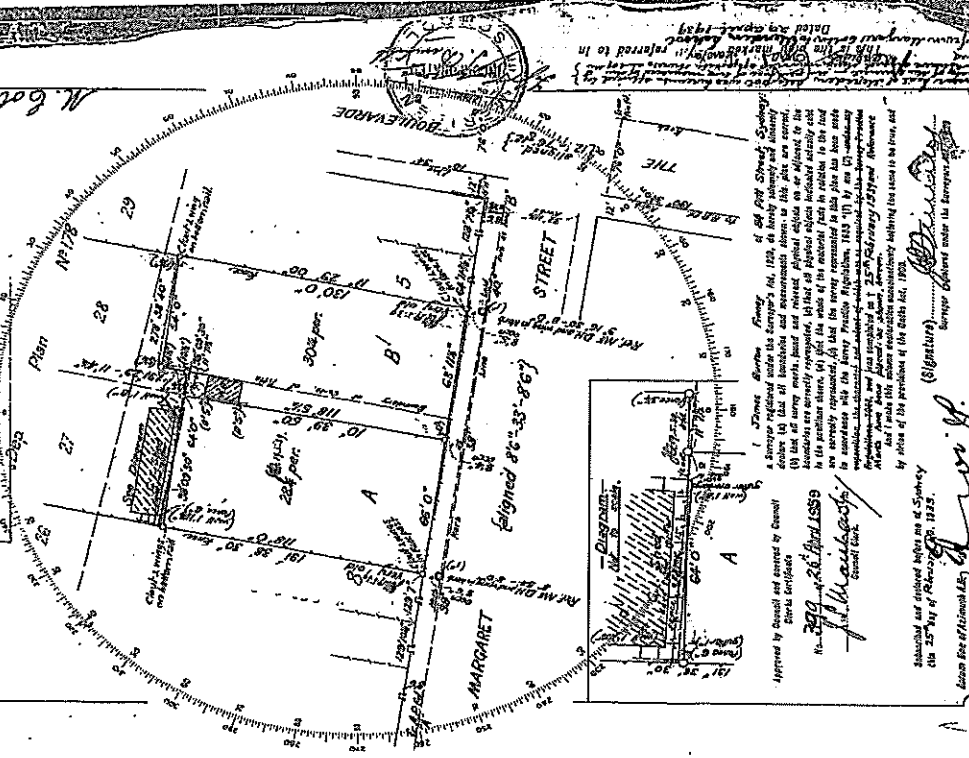
C781047

Parish of Concord  
County of Cumberland

PLAN  
of Subdivision of Cert's of Title Vol 1531 Fol 235  
236 - 203

Scale 40 feet to an inch.

Misc. Plan of Subdn. (R.P.)  
Regd. No. A0205



1. James, George  
a survey registered under the Survey's No. 122, do hereby certify and solemnly declare that all boundaries and measurements shown in this plan are correct, and that the survey was made and reduced, physical objects on or adjacent to the land being surveyed, and that the plan is a true and correct copy of the original plan as shown to me by the surveyor.

2. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

3. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

4. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

5. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

6. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

7. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

8. J. Lee  
do hereby certify and solemnly declare that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1925, and that the survey is a true and correct copy of the original plan as shown to me by the surveyor.

CONVERSION TABLE ADDED IN  
DEPARTMENT OF LANDS

FEET INCHES	METRES
0 0/25	0.025
1 3/4	0.04
3 1/4	0.08
4 1/2	0.11
5 1/4	0.127
5 1/4	0.139
6 1/2	0.152
7 7/8	0.201
10 1/2	0.267
1 1 1/4	0.337
1 1 1/4	0.391
3 5/8	0.914
3 7/8	1.006
7 1/4	2.318
8 1/2	2.591
2 1/2	2.540
8 1/2	2.591
11 1/2	3.467
11 1/2	3.543
11 1/2	3.432
15 1/2	3.458
32 11 1/2	4.572
33	10.046
40	10.058
40	12.192
54	16.459
63 11 1/4	19.488
64 11 3/8	19.507
66	19.799
66	20.115
76	22.000
76	22.860
98	29.870
118	35.966
118	36.106
128 7 3/4	39.211
129 7	39.497
129 10 1/4	39.580
130	39.624
AC RD P	SD H
28 1/4	705.2
28 1/4	714.5
30 1/4	765.1

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 27th day of June, 1978

197  
5/10/78  
J. Lee

197  
5/10/78  
J. Lee

NEW SOUTH WALES :

Application No. 1539  
Prior Title Vol. 564 Fol. 134A

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900, as amended.



09958135

Vol. **9958** Fol. **135**

1st Edition issued 26-3-1965

IT J837865

**CANCELLED**



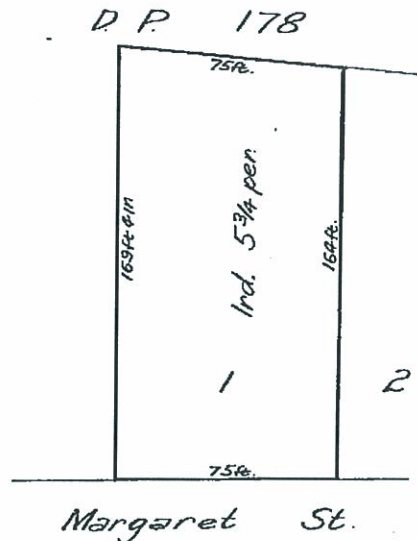
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such rights, powers, encumbrances and interests as are shown in the Second Schedule.

Witness *S. MacLennan*

*Jawatson*  
Registrar General.



PLAN SHOWING LOCATION OF LAND



Scale: 50 feet to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 102843 at Strathfield in the Municipality of Strathfield Parish of Concord and County of Cumberland being part of Portion 244 granted to James Wilshire on 7-1-1810.

*Jawatson*  
Registrar General.

FIRST SCHEDULE (continued overleaf)

**MERIDEN SCHOOL.**

*Jawatson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.  
2. Mortgage No. G797363 to Commonwealth Savings Bank of Australia. Entered 26-9-1957.

*Jawatson*  
Registrar General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON







NEW SOUTH WALES

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900, as amended.



09958136

Application No. 1539  
Prior Title Vol. 668 Fol. 243

Vol. **9958** Fol. **136**

1st Edition issued 26-3-1965

IT J837865

**CANCELLED**



I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

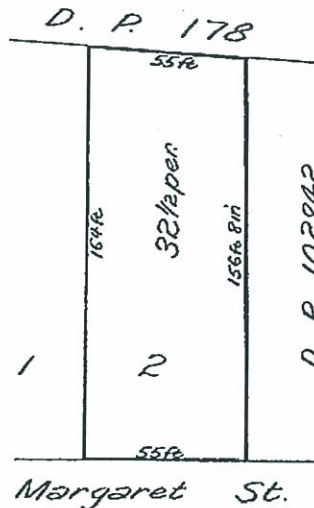
**SEE AUTO FOLIO**

Witness *S. MacLennan*

*Jan Watson*  
Registrar General.



PLAN SHOWING LOCATION OF LAND



J837865 CH

Scale: 50 feet to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 102843 in the Municipality of Strathfield Parish of Concord and County of Cumberland being part Portion 244 granted to James Wilshire on 1-1-1810.

*Jan Watson*  
Registrar General.

FIRST SCHEDULE (continued overleaf)

**MERIDEN SCHOOL.**

*Jan Watson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.  
2. Mortgage No. G797363 to Commonwealth Savings Bank of Australia. Entered 26-9-1957.

*Jan Watson*  
Registrar General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

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NEW SOUTH WALES :

Application No. 1539

Prior Title Vol. 552 Fol. 176

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900, as amended.



09958134

Vol. 9958 Fol. 134

1st Edition issued 26-3-1965

IT J837865

**CANCELLED**



I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

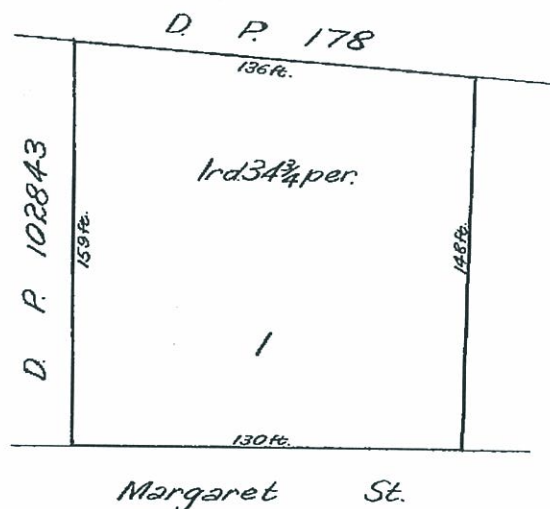
**SEE AUTO FOLIO**

Witness *S. MacLennan*

*Jawatson*  
Registrar General.



PLAN SHOWING LOCATION OF LAND



Scale: 50 feet to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 102842 at Strathfield in the Municipality of Strathfield Parish of Concord and County of Cumberland being part of Portion 244 granted to James Wilshire on 1-1-1810.

*Jawatson*  
Registrar General.

FIRST SCHEDULE (continued overleaf)

MERIDEN SCHOOL.

*Jawatson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.  
2. Mortgage No. G797363 to Commonwealth Savings Bank of Australia. Entered 26-9-1957.

*Jawatson*  
Registrar General.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.





LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

12/11/2013 11:56AM

FOLIO: 101/862040

First Title(s): OLD SYSTEM

Prior Title(s): 1/102842 1-2/102843  
1/166775 A-B/340205  
A-B/373998 1-2/419059  
2/960337 4/960337  
VOL 3832 FOL 13 VOL 4838 FOL 97

Recorded	Number	Type of Instrument	C.T. Issue
9/9/1996	DP862040	DEPOSITED PLAN	FOLIO CREATED EDITION 1
15/5/1997	3063198	DISCHARGE OF MORTGAGE	
15/5/1997	3063199	DISCHARGE OF MORTGAGE	
15/5/1997	3063200	MORTGAGE	EDITION 2
30/12/2009	AF221504	CAVEAT	
15/11/2012	AH368370	WITHDRAWAL OF CAVEAT	

\*\*\* END OF SEARCH \*\*\*





# Title Search

**InfoTrack**  
An Approved LPI NSW  
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 101/862040

SEARCH DATE	TIME	EDITION NO	DATE
12/11/2013	11:55 AM	2	15/5/1997

LAND

LOT 101 IN DEPOSITED PLAN 862040  
AT STRATHFIELD  
LOCAL GOVERNMENT AREA STRATHFIELD  
PARISH OF CONCORD COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP862040

FIRST SCHEDULE

MERIDEN SCHOOL

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 K278994 EASEMENT FOR SEWERAGE VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 3 3063200 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

mg

PRINTED ON 12/11/2013

\* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

---

## Appendix F

---

Planning Certificate

Douglas Partners Pty Ltd  
PO Box 472  
West Ryde NSW 1685

**Issue Date** : 30/10/2018  
**Receipt No.** : 385779  
**Fee Paid** : \$133.00

**Address** : 10-28 REDMYRE ROAD STRATHFIELD NSW 2135  
**Description** : LOT 101 DP 862040  
**Owner** : MERIDEN SCHOOL

**Fees** : Planning Certificate under Section 10.7(2) - \$53.00  
Planning Certificate under Section 10.7(5) - \$80.00  
Urgency fee - \$153.00 (includes GST)

## PLANNING CERTIFICATE

### Section 10.7 (2) Environmental Planning & Assessment Act 1979

This certificate refers to the following matters prescribed under s10.7(2) of the above Act.

---

#### Item 1. Names of relevant environmental planning instruments and development control plans.

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

**REPLY:** *Strathfield Local Environmental Plan 2012* commenced 29/3/13.  
Refer to attachment for relevant State Environmental Planning Policies.

- (2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved). In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

**REPLY:** Not Applicable.

- (3) The name of each Development Control Plan (DCP) that applies to the carrying out of development on the land.

**REPLY:** Refer to attachment for relevant DCPs.



## **Item 2. Zoning and land use under relevant Local Environmental Plans.**

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP).

- (a) The identity of the zone, whether by reference to a name or by reference to a number.

**REPLY:** R3 - Medium Density Residential in the Strathfield Local Environmental Plan 2012.

- (b) The purposes for which the instrument provides that development may be carried out within the zone without the need for development consent.
- (c) The purposes for which the instrument provides that development may not be carried out without development consent.
- (d) The purposes for which the instrument provides that the carrying out of development is prohibited within the zone.

**REPLY:** Refer to attachment for relevant land use table in the *Strathfield Local Environmental Plan 2012*.

- (e) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

**REPLY:** Yes - Refer to Strathfield LEP 2012 Lot Size Map.

- (f) Whether the land includes or comprises critical habitat.

**REPLY:** No.

- (g) Whether the land is in a heritage conservation area.

**REPLY:** No.

- (h) Whether an item of environmental heritage is situated on the land.

**REPLY:** Yes - Refer to attachment for detail.

---

## **Item 2A Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006**

Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?

**REPLY:** No

---

### Item 3.        **Complying Development**

- (1)        Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 and (e),(2),(3) and (4),1.18(1),(c3) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

#### **General Housing Code**

**REPLY:**        No - Complying Development under the General Housing Code may not be carried out on this land. The land is affected by general and/or specific land exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument

---

#### **Rural Housing Code**

**REPLY:**        No – Complying Development under the Rural Housing Code may not be carried out on this land.

---

#### **Housing Alterations Code**

**REPLY:**        No - Complying Development under the Housing Alterations Code may not be carried out on this land. The land is affected by general land exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument

---

#### **Commercial and Industrial Code (New Building and Additions Code)**

**REPLY:**        No - Complying Development under the General Commercial and Industrial Code may not be carried out on this land. The land is affected by general land exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument

Specific land exemptions:

- Not in a Heritage Conservation Area
  - Not Reserved for Public Purpose
  - Not Acid Sulphate Soil
  - Not in an Environmentally Sensitive Area
-



### Subdivision Code

**REPLY:** No - Complying Development under the Subdivision Code may not be carried out on this land. The land is affected by general land exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument
- 

### General Development Code

**REPLY:** No - Complying Development under the General Development Code may not be carried out on this land. The land is affected by general land exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument
- 

### Demolition Code

**REPLY:** No - Complying Development under the Demolition Code may not be carried out on this land. The land is affected by general land based exemptions:

General land exemptions:

- The land comprises of a heritage item in an environmental planning instrument
- 

### Fire Safety Code

**REPLY:** No - Complying Development under the Demolition Code may not be carried out on this land. The land is affected by general land based exemptions:

General land exemptions:

- No State Heritage Items Apply
- The land comprises of a heritage item in an environmental planning instrument
- Not within an Environmentally Sensitive Area

**Disclaimer:** The information above addresses matters raised in Clause 1.17A (1) (b) to (e), (2), (3), and (4), 1.18(1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environment Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

**NOTE:** Council does not have sufficient information to ascertain the extent of a land based exclusion on a property. Despite any statement preventing the carrying out of complying development in the Codes listed above, complying development may still be carried out providing

the development is not on the land affected by the exclusion and meets the requirements and standards of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

---

#### **Item 4. Coastal protection**

Whether or not the land is affected by the operation of section 38 or 39 of the *Coastal Protection Act 1979*, but only to the extent that the council has been so notified by the Department of Services, Technology and Administration.

**REPLY:** No.

---

#### **Item 4A. Certain information relating to beaches and coasts**

Strathfield Municipal Council is identified as a coastal council of NSW pursuant to Planning Circular PS-11-001, issued on 24 January 2011, to which the following applies:

In relation to a coastal council:

- (1) Whether an order has been made under part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

**REPLY:** No - Council records at the date of this certificate do not indicate that the subject land is subject to an order under Part 4D of the *Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

- (2)(a) Whether the council has been notified under Section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land).

**REPLY:** No - Council records at the date of this certificate do not indicate that Council has been notified under Section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of the Act) have been placed on the land (or on public land adjacent to that land).

- (2)(b) If works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

**REPLY:** Not applicable.

- (3) Whether any such information (if any) as required by the regulations under Section 56B of the *Coastal Protection Act 1979* to be included in the planning certificate and of which the council has been notified pursuant to those regulations.

**REPLY:** No - Council records indicate that Council has not been notified of such information (if any) as required by the regulations under Section 56B of the

*Coastal Protection Act 1979* which should be included in the planning certificate.

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**Item 4B. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.**

In relation to a coastal council - whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under Section 496B of the *Local Government Act 1993* for coastal protection works (within the meaning of Section 553B of that Act).

Note: "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of Section 553B of the *Local Government Act 1993*.

**REPLY:** No - Council records as at the date of this certificate do not indicate that the owner (or any previous owner) of the subject land has consented in writing to the land being subject to annual charges under Section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of Section 553B of that Act).

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**Item 5. Mine subsidence**

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

**REPLY:** No.

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**Item 6. Road widening and road realignment**

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*; or
- (b) Any environmental planning instrument; or
- (c) Any resolution of the Council

**REPLY:** No.

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**Item 7. Council and other public authority policies on hazard risk restrictions**

Whether or not the land is affected by a policy:

- (a) Adopted by the council, or;
- (b) Adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of

landslip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

**REPLY:** Yes – Council has adopted by resolution a policy for the management of development on contaminated land. This policy will restrict development of land:

- Which is affected by contamination;
- Which has been used for certain purposes;
- In respect of which there is not sufficient information about contamination;
- Which is proposed to be used for certain purposes;
- In other circumstances contained in the policy.

Refer to Part K – Development on Contaminated Land of the *Strathfield Consolidated Development Control Plan 2005* for more information.

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#### **Item 7A. Flood related development controls information**

- (1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.
- (2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.
- (3) Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

**REPLY:** No.

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#### **Item 8. Land reserved for acquisition**

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

**REPLY:** No.

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#### **Item 9. Contributions plans**

The name of each contributions plan applying to the land.

**REPLY:** Strathfield Indirect Development Contributions Plan 2010  
(Amended 3 September 2010).

Strathfield Direct Development Contributions Plan 2010  
(Amended 27 September 2016).

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### Item 9A. Biodiversity certified land

Whether or not the subject land is biodiversity certified land?

**REPLY:** Council has not been notified by the Chief Executive of the Office of Environment and Heritage, that the subject land is biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

The accuracy of this statement may be reliant in part upon information supplied by a third party public authority. The accuracy of this information has not been verified by Council and if the information is vital for the proposed end use of the land, it should be verified by the applicant.

Note: Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.

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### Item 10. Bio-banking agreements

Whether or not the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

**Reply:** Council has not been notified by the Chief Executive of the Office of Environment and Heritage, that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*.

The accuracy of this statement may be reliant in part upon information supplied by a third party public authority. The accuracy of this information has not been verified by Council and if the information is vital for the proposed end use of the land, it should be verified by the applicant.

Note: Biodiversity stewardship agreements include bio-banking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.

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### Item 10A. Native vegetation clearing set asides

If the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*, a statement to that effect (but only if the council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section).

**REPLY:** Council has not been notified by the Local Land Services that the land contains a set aside area nor is the land registered in the public register under section 60ZC of the *Local Land Services Act 2013*.

The accuracy of this statement may be reliant in part upon information supplied by a third party public authority. The accuracy of this information



has not been verified by Council and if the information is vital for the proposed end use of the land, it should be verified by the applicant.

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### **Item 11. Bush Fire Prone Land**

Whether or not the land is bush fire prone land.

**REPLY:** No - No land in Strathfield LGA is identified as bush fire prone land as defined in the Act.

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### **Item 12. Property vegetation plans**

If the land is land to which a property vegetation plan under the *Native Vegetation Act 2003* applies, a statement to that effect (but only if the Council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

**REPLY:** No.

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### **Item 13. Orders under Trees (Disputes Between Neighbours) Act 2006**

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the Council has been notified of the order).

**REPLY:** No.

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### **Item 14. Directions under Part 3A**

Whether or not there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

**REPLY:** No, the site has not been identified as a project on the land under Part 4 of the Act.

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### **Item 15. Site compatibility certificates for infrastructure, school or TAFE establishments**

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the Council is aware, in respect of proposed development on the land, and:

- (a) The period for which the certificate is valid, and;
- (b) That a copy may be obtained from the head office of the Department of Planning.

**REPLY:** No – Council is not aware of a valid site compatibility certificate (infrastructure, schools or TAFE establishments) being issued in respect of the proposed development on the land.

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### Item 16. Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the Council is aware, in respect of proposed development on the land, and:

- (a) The period for which the certificate is valid, and;
- (b) That a copy may be obtained from the head office of the Department of Planning.

**REPLY:** No – Council is not aware of a valid site compatibility certificate (infrastructure) being issued in respect of the proposed development on the land.

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### Item 17. Site compatibility certificates and conditions for affordable rental housing

- (1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land, and:
  - (a) The period for which the certificate is valid, and;
  - (b) That a copy may be obtained from the head office of the Department of Planning
- (2) A statement setting out any terms of a kind referred to in clause 17 (1) or 38(1) of the *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

**REPLY:** No – Council is not aware of a current site compatibility certificate (affordable rental housing) being issued in respect of the proposed development on the land.

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### Item 18. Paper Subdivision Information

- (1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

**REPLY:** No – Council does not hold any paper subdivision within the meaning of this clause.

- (2) The date of any subdivision order that applies to the land.

**REPLY:** Not applicable.

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### Item 19. Site verification certificates

A statement of whether there is a current site verification certificate, of which the Council is aware, in respect of the land and, if there is a certificate, the statement is to include:

- (a) the matter certified by the certificate, and

**Note:** A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

- (b) the date on which the certificate ceases to be current (if any), and
- (c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

**REPLY:** No – Council is not aware of a current site verification certificate (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) being issued in respect of the proposed development on the land.

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## Item 20. Loose-fill asbestos insulation

Does the land include any residential premises listed on the Loose-Fill Asbestos Insulation Register maintained under Division 1A of Part 8 of the *Home Building Act 1989*?

**REPLY:** No

Disclaimer: This statement is based on information supplied by a third party public authority. The accuracy of this information has not been verified by Strathfield Municipal Council and if the information is vital for the proposed end use, then it should be verified by the applicant.

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## Item 21. Affected building notices and building product rectification orders

- 1) A statement of whether there is any affected building notice of which the council is aware that is in force in respect of the land.
- 2) A statement of:
  - (a) whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and
  - (b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

In this clause:

**affected building notice** has the same meaning as in Part 4 of the *Building Products (Safety) Act 2017*.

**building product rectification order** has the same meaning as in the *Building Products (Safety) Act 2017*.

**REPLY:** No – Council is not aware of a building rectification order being issued in respect of the proposed development on the land.

No – Council is not aware of any notice of intention to make a building product rectification order in respect of the proposed development on the land.

**Additional Matters: Matters arising under the Contaminated Land Management Act 1997**

Section 59(2) of the *Contaminated Land Management Act 1997* prescribes the following additional matters to be specified in planning certificates:

- (a) At the date of this certificate, is the land to which this certificate relates significantly contaminated land?

**REPLY:** No - Council records as at the date of this certificate do not indicate that the subject land is declared by the Environment Protection Authority to be significantly contaminated land as defined under the Contaminated Land Management Act 1997.

- (b) At the date of this certificate, is the land to which this certificate relates subject to a management order?

**REPLY:** No – Council records as at the date of this certificate do not indicate that the subject land is subject to a management order.

- (c) At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?

**REPLY:** No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is the subject of an approved voluntary management proposal.

- (d) At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?

**REPLY:** No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject to an ongoing maintenance order.

- (e) At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?

**REPLY:** No - Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject of a site audit statement and a copy of such a statement has been provided to the Council.

  
GEOFF BAKER  
PUBLIC OFFICER

**Strathfield Development Control Plan(DCP) 2005**  
**Part O -Tree Management**

**TREE PRESERVATION ORDER**

In accordance with the Tree Preservation Order applying to the Strathfield Council area, no tree having a height greater than 4.0 metres or a girth greater than 0.5 metres measured at a point 1.0 metres above ground level, shall be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without prior written consent of Council. .

**NOTE:**

- 1) Any person who contravenes or causes or permits to be contravened the provisions of the Tree Preservation Order shall be guilty of an offence.

- 2) **PENALTY:** Section 9.56 of the Environmental Planning and Assessment Act. 1979

A person guilty of an offence against this Act shall, for every such offence, be liable to the penalty expressly imposed and, if no penalty is so imposed, to a penalty not exceeding \$1,100,000. The Court may also direct that new trees and vegetation be planted and that a security be paid to ensure their establishment.

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**Strathfield Municipal Council**  
**Residential Zoned Sites – Heritage Listed**

**Attachments referred to in Section 10.7 Certificate**

Attachment referred to in Item 1 (1)

**SEPP (State and Regional Development) 2011** – published 28.9.11

The aims of this Policy are to identify development that is State significant development, to identify development that is State significant infrastructure and critical State significant infrastructure and to confer functions on joint regional planning panels to determine development applications.

**SEPP (Exempt and Complying Development Codes) 2008** - gazetted 12.12.08.

The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*.

**State Environmental Planning Policy (Building Sustainability Index) 2004** - gazetted 25.06.04. This SEPP operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX.

**SEPP (Housing for Seniors or People with a Disability) 2004** - gazetted 31.03.04. Encourages the development of high quality accommodation for our ageing population and for people who have disabilities - housing that is in keeping with the local neighbourhood. Note the name of this policy was changed from SEPP (Seniors Living) 2004 to SEPP (Housing for Seniors or People with a Disability) 2004 effective 12.10.07

**State Environmental Planning Policy No.55** - Remediation of land (gazetted 28.8.98) - Introduces state-wide planning controls for the remediation of contaminated land. If the land is unsuitable, remediation must take place before the land is developed. The policy defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals.

**State Environmental Planning Policy No.64** - Advertising and Signage - gazetted 16.3.01 aims to ensure that signage including advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of a high quality and design. The policy prohibits advertisements in certain locations and sets controls for advertisements along major roads and waterways. The SEPP was amended in August 2007 regarding outdoor advertising in transport corridors (eg freeways, tollways and rail corridors).

**State Environmental Planning Policy No.65** - Design Quality of Residential Flat Development - gazetted 26.7.02 and amended 20.12.02 aims to improve the design and quality of residential flat developments. The policy identifies certain performance criteria which must be taken into account when determining an application and also makes provision for Design Review Panels to provide independent expert advice to councils on the merit of residential flat development.

**SEPP (Temporary Structures) 2007** – gazetted 28.09.07

Provides for the erection of temporary structures and the use of places of public entertainment while protecting public safety and local amenity. Note the name of this policy was changed from SEPP

(Temporary Structures and Places of Public Entertainment) 2007 to SEPP (Temporary Structures) 2007 effective 26.10.09.

**SEPP (Major Development) 2005** – gazetted 01.08.05

Defines certain developments that are major projects to be assessed under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. It also provides planning provisions for State significant sites. In addition, the SEPP identifies the council consent authority functions that may be carried out by joint regional planning panels (JRPPs) and classes of regional development to be determined by JRPPs. Note: This SEPP was formerly known as State Environmental Planning Policy (Major Projects) 2005.

**SEPP (infrastructure) 2007**

Gazetted 21.12.07 - provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

Attachment referred to in Item 1 (2)

Refer to **attachment**

Attachment referred to in Item 1 (3)

**Strathfield Consolidated Development Control Plan 2005** Part A- Dwelling Houses and Ancillary Structures.

**Strathfield Consolidated Development Control Plan 2005** Part B - Dual Occupancy Developments.

**Strathfield Consolidated Development Control Plan 2005** Part C - Multiple Unit Housing (applies to Residential B zone only)

**Strathfield Consolidated Development Control Plan 2005** Part E Child Care Centres

**Strathfield Consolidated Development Control Plan 2005** Part F – Bed and Breakfast Establishments

**Strathfield Consolidated Development Control Plan 2005** Part H - Waste Management

**Strathfield Consolidated Development Control Plan 2005** Part I - Provision of Off-Street Parking Facilities.

**Strathfield Consolidated Development Control Plan 2005** Part J - Erection and Display of and Advertising Signs and Structures.

**Strathfield Consolidated Development Control Plan 2005** Part K - Development on Contaminated Land

**Strathfield Consolidated Development Control Plan 2005** Part L - Public Notification Requirements for Development and Complying Development Applications

**Strathfield Consolidated Development Control Plan 2005** Part M - Educational Establishments

**Strathfield Consolidated Development Control Plan 2005** Part N – Water Sensitive Urban Design

**Development Control Plan No. 20** - Parramatta Road Corridor Area (Site Specific DCP) (3.5.06)

\***Codes** - Council has adopted codes relating to hospitals and landscaping.

Attachment referred to in Items 2 (d)

Refer to **attached** "LAND USE TABLE - RESIDENTIAL ZONES"

## **LAND USE TABLES - RESIDENTIAL ZONES**

### **Zone R2 Low Density Residential**

#### **1. Objectives of zone**

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To ensure that development of housing does not adversely impact the heritage significance of adjacent heritage items and conservation areas.

#### **2. Permitted without consent**

Home occupations

#### **3. Permitted with consent**

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dwelling houses; Environmental protection works; Group homes; Health consulting rooms; Home businesses; Home industries; Places of public worship; Public administration buildings; Recreation areas; Residential care facilities; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Water recycling facilities

#### **4. Prohibited**

Any development not specified in item 2 or 3.

### **Zone R3 Medium Density Residential**

#### **1. Objectives of zone**

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

#### **2. Permitted without consent**

Home occupations

#### **3. Permitted with consent**

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Group homes; Home businesses; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential care facilities; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Water recycling facilities

#### **4. Prohibited**

Any development not specified in item 2 or 3

## **Zone R4 High Density Residential**

### **1. Objectives of zone**

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

### **2. Permitted without consent**

Home occupations

### **3. Permitted with consent**

Boarding houses; Child care centres; Community facilities; Hotel or motel accommodation; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Shop top housing; Any other development not specified in item 2 or 4

### **4. Prohibited**

Advertising structures; Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Attached dwellings; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Semi-detached dwellings; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Water recreation structures; Water treatment facilities; Wholesale supplies

#### Attachment referred to in Items 2(g) and (h)

The property has been included in the Strathfield Local Environmental Plan 2012 as being of significance to the Strathfield Heritage. This means that the following will require development consent -

- (a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):
  - (i) a heritage item
  - (ii) an Aboriginal object
  - (iii) a building, work, relic or tree within a heritage conservation area,
- (b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,
- (c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

- (d) disturbing or excavating an Aboriginal place of heritage significance,
- (e) erecting a building on land:
  - (i) on which a heritage item is located or that is within a heritage conservation area, or
  - (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,
- (f) subdividing land:
  - (i) on which a heritage item is located or that is within a heritage conservation area, or
  - (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

Further details and requirements are provided in clauses 5.10 (1) – (10) of the Strathfield LEP 2012.



## **STRATHFIELD LEP 2012 - EXEMPT AND COMPLYING DEVELOPMENT**

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The LEP identifies the types of development which are exempt and complying development within the Strathfield Municipality.

Exempt development consists of development that has minimal impact and complies with the set criteria listed in Part 3 of the Strathfield LEP 2012. No development consent is required for exempt development.

Complying development consists of development that is more complex than exempt and does require development consent by either Council or an Accredited Certifier. Development is only complying development if it meets all the specified criteria in Part 3 of the Strathfield LEP 2012

Details of exempt and complying development can be obtained by contacting the Customer Service Staff on 9748-9999 during business hours.

\* \* \* \* \*

STRATHFIELD MUNICIPAL COUNCIL  
ANNEXURE TO CERTIFICATE UNDER SECTION 10.7  
Environmental Planning & Assessment Act, 1979

**Section 10.7(5)** - the following advice on such relevant matters, of which the Council may be aware, affect the land described in Section 10.7 Certificate.

1. The land is affected by a Tree Preservation Order.
2. Council's Planning records (search limited to last five (5) years) indicate the following as the last approved use of the property. Details of current approvals are available on written request from the Council. Council does not provide any details of approvals associated with dwelling houses on this certificate.

DA 2014/0023/02	Section 96 to modify the approved drainage design	Decision Date: 28/04/2015
DA 2014/0023/03	To alter the design of the awning to the sports complex (Margaret Street), permanently relocate a Canary Island Date Palm to 16 Margaret Street permanently and to correct erroneous references in conditions of consent	Decision Date:25/02/2016
CDC 2016/7079	Infill slab to existing void & miscellaneous minor alterations	Decision Date : 06/09/2016
CDC 2017/7032	Change to approved window detailing as shown highlighted in red on the stamped CDC Plans.	Decision Date : 10/03/2017
DA 2017/0159	(NOD)- Demolition of existing structures and construction of new teaching areas, covered outdoor play area and alterations and additions to existing heritage listed item	Decision Date:19/03/2018

3. This certificate does not contain information relating to the following types of notice: -
  - (a) Notice in accordance with Schedule 5: Development Control Orders, Part 7 Section 15 (including a Notice to Issue an Order under Part 7 Section 8) or Contravention Notice relating to any matters under the Environmental Planning and Assessment Act 1979;
  - (b) Any Order (including intention to issue an Order) under section 124 of the Local Government Act 1993.

Details of the above may be obtained by written application to the Council.

**The above information has been taken from a search of Council's records but Council cannot accept responsibility for any omission or inaccuracy.**

Date: 30/10/2018

  
GEOFF BAKER  
PUBLIC OFFICER

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## **Appendix G**

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Notes About this Report  
Test Bore and Test Pit Logs

# About this Report

# Douglas Partners



## Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

## Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

## Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

## Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

## Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

# *About this Report*

## **Site Anomalies**

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

## **Information for Contractual Purposes**

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

## **Site Inspection**

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.





## Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

## Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

## Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

## Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low

reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

## Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

## Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

## Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:  
4,6,7  
N=13
- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:  
15, 30/40 mm

# *Sampling Methods*

The results of the SPT tests can be related empirically to the engineering properties of the soils.

## **Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests**

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.



## Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726-1993, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

## Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

## Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

## Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 - 5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

# *Soil Descriptions*

## **Soil Origin**

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.



## Rock Strength

Rock strength is defined by the Point Load Strength Index ( $Is_{(50)}$ ) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 2007. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approximate Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

\* Assumes a ratio of 20:1 for UCS to  $Is_{(50)}$ . It should be noted that the UCS to  $Is_{(50)}$  ratio varies significantly for different rock types and specific ratios should be determined for each site.

## Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

## Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and longer sections
Unbroken	Core lengths mostly > 1000 mm



# Rock Descriptions

## Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq 100 \text{ mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

## Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

# Symbols & Abbreviations

## Douglas Partners



### Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

### Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

### Water

▷	Water seep
▽	Water level

### Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U <sub>50</sub>	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

### Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

### Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

### Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

### Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

### Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

### Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

### Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

### Other

fg	fragmented
bnd	band
qtz	quartz

# Symbols & Abbreviations

## Graphic Symbols for Soil and Rock

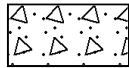
### General



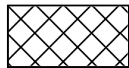
Asphalt



Road base



Concrete



Filling

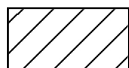
### Soils



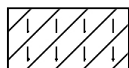
Topsoil



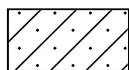
Peat



Clay



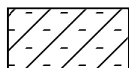
Silty clay



Sandy clay



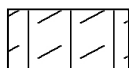
Gravelly clay



Shaly clay



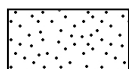
Silt



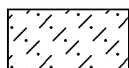
Clayey silt



Sandy silt



Sand



Clayey sand



Silty sand



Gravel



Sandy gravel



Cobbles, boulders



Talus

### Sedimentary Rocks



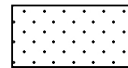
Boulder conglomerate



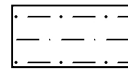
Conglomerate



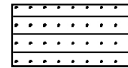
Conglomeratic sandstone



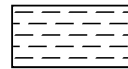
Sandstone



Siltstone



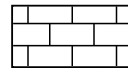
Laminite



Mudstone, claystone, shale

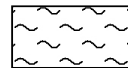


Coal

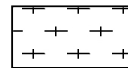


Limestone

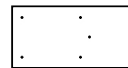
### Metamorphic Rocks



Slate, phyllite, schist

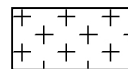


Gneiss

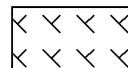


Quartzite

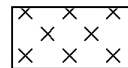
### Igneous Rocks



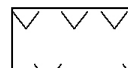
Granite



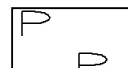
Dolerite, basalt, andesite



Dacite, epidote



Tuff, breccia



Porphyry

# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 17.0 AHD  
**EASTING:** 323488  
**NORTHING:** 6250175  
**DIP/AZIMUTH:** 90°/-

**BORE No:** 101  
**PROJECT No:** 86568.00  
**DATE:** 4/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type
17	0.3	FILLING: dark grey, fine to coarse sand filling (topsoil) with some silt and roadbase gravel, moist.																A/E			3,5,7 N = 12
		FILLING: apparently compacted, light yellow-brown, fine to medium sand filling, moist																A/E*			
16	1	0.6m: geofabric inclusion																A/E			
	1.2	0.7m: slightly silty with some roadbase gravel, ironstone flakes and ceramic inclusions, moist																S			
		SILTY CLAY: stiff, light grey mottled red-brown silty clay, with some ironstone inclusions (10-30mm) MC>PL, damp to moist																A/E			8,15/70 refusal
15	2																	S			
14	2.6	LAMINITE: very low strength, light grey-brown laminite																			PL(A) = 0.4
	2.81	LAMINITE: medium strength, moderately then slightly weathered, fractured and slightly fractured, grey-brown laminite with approximately 25% fine sandstone laminations and some clay bands																C	100	75	
																					PL(A) = 0.4
																					PL(A) = 0.4
																					PL(A) = 0.6
																					PL(A) = 0.7
																					PL(A) = 0.6
													</								

**RIG:** Bobcat **DRILLER:** JE **LOGGED:** LS/SI **CASING:** HW to 2.7m  
**TYPE OF BORING:** Solid flight auger (TC-bit) to 2.68m, NMLC-coring to 7.9m  
**WATER OBSERVATIONS:** No free groundwater observed whilst augering  
**REMARKS:** Backfilled with drilling spoil; \*BD3/041018

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

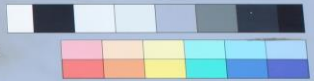
BORE: 101

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 101  
Depth: 2.68 - 7.00m  
Core Box No.: 1



86568.00 MERIDEN SCHOOL BH101 START 2.68m



2.68 - 7.00m

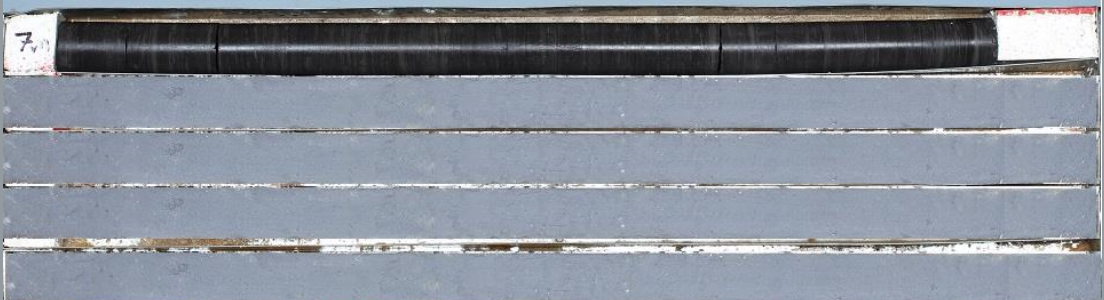
BORE: 101

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 101  
Depth: 7.00 - 7.90m  
Core Box No.: 2



7.00 - 7.90m



# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 17.1 AHD  
**EASTING:** 323505  
**NORTHING:** 6250175  
**DIP/AZIMUTH:** 90°/-

**BORE No:** 102  
**PROJECT No:** 86568.00  
**DATE:** 3/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type
17	0.07	BRICK PAVEMENT																A/E			5,4,8 N = 12
	0.2	FILLING: light yellow-brown, medium to coarse sand filling with a trace of silt, moist																A/E*			
	0.8	0.15m: tile inclusion																A			
16	1	0.18-0.2m: roadbase gravel																S			
		SILTY CLAY: stiff, red-brown silty, MC>PL, moist																			
		SILTY CLAY: stiff, light grey mottled red-brown, with some ironstone gravel (3-25mm), MC>PL, damp to moist, (extremely weathered shale)																			
15	2																				
	2.3	LAMINITE: extremely low to very low strength, grey-brown laminite and some clay bands																S			9/40 refusal
14	3	LAMINITE: medium strength, moderately to slightly then slightly weathered, fractured and slightly fractured, grey-brown laminite with approximately 20% fine sandstone laminations																C	100	90	PL(A) = 0.4
																					PL(A) = 0.8
13	4																				
																					PL(A) = 0.8
	4.9	LAMINITE: medium strength, fresh, unbroken, pale grey and grey laminite with approximately 25% fine sandstone laminations																C	100	88	PL(A) = 0.8
12	5																				PL(A) = 0.7
11	6																				PL(A) = 0.7
																					PL(A) = 0.8
10	7																	C	100	100	
9	8																				PL(A) = 0.8
8	8.05	Bore discontinued at 8.05m																			
9																					

**RIG:** Bobcat

**DRILLER:** JE

**LOGGED:** LS/SI

**CASING:** HW to 2.4m

**TYPE OF BORING:** Solid flight auger (TC-bit) to 2.5m, NMLC-coring to 8.05m

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:** Backfilled with drilling spoil; \*BD2/031018

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	sp	Standard penetration test
E	Environmental sample	≡	Water level	S	Shear vane (kPa)

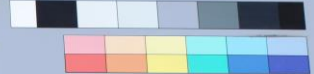
BORE: 102

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 102  
Depth: 2.60 - 7.00 m  
Core Box No.: 1



86568.00 - MERIDN SCHOOL BH102 START 2.6m

3m

4m

5m

6m

2.60 - 7.00m

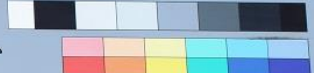
BORE: 102

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 102  
Depth: 7.00 - 8.05 m  
Core Box No.: 2



7m

8

7.00 - 8.05m

# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.1 AHD  
**EASTING:** 323494  
**NORTHING:** 6250151  
**DIP/AZIMUTH:** 90°/-

**BORE No:** 103  
**PROJECT No:** 86568.00  
**DATE:** 3/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Degree of Weathering						Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
			EW	HW	MW	SW	FS	FR		Ex Low	Very Low	Low	Medium	High			Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
18	0.3	FILLING: dark grey, fine to coarse sand filling (topsoil)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

**RIG:** Bobcat **DRILLER:** JE **LOGGED:** JDB **CASING:** HW to 2.5m  
**TYPE OF BORING:** Solid flight auger (TC-Bit) to 2.5m, Rotary washbore (Blade bit) to 2.8m, NMLC-coring to 8.03m.  
**WATER OBSERVATIONS:** No free groundwater observed whilst augering. Dipped at 11:00 am 8/10/2018, water level at 3.36m.  
**REMARKS:** \*BD1/031018

SAMPLING & IN SITU TESTING LEGEND			
A Auger sample	G Gas sample	PID Photo ionisation detector (ppm)	
B Bulk sample	P Piston sample	PL(A) Point load axial test Is(50) (MPa)	
BLK Block sample	U Tube sample (x mm dia.)	PL(D) Point load diametral test Is(50) (MPa)	
C Core drilling	W Water sample	pp Pocket penetrometer (kPa)	
D Disturbed sample	> Water seep	S Standard penetration test	
E Environmental sample	≡ Water level	V Shear vane (kPa)	

BORE: 103

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: 103  
Depth: 2.80-7.00m  
Core Box No.: 1/2



2.80 – 7.00m

BORE: 103

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: 103  
Depth: 7.00-8.03m  
Core Box No.: 2/2



7.00 – 8.03m



# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.1 AHD  
**EASTING:** 323494  
**NORTHING:** 6250151  
**DIP/AZIMUTH:** 90°/--

**BORE No:** 103  
**PROJECT No:** 86568.00  
**DATE:** 3/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
18.1	0.0	FILLING: dark grey, fine to coarse sand filling (topsoil)		A/E	0.1				Gatic Cover	
	0.3				0.2					
	0.6	FILLING: dark grey, silty, fine sand filling, slightly clayey with some rootlets and fine to medium igneous gravel.		A/E	0.5					
	0.9	CLAY: orange-brown, clay with traces of ironstone gravel			0.6					
	1.0			A/E	0.9					
	1.0	SILTY CLAY: stiff, light grey-brown silty clay with dark gray carbonaceous material		S/E	1.0		1,4,6 N = 10		1	Filling (0.0-2.1m)
	1.5	1.5m: with medium to coarse ironstone gravel		A/E*	1.45					Blank PVC Casing (0.05-2.85m)
	1.6				1.5					
	1.8				1.6					
	2.0			A	1.8					
	2.0	SHALY CLAY: pale grey, shaly clay with traces of bark and some fine to coarse ironstone gravels			2.0				2	
	2.5				2.5		10,25/130 refusal Bouncing			Bentonite Plug (2.0-2.75m)
	2.8	LAMINITE: extremely low to very low strength, pale grey shale with some ironstone bands		S	2.78					
	3.0				2.8					
	3.0	LAMINITE: low to medium strength, highly weathered, fractured to slightly fractured brown and grey laminite with 10-20% sandstone laminations and some extremely low strength bands		C	3.7		PL(A) = 0.4	08-10-18	3	Slotted PVC Casing (2.85-7.85m)
	4.0				4.05				4	
	4.0	LAMINITE: medium strength, slightly weathered then fresh, slightly fractured to unbroken dark grey-brown then dark grey laminite with approximately 30% sandstone laminations		C	4.8		PL(A) = 0.5		5	
	5.0				5.5					Gravel (2.75-7.85m)
	5.6				5.6		PL(A) = 0.6		6	
	6.0			C	6.4		PL(A) = 0.6		7	
	7.0				7.05					
	7.9			C	7.9		PL(A) = 0.9		8	End Cap Hole Collapse
	8.03	Bore discontinued at 8.03m			8.03					
	9.0									

**RIG:** Bobcat

**DRILLER:** JE

**LOGGED:** JDB

**CASING:** HW to 2.5m

**TYPE OF BORING:** Solid flight auger (TC-Bit) to 2.5m, Rotary washbore (Blade bit) to 2.8m, NMLC-coring to 8.03m.

**WATER OBSERVATIONS:** No free groundwater observed whilst augering. Dipped at 11:00 am 8/10/2018, water level at 3.36m.

**REMARKS:** \*BD1/031018

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)



**Douglas Partners**  
 Geotechnics | Environment | Groundwater



## Permeability Testing - Falling Head Test Report

[illegible]

# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Meriden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.7 AHD  
**EASTING:** 323503  
**NORTHING:** 6250136  
**DIP/AZIMUTH:** 90°/-

**BORE No:** 104  
**PROJECT No:** 86568.00  
**DATE:** 5/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Degree of Weathering						Graphic Log	Rock Strength					Water	Fracture Spacing (m)				Discontinuities		Sampling & In Situ Testing				
			EW	HW	MW	SW	FS	FR		Ex Low	Very Low	Low	Medium	High		Very High	Ex High	0.01	0.05	0.10	0.50	1.00	B - Bedding S - Shear	J - Joint F - Fault	Type	Core Rec. %
	0.01	FILLING: dark grey, fine to medium sand filling with some silt (topsoil), saturated  FILLING: dark grey slightly silty sand filling, saturated  SILTY CLAY: stiff, light grey mottled red-brown silty clay, with some ironstone inclusions (5-10mm), MC>PL, moist																								4,6,8 N = 14
	0.25																					A/E				
	18																					A/E*				
	1																					A/E				
	17																				S					
	2																									
	2.2	LAMINITE: very low strength, highly weathered, pale grey-brown laminite																							16/30 refusal	
	2.55	LAMINITE: medium strength, moderately then slightly weathered, fractured and slightly fractured, grey-brown laminite with approximately 20% fine sandstone laminations and some clay bands																				S			Bouncing, no recovery PL(A) = 0.6	
	3																					C	100	66	PL(A) = 0.5	
	15																									
	4																								PL(A) = 0.8	
	14																					C	100	63	PL(A) = 1.1	
	5	LAMINITE: high strength, slightly weathered then fresh, slightly fractured and unbroken grey laminite with approximately 20% fine sandstone laminations																							PL(A) = 1.1	
	5.0																									
	13																								PL(A) = 1.1	
	6																									
	12																					C	100	100	PL(A) = 1.5	
	7																									
	11																								PL(A) = 1.1	
	8																									
	8.08	Bore discontinued at 8.08m																								
	10																									
	9																									
	9																									

**RIG:** Bobcat **DRILLER:** JE **LOGGED:** LS/SI **CASING:** HW to 2.5m

**TYPE OF BORING:** Solid flight auger (TC-Bit) to 2.5m, Rotary washbore (Blade bit) to 2.53m, NMLC-coring to 8.08m.

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:** Backfilled with drilling spoil; \*BD6/051018

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

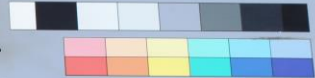
BORE: 104

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 104  
Depth: 2.53 — 7.00 m  
Core Box No.: 1



86568.00 MERIDEN SCHOOL BH104 START



2.53 — 7.00m

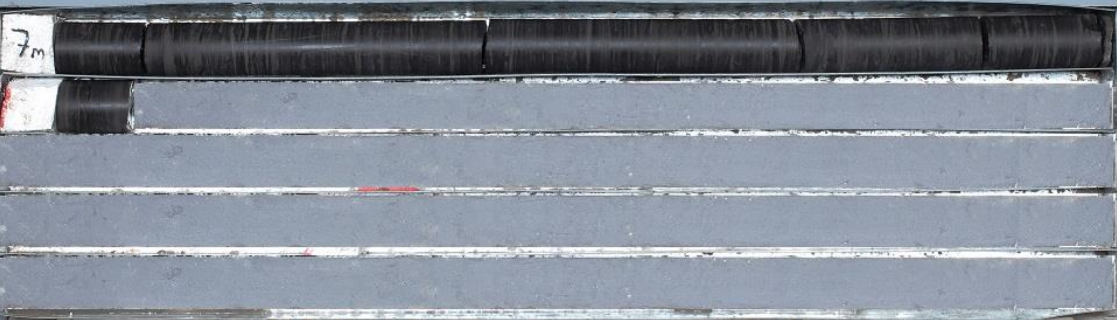
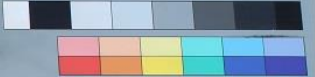
BORE: 104

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH 104  
Depth: 7.00 — 8.08 m  
Core Box No.: 2



7.0 — 8.08m

# BOREHOLE LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.3 AHD  
**EASTING:** 323475  
**NORTHING:** 6250140  
**DIP/AZIMUTH:** 90°/-

**BORE No:** 105  
**PROJECT No:** 86568.00  
**DATE:** 5/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint F - Fault	Type
18	0.25	TOPSOIL: dark grey, silty, fine sand topsoil with some clay and rootlets, moist.																A/E			Bulk sample taken from 0.4-0.8m
	0.8	CLAY: apparently stiff, light brown clay with trace fine ironstone gravel and rootlets, damp.																A/E B			
1		SILTY CLAY: stiff, grey mottled red-brown, silty clay with some fine to medium ironstone gravel, trace rootlets and carbonaceous material, humid.																A/E*			
17	2.0	LAMINITE: extremely low strength, light brown shale with some fine to coarse ironstone gravel.																S/E			pp >600 25/140 refusal
16	2.64	2.50m: becomes brown, very low strength																S/E			
3		LAMINITE: medium strength with some extremely low strength bands, highly weathered, fractured to slightly fractured, brown and dark brown shale with some ironstaining and some sandstone laminations.																C	100	75	PL(A) = 0.4
15																					PL(A) = 0.7
4	4.22	LAMINITE: medium then medium to high strength, fresh, slightly fractured to unbroken, dark grey laminite with approximately 80% siltstone interbedded with 20% fine grained sandstone.																C	100	94	
14																					
5																					PL(A) = 0.9
6																		C	100	95	
12																					PL(A) = 1
7																					
11																					PL(A) = 1
8	8.0	Bore discontinued at 8.0m																			
10																					
9																					
9																					

**RIG:** Bobcat **DRILLER:** JE **LOGGED:** JDB **CASING:** HW to 2.5m

**TYPE OF BORING:** Solid flight auger (TC-Bit) to 2.5m, Rotary washbore (Blade bit) to 2.64m, NMLC-coring to 8.00m.

**WATER OBSERVATIONS:** No free groundwater observed whilst augering

**REMARKS:** Backfilled with drilling spoil; \*BD8/20181005 taken from 0.9-1.0m

## SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



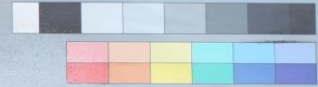
BORE: 105

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH105  
Depth: 2.64 - 7.00 m  
Core Box No.: 1/2



2.64 - 7.00m

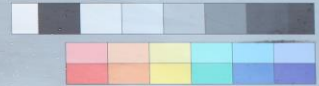
BORE: 105

PROJECT: STRATHFIELD

OCTOBER 2018



Project No: 86568.00  
BH ID: BH105  
Depth: 7.00 - 8.00 m  
Core Box No.: 2/2



7.00 - 8.00m



# TEST PIT LOG

**CLIENT:** Meriden School  
**PROJECT:** Meriden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 17.2 AHD  
**EASTING:** 323493  
**NORTHING:** 6250178

**PIT No:** TP106  
**PROJECT No:** 86568.00  
**DATE:** 5/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
17	0.05	FILLING: brown, bark filling with some topsoil, moist.		D/E	0.2							
		FILLING: dark grey-brown, silty, fine to medium sand filling with some rootlets and trace brick fragments and rootlets, wet.										
	0.25	FILLING: dark grey-brown, clay filling with some fine igneous gravel, trace brick and concrete fragments, wet										
	0.35	FILLING: pale grey, slightly clayey, fine to medium sand filling with some brick and concrete fragments, wet.										
		0.50m: yellow danger tape										
	0.66	CLAY: very stiff to hard, grey mottled orange-brown, slightly silty clay with some fine to medium ironstone gravel, medium plasticity, wet.										
1	0.85	Pit discontinued at 0.85m		D/E	0.84 0.85							
19				U <sub>50</sub>	1.11							

**RIG:** Hand tools

**LOGGED:** JDB/SI

**SURVEY DATUM:** MGA94

**WATER OBSERVATIONS:** Water seepage from 0.1m

**REMARKS:** Backfilled with excavated spoil

☐ Sand Penetrometer AS1289.6.3.3  
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U <sub>1</sub>	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

# TEST PIT LOG

**CLIENT:** Meriden School  
**PROJECT:** Meriden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 17.2 AHD  
**EASTING:** 323511  
**NORTHING:** 6250172

**PIT No:** TP107  
**PROJECT No:** 86568.00  
**DATE:** 4/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
17	0.05	BRICK PAVERS										
	0.1	FILLING: light grey-brown, fine to medium sand filling, humid.			0.1							
		FILLING: dark grey-brown, slightly clayey, fine to medium sand filling with some fine igneous gravel and trace brick fragments, moist.		D/E	0.2							
	0.3	CLAY: stiff, orange-brown clay with trace fine to medium ironstone gravel, moist.			0.4							
				D/E	0.5							
	0.6	SILTY CLAY: very stiff to hard, orange-brown mottled grey, silty clay with some fine to medium ironstone gravel and trace of carbonaceous material, moist.			0.6							
				D/E*	0.7							
	0.91	Pit discontinued at 0.91m										
	1											
	18											

**RIG:** Hand tools

**LOGGED:** JDB/SI

**SURVEY DATUM:** MGA94

**WATER OBSERVATIONS:** No free groundwater observed

**REMARKS:** Backfilled with excavated spoil; \*BD5/20181004 taken from 0.6-0.7m

☐ Sand Penetrometer AS1289.6.3.3  
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PLD	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

# TEST PIT LOG

**CLIENT:** Meriden School  
**PROJECT:** Meriden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.0 AHD  
**EASTING:** 323513  
**NORTHING:** 6250162

**PIT No:** TP108A  
**PROJECT No:** 86568.00  
**DATE:** 4/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
18	0.05	BRICK PAVERS										
	0.1	FILLING: light yellow-brown, medium sand filling.		D/E	0.1							
	0.18	ROADBASE: apparently compacted, light grey-green, igneous gravel (3-25mm), angular to sub-angular, well graded with some fine to coarse sand, moist.		E	0.18							
	0.2	ASPHALTIC CONCRETE		D/E	0.2							
		FILLING: brown and orange-brown, silty clay filling with some coarse sand, sandstone gravel (4-10mm) with trace ceramic fragments and slag (5-25mm), moist.										
		0.40m: becomes grey with some fine gravels, low plasticity, MC ~ PL										
	0.57	SILTY CLAY: stiff, red-brown, silty clay with trace ironstone gravel, medium to high plasticity, MC ~ PL.		D/E	0.59							
	0.9	Pit discontinued at 0.9m										
17	1											

**RIG:** Hand tools

**LOGGED:** RB

**SURVEY DATUM:** MGA94

**WATER OBSERVATIONS:** Free groundwater observed at 0.79m

**REMARKS:** Backfilled with excavated spoil

☐ Sand Penetrometer AS1289.6.3.3  
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	>	Water seep
E	Environmental sample	≡	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test Is(50) (MPa)
		PL(D)	Point load diametral test Is(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)

# TEST PIT LOG

**CLIENT:** Meriden School  
**PROJECT:** Mediden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.0 AHD  
**EASTING:** 323512  
**NORTHING:** 6250163

**PIT No:** TP108B  
**PROJECT No:** 86568.00  
**DATE:** 4/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
18		BRICK PAVERS										
	0.05	FILLING: light yellow-brown, fine to medium sand filling, moist.										
	0.06											
	0.11	ASPHALTIC CONCRETE		D	0.11							
					0.13							
	0.2	ROADBASE: grey, gravelly sand with clay.										
	0.25	FILLING: brown and grey, gravelly silty clay filling, medium plasticity, MC ~ PL.		D/E	0.25							
		FILLING: grey, gravelly sand filling with some clay and silt, moist.			0.26							
	0.47	SILTY CLAY: firm to stiff, grey and brown, silty clay with a trace of ironstone gravel, medium to high plasticity, MC ~ PL.		D/E	0.5							
					0.6							
		0.70m; becomes red-brown, MC > PL										
		0.75m: stiff to very stiff		E	0.8							
					0.9		pp = 220					
	0.95	Pit discontinued at 0.95m										
17	1											

**RIG:** Hand tools

**LOGGED:** RB

**SURVEY DATUM:** MGA94

**WATER OBSERVATIONS:** No free groundwater observed

**REMARKS:** Backfilled with excavated spoil

☐ Sand Penetrometer AS1289.6.3.3  
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

# TEST PIT LOG

**CLIENT:** Meriden School  
**PROJECT:** Meriden Centre of Music and Drama  
**LOCATION:** Margaret Street, Strathfield

**SURFACE LEVEL:** 18.7 AHD  
**EASTING:** 323514  
**NORTHING:** 6250138

**PIT No:** TP109  
**PROJECT No:** 86568.00  
**DATE:** 4/10/2018  
**SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
	0.05	FILLING: bark and wood chips (garden bed)										
		FILLING: dark grey, silty, fine sand filling with some organic matter, moist.			0.1							
				D/E	0.2							
	0.3	FILLING: light grey, fine to medium sand filling with a trace of ripped sandstone boulder and brick fragments, moist.										
		0.42m: concrete fragment, 60mm thick			0.5							
	0.55	FILLING: pale grey, ripped sandstone and cobble filling, sub-rounded to sub-angular, with some fine sand and trace slate fragments, moist.		D/E*	0.6							
	0.64	CLAY: very stiff to hard, brown mottled light grey clay, moist.										
					0.8							
				D/E								
1	1.0	Pit discontinued at 1.0m			1.0							
				U <sub>50</sub>								
					1.33							

**RIG:** Hand tools

**LOGGED:** JDB/SI

**SURVEY DATUM:** MGA94

**WATER OBSERVATIONS:** No free groundwater observed

**REMARKS:** Backfilled with excavated spoil; \*BD4/20181004 taken from 0.5-0.6m

☐ Sand Penetrometer AS1289.6.3.3  
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U <sub>s</sub>	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)



## Results of Dynamic Penetrometer Tests

**Client** Meriden School

**Project No.** 86568.00

**Project** Meriden Centre of Music and Drama

**Date** 4/10/2018

**Location** Margaret Street, Strathfield

**Page No.** 1/1

Test	106 (Top)	106 (Bottom)	107 (top)	107 (Bottom)	108A (Top)	108A (Bottom)	108B (Top)	108B (Bottom)	109 (top)	109 (Bottom)
Depth (m)	Penetration Resistance Blows/150 mm									
0 - 0.15	2		2/100		12				2	
0.15 - 0.30	2		5		13		5		3	
0.30 - 0.45	1		4		3		7		3	
0.45 - 0.60	4		7		3		4		4	
0.60 - 0.75	6		7		5		1		6	
0.75 - 0.90	12	4/50	10	5/60	5		4	1	10	
0.90 - 1.05	10	9	18	22	6	3	5	5	15	6/50
1.05 - 1.20	18	16	25/140	25/100	9	4	8	13	19	16
1.20 - 1.35			R	R		4	13	25/110		
1.35 - 1.50						25/130		R		
1.50 - 1.65						R				
1.65 - 1.80										
1.80 - 1.95										
1.95 - 2.10										
2.10 - 2.25										
2.25 - 2.40										
2.40 - 2.55										
2.55 - 2.70										
2.70 - 2.85										
2.85 - 3.00										
3.00 - 3.15										
3.15 - 3.30										
3.30 - 3.45										
3.45 - 3.60										

**Test Method** AS 1289.6.3.2, Cone Penetrometer



**Tested By**

RB/JDB

AS 1289.6.3.3, Flat End Penetrometer



**Checked By**

**Remarks** R = Refusal, 25/140 indicates 25 blows for 140 mm penetration

B = Bouncing

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## Appendix H

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QA/QC Report

## QA/QC PROCEDURES AND RESULTS

### Q1. Data Quality Objectives

The Preliminary Site Investigation (PSI) has been devised broadly in accordance with the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the National *Environment Protection (Assessment of Site Contamination) Measure 1999* as amended 2013 (NEPC 2013). The DQO process is outlined as follows:

- Stating the Problem;
- Identifying the Decision;
- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors; and
- Optimising the Design for Obtaining Data.

The DQOs have been addressed within the report as shown in Table Q1.

**Table Q1: Data Quality Objectives**

<b>Data Quality Objective</b>	<b>Report Section Where Addressed</b>
State the Problem	S1 Introduction
Identify the Decision	S11 Discussion of Laboratory Results S12 Conclusions and Recommendations
Identify Inputs to the Decision	S1 Introduction S3 Site Identification, Description and Proposed Development S4 Topography, Geology and Hydrogeology S5 Site History S6 Potential Contamination Sources and Preliminary Conceptual Site Model S7 Fieldwork, Analysis and QA/QC S8 Fieldwork Observations S9 Analytical Results
Define the Boundary of the Assessment	S3 Site Identification, Description and Proposed Development Drawing 1
Develop a Decision Rule	S8 Site Assessment Criteria
Specify Acceptable Limits on Decision Errors	S7 Fieldwork, Analysis and QA/QC
Optimise the Design for Obtaining Data	S2 Scope of Work S7 Fieldwork, Analysis and QA/QC

## **Q2. Field Quality Assurance and Quality Control**

The field QC procedures for sampling were undertaken with reference to Douglas Partners' *Field Procedures Manual* at all times during the assessment.

### **Q2.1 Sampling Team**

Field sampling was undertaken by engineers from DP between 3 October 2018 and 5 October 2018. All members of the team were instructed by the Project Manager regarding the sampling and well installation processes to be adopted. Weather conditions were generally cool to mild and overcast with occasional showers.

### **Q2.2 Sample Collection**

Soil samples were collected directly from the solid flight auger or from hand tools. The QA/QC samples collected during the course of soil sampling comprised the following:

- Collection of a minimum of 10% replicate samples;
- Use of a minimum one trip spike and one trip blank.

### **Q2.3 Logs, Field Sheets and Chain of Custody**

Logs for each soil sampling location were recorded in the field. The individual samples were recorded on the field logs along with the sample identity, location, depth, initials of sampler, replicate locations, replicate type, site observations. Analysis to be performed on each sample and the dispatch courier were recorded on the COC.

### **Q2.4 Sample Splitting Techniques**

Replicate samples were collected in the field as a measure of accuracy, precision and repeatability of the results.

Field replicate samples for soil were collected from the same location and an identical depth to the primary sample. Equal portions of the primary sample were placed into the sampling jars and sealed. The sample was split to prevent the loss of volatiles from the soil but not homogenised in a bowl. Replicate samples were labelled with a DP identification number, recorded on DP's bore logs, so as to conceal their relationship to their primary sample from the analytical laboratory.

## Q2.5 Relative Percentage Difference

A measure of the consistency of results for field samples is derived by the calculation of relative percentage differences (RPDs) for replicate samples. A RPD of 30% is generally considered typically acceptable for inorganic analytes by NSW EPA, although in general a wider RPD range (50%) may be acceptable for organic analytes.

Intra-laboratory replicates were analysed as an internal check of the reproducibility within the primary laboratory (Envirolab) and as a measure of consistency of sampling techniques. A total of nine primary soil samples were analysed to one intra-laboratory soil samples (11%). Therefore, a 10% laboratory replicate analysis requirement was met.

The comparative results of analysis between original and replicate samples are summarised in Table Q2.

**Table Q2: Intra-laboratory Results**

Analyte	Primary Sample [Borehole 101, depth 0.5-0.6 m] Concentration (mg/kg)	Replicate Sample Concentration [BD3/041018] (mg/kg)	Difference (mg/kg)	RPD (%)
arsenic	<4	<4	0	0
cadmium	0.5	<0.4	0.1	22
chromium	4	3	1	29
copper	8	4	4	<b>67</b>
lead	21	18	3	15
mercury	0.2	<0.1	0.1	<b>67</b>
nickel	3	2	1	<b>40</b>
zinc	31	190	159	<b>144</b>
TRH C6-C10	<25	<25	0	0
TRH >C10-C16	<50	<50	0	0
TRH >C16-C34	<100	<100	0	0
TRH >C34-C40	<100	<100	0	0
benzene	<0.2	<0.2	0	0
toluene	<0.5	<0.5	0	0
ethylbenzene	<1	<1	0	0
total xylene	<1	<1	0	0
naphthalene	<1	<1	0	0



Some elevated RPDs (more than 30%) were recorded for metals. These are considered to not be of concern given that:

- The actual concentration differences for copper, mercury and nickel were low (with respect to the PQL);
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater variability can be expected; and
- The samples were from filling which is non-homogeneous in nature.

Overall, the intra-laboratory comparisons indicate that the sampling technique was consistent and repeatable and therefore the results are useable and representative of the conditions encountered.

## Q2.6 Trip Blanks

A laboratory prepared soil trip blank was taken out to the field unopened and subjected to the same preservation methods as the field samples, then analysed for the purposes of determining whether transfer of contaminants into the blank sample had occurred prior to reaching the laboratory. If this is confirmed then there is also a potential for other samples in the batch to have been impacted. The result of the laboratory analysis for the field blank is shown in Table Q3.

**Table Q3: Trip Blank (mg/kg)**

Sample ID	Benzene	Toluene	Ethylbenzene	M + P Xylene	O Xylene
TB	<0.2	<0.5	<1	<2	<1

Levels of analytes were all below detection limits indicating that the potential that significant cross contamination had not occurred during the course of the round trip from the site to the laboratory.

## Q2.7 Trip Spikes

In accordance with the *NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (2011)*, laboratory prepared trip spike results for volatile analytes are included in this report. The purpose of a trip spike is to assess the potential loss of volatile analytes that may have occurred between the time of collection and transfer of the sample to the laboratory. For the current investigation, a trip spike was taken into the field on each day of sampling with BTEX being the volatile assessed.

For soils, laboratory preparation of the trip spike involved putting 1mL of BTEX (using a 1500ppm BTEX trip spike standard) into two jars which are cross referenced and labelled 'trip spike' and 'control'. Both jars were sealed with electrical tape. The trip spike was taken onto site and subject to the same jar storage and transfer as the field samples. The control stayed refrigerated in the laboratory. Following receipt of the trip spike and field samples, the trip spike and corresponding control are both analysed with results of the trip spike being expressed as the % difference from the control sample.

The acceptance limit for trip spikes is 60-140% in difference compared to the control or standard.

A trip spike was taken into the field and dispatched with the batch sampling run. The results of the laboratory analysis for the trip spike are shown in Tables Q4.

**Table Q4: Trip Spike Results – Soils (% Recovery)**

Sample ID	Benzene	Toluene	Ethylbenzene	M + P Xylene	O Xylene
TS	97	96	93	94	93

Results indicate that the percentage loss for BTEX during the trip was minimal and therefore appropriate preservation techniques were employed.

### Q3. LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

#### Q3.1 Holding Times

A review of the laboratory certificates of analysis and chain-of-custody documentation indicated that holding times were met for tested potential contaminants, as summarised in Table Q5.

**Table Q5: Holding Times for Soil**

Analyte	Recommended maximum holding time	Holding time met
Metals: As, Cd, Cr, Cu, Pb, Hg, Ni, Zn	6 months	Yes
TRH C <sub>6</sub> -C <sub>9</sub>	14 days	Yes
TRH C <sub>10</sub> -C <sub>36</sub>	14 days	Yes
BTEX	14 days	Yes
PAH	14 days	Yes
OCP	14 days	Yes
OPP	14 days	Yes
PCB	14 days	Yes
Phenols	14 days	Yes

#### Q3.2 Results of Laboratory QA/QC Procedures

The following QA/QC procedures were conducted by the laboratories. The results are included in the laboratory certificates of analysis.

### **Q3.2.1 Surrogate Spike**

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis to each sample. The recovery result indicates the proportion of the known concentration of the surrogate that is detected during analysis. These results are within acceptance limits as specified by the laboratory, indicating that the extraction technique was effective.

### **Q3.2.2 Reference and Daily Check Sample Results – Laboratory Control Sample (LCS)**

This sample comprises spiking either a standard reference material or a control matrix (such as a blank of sand or water) with a known concentration of specific analytes. The LCS is then analysed and results compared against each other to determine how the laboratory has performed with regard to sample preparation and analytical procedure. LCSs are analysed at a frequency of 1 in 20, with a minimum of one analysed per batch. The laboratory QC for LCS was within the acceptance standards.

### **Q3.2.3 Laboratory Replicate Results**

These are additional portions of a sample which are analysed in exactly the same manner as all other samples. The laboratory acceptance criteria for replicate samples is: in cases where the level is  $<5 \times \text{PQL}$  – any RPD is acceptable; and in cases where the level is  $>5 \times \text{PQL}$  – 0-50% RPD is acceptable. The laboratory QC for laboratory replicate results was within the acceptance standards.

### **Q3.2.4 Laboratory Blank Results**

The laboratory blank, sometimes referred to as the method blank or reagent blank is the sample prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus. This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, it can be determined by processing solvents and reagents in exactly the same manner as for samples. Laboratory blanks are analysed at a frequency of 1 in 20, with a minimum of one per batch. The laboratory QC for method blanks was within the acceptance standards.

### **Q3.2.5 Matrix Spike**

This is a sample replicate prepared by adding a known amount of analyte prior to analysis, and then treated exactly the same as all other samples. The recovery result indicates the proportion of the known concentration of the analyte that is detected during analysis. The laboratory acceptance criteria for matrix spike samples is generally 70-130% for inorganic/metals; and 60-140% for organics; and 10-140% for SVOC and speciated phenols. The laboratory QC for matrix spikes were within the acceptance standards.

#### Q4. QA/QC DATA EVALUATION

Field and laboratory procedures were assessed against the following data quality indicators (DQIs):

- Completeness – a measure of the amount of usable data from a data collection activity;
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
- Precision – a measure of variability or reproducibility of data; and
- Accuracy – a measure of closeness of the data to the ‘true’ value.

The DQIs were assessed as outlined in table Q6.

**Table Q6: DQI assessment**

<b>Data Quality Indicator</b>	<b>Method(s) of Achievement</b>
Completeness	<p>Preparation of borehole logs, sample location plan and chain of custody records.</p> <p>Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.</p> <p>Samples analysed for contaminants of potential concern.</p> <p>Completion of chain of custody (COC) documentation.</p> <p>NATA accredited laboratory results certificates provided by the laboratory.</p> <p>Satisfactory frequency and results for field and laboratory quality control (QC) samples.</p>
Comparability	<p>Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.</p> <p>Experienced samplers used.</p> <p>Use of NATA registered laboratory.</p> <p>Satisfactory results for field and laboratory QC samples.</p>
Representativeness	<p>Target media sampled.</p> <p>Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs.</p> <p>Samples were extracted and analysed for potential contaminants within recommend holding times.</p> <p>Samples were analysed in accordance with the COC.</p>

<b>Data Quality Indicator</b>	<b>Method(s) of Achievement</b>
Precision	Field staff followed standard operating procedures. Acceptable RPD between original samples and replicates. Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures. Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been complied with. As such, it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.