

Appendix N

Contamination Assessment



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Preliminary Site Investigation for Contamination with
Limited Sampling

Proposed Rezoning
73 & 85 Swallow Drive, Erskine Park

Prepared for
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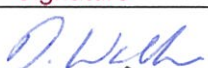
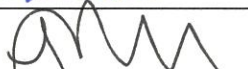
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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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Report on Preliminary Site Investigation for Contamination with Limited Sampling

Proposed Rezoning

73 & 85 Swallow Drive, Erskine Park

1. Introduction

This report presents the results of a Preliminary Site Investigation (PSI) for contamination undertaken for the proposed rezoning at 73 Swallow Drive, Erskine Park and 85 Swallow Drive Erskine Park. The investigation was commissioned by Andrew Moore of Penrith City Council on 27 May 2016 and was undertaken in accordance with Douglas Partners Pty Ltd's (DP's) proposal dated 24 May 2016 (reference: SYD160663). It is understood that Penrith City Council propose to rezone the site from Public Recreation – RE1 to Low Density Residential – R2.

The objectives of this PSI were to:

- Identify potential sources of site contamination and the potential contaminants of concern from historical information;
- Identify potential human and ecological receptors;
- Determine the (preliminary) contamination status of soils at the site from limited sampling; and
- Provide an opinion on the suitability of the site for the proposed rezoning (from a contamination perspective).

2. Scope of Works

The scope of works for the PSI included:

- A review of topography, geology and soils maps;
- A review of NSW Environmental Protection Authority (EPA) registers published under the *Contaminated Land Management Act 1997* (CLM Act) and the *Protection of the Environment Operations Act 1997* (POEO Act);
- A review of registered groundwater bore information held by the Department of Primary Industries;
- A review of the planning certificates and Council records (provided by Council);
- A review of historical title deeds and selected historical aerial photographs;
- A site walkover to observe current site features and assess potential contamination sources and receptors;
- Excavation of eight test pits for the collection of soil samples;
- Screening samples for volatile organic compounds using a photo-ionisation detector (PID);
- Laboratory analysis on selected samples for the following:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc);
- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene and xylene (BTEX);
- Polycyclic aromatic hydrocarbons (PAH);
- Polychlorinated biphenyls (PCB);
- Organochlorine pesticides (OCP);
- Organophosphorus pesticides (OPP);
- Asbestos;
- Cation exchange capacity (CEC);
- pH; and
- Provision of this PSI report.

3. Site Identification and Description

3.1 Site Identification

The site comprises two areas as shown on Drawing 1, Appendix A, including:

- Lot 3280 in Deposited Plan 786811 which has street address 73 Swallow Drive, Erskine Park, NSW. This part of the site covers approximately 4400 m² and is bounded by Swallow Drive to the north, Regulus Street to the west, and residential Lots to the east and south; and
- The eastern part of Lot 3281 in Deposited Plan 786811 which has street address 85 Swallow Drive, Erskine Park, NSW. This part of the site covers approximately 1600 m² and is bounded by the remainder of Lot 3821 to the north-west and residential Lots to the north, east and south.

3.2 Site Description

A site walkover was undertaken by a DP environmental engineer on 2 June 2016.

The park at 73 Swallow Drive is grass covered with some mature trees and has gentle to moderate slopes down to the south east (Photograph 1, Appendix B). The steepest slopes are at the north of the site, adjacent to Swallow Drive. Some shrubs and with small mounds of soil were present alongside the fences at the southern and eastern boundaries of the site (Photograph 2, Appendix B). Fences are not present at the northern and western site boundaries. General litter and some evidence of fly tipping were present on the ground surface (Photograph 3, Appendix B).

The part of the site at 85 Swallow Drive is part of a larger park, is grass covered with some mature trees and has a gentle slope down to the south-east (Photograph 4, Appendix D). Shrubs with small mounds of soil were present alongside the fences at the northern, eastern and southern site boundaries. General litter was present on the ground surface. Evidence of fly tipping (including old, empty tin containers) was also present (Photograph 5, Appendix B).

The surrounding area was used for low density residential purposes as well as a school on the northern side of Swallow Drive.

4. Regional Topography, Geology and Hydrogeology

The site is at an approximate elevation of 70 m AHD. Slopes at and around the site are generally down to the south and east. It is expected that the majority of rainfall at the site would infiltrate soils although some runoff is likely to enter the local stormwater drainage system as stormwater pits are present at both parts of the site. Groundwater at the site is likely to flow to the east in the direction of Ropes Creek which is located approximately 1.1 km to the east.

According to the Penrith 1:100 000 Geology Sheet, the site is underlain by Bringelly Shale which comprises shale, carbonaceous claystone, claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff. According to the Penrith 1:100 000 Soils Landscape Sheet, the natural soil in the vicinity of the site are residual soils formed by weathering of natural rock.

A search of the NSW Department of Primary Industries, Office of Water online database for registered groundwater bores did not reveal any registered groundwater bores within a 500 m radius of the site. The results of the search are shown in Appendix C.

Acid Sulfate Soil Risk Mapping data (1994-1998) supplied by the NSW Department of Environment and Climate Change does not identify the site to be within an area, or close to an area, of an identified risk for acid sulphate soils.

5. Site History

5.1 Historical Aerial Photographs

Historical aerial photographs were obtained from NSW Department of Land and Property Information and are provided in Appendix D. The aerial photographs were reviewed to identify possible past uses and features of the site and surrounding area. The findings are summarised below.

1947: The exact location of the site in the 1947 aerial photograph could not be determined due to the lack of distinguishing land features in the vicinity of the site at that time. It appears, however, that the site was probably part of land used for animal grazing. Tree growth at the site was sparse and some trails were present in the area and may have been the result of livestock or vehicle movements.

1970: As with the 1947 photograph, the exact location of the site in the 1970 aerial photograph could not be determined due to the lack of distinguishing land features in the vicinity of the site at that time. It appears, however, that the site had not significantly changed since 1947 and continued to be used for animal grazing along with surrounding land.

1982: As with the previous aerial photographs, the exact location of the site in the 1982 aerial photograph could not be determined due to the lack of distinguishing land features in the vicinity of the

site at that time. It appears, however, that the site had not significantly changed since 1970 and continued to be used for animal grazing along with surrounding land.

1991: Although the site was undeveloped in 1991, much of the land surrounding the site had been developed since 1982 for low density residential purposes. Swallow Drive and cross streets had been constructed as well as a school to the north. Some trees were present at the site.

2002: The site remained undeveloped in 2002. Some further low density residential development had occurred at land surrounding the site since 1991.

2014: The site and surrounding land in 2014 appears to have remained relatively unchanged since 2002.

5.2 Title Deeds Records

A historical title deeds search was used to obtain ownership or occupancy information for the site, including company names and occupations of individuals. The results of the title deeds search are provided in Appendix E and summarised in Table 1. Possible land uses are also shown and are inferred from the registered proprietors and historical aerial photographs (Section 5.1).

Table 1: Results of Historical Title Deeds Search for Lots 3280 & 3281 in Deposited Plan 786811

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations Where Available	Possible Land Use
27.2.1908 (1908 to 1918)	Bridget Dorahy (Widow) and Henry Sylvester Dorahy (Farmer)	Farming (grazing)
2.12.1918 (1918 to 1927)	Henry Gray Parker Sellen (Auctioneer)	Farming (grazing)
17.5.1927 (1927 to 1931)	John Samuel Edgecombe (Farmer)	Farming (grazing)
13.3.1931 (1931 to 1931)	Susan Robertson (Feme Sole)	Farming (grazing)
30.11.1931 (1931 to 1938)	George Charles Golding (Property Owner)	Farming (grazing)
8.2.1938 (1938 to 1944)	Charles Henry Buckley (Farmer)	Farming (grazing)
8.12.1944 (1944 to 1946)	Leslie Charles Roberts (Dairy Farmer)	Grazing (dairy cows)
23.9.1946 (1946 to 1950)	Bernard Vandyke (Farmer)	Farming (grazing)
6.6.1950 (1950 to 1950)	William Arthur Graetz (Agent)	Farming (grazing)
15.9.1950 (1950 to 1951)	Charles Arthur Speller (Farmer)	Farming (grazing)
4.9.1951 (1951 to 1953)	Sydney Clarence Ward (Farmer)	Farming (grazing)

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations Where Available	Possible Land Use
27.3.1953 (1953 to 1969)	Hugh Heugh MacKillop (Farmer & Grazier) and Frederick Charles MacKillop [Junior] (Farmer & Grazier)	Grazing
4.7.1969 (1969 to 1980)	Austrocom Pty Limited	Farming (grazing)
7.2.1980 (1980 to 2006)	Land Commission of New South Wales, later Land and Housing Corporation, then Landcom	Part of general residential land development at Erskine Park and then a public reserve.
6.6.2006 (2006 to Date)	# Penrith City Council (Dedicated as Public Reserve 23.8.1996)	Public reserve

Notes: # Current registered proprietor

Lease in 1906 to William Taylor (Farmer) which expired in 1910.

5.3 Regulatory Notices Search

The POEO Act public register, maintained by EPA, contains information about environment protection licences and other regulatory information required under the POEO Act. A search of the register on 31 May 2016 revealed no licences or information in regards to the site and neighbouring properties. There were listings for the suburb of Erskine Park relating to the industrial estate located approximately 400 m to the south and the old quarry located approximately 1.5 km to the south-west.

The Contaminated Land Record of Notices, published by NSW EPA, contains a database of:

- Orders made under Part 3 of the CLM Act;
- Approved voluntary management proposals under the CLM Act that have not been fully carried out and where the approval of the NSW EPA has not been revoked;
- Site audit statements provided to the NSW EPA under section 53B of the CLM Act that relate to significantly contaminated land;
- Where practicable, copies of anything formerly required to be part of the public record; and
- Actions taken by EPA under section 35 or 36 of the Environmentally Hazardous Chemicals Act 1985 (EHC Act).

A search of the record on 31 May 2016 did not reveal records pertaining to the suburb of Erskine Park.

The NSW EPA provides a 'List of NSW contaminated sites notified to the EPA' for sites that have been notified to the NSW EPA about contamination under Section 60 of the Contaminated Land Management Act 1997. It should be noted that not all contaminated sites in NSW are listed. A search of the list was conducted on 31 May 2016. The site and neighbouring properties were not on the list. A landfill site at 25-55 Templar Road was listed for the suburb of Erskine Park and is located approximately 1.1 km to the south of the subject site.

5.4 Planning Certificates

Planning certificates under Section 149 of the *Environmental Planning Assessment Act 1979* were obtained for each Lot of the site. A copy of the certificates is provided in Appendix F.

According to the certificates, there is no listed information in relation to matters prescribed by Section 59(2) of the CLM Act.

5.5 Council Records

According to Council records (provided by the client), a Customer Request was submitted in May 2013 for the removal of debris from the park at 73 Swallow Drive. No hazardous items were listed in the Customer Request and it is understood, as there was no details (from Council) of hazardous items found during the removal of the debris, that the debris was likely to be non-hazardous and therefore unlikely to cause contamination.

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 in Table 2. A discussion of previous site uses based on historical findings is discussed in Section 10.1.

Table 2: Potential Sources of Contamination

Potential Source of Contamination (S1)	Contaminants of Concern
Imported contaminated filling used to form/level the site	Various potential contaminants are possible, such as metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); total petroleum hydrocarbons; BTEX, PAH, OCP, OPP, PCB and asbestos.
Fly tipping	Evidence of fly tipping was observed. Asbestos is typically the primary contaminant of concern associated with fly tipping, but others are possible such as those listed above for imported contaminated filling.

6.2 Potential Receptors

Potential receptors of contamination have been identified to include:

- R1 – Future site users (primarily residential occupants);
- R2 – Future construction workers and maintenance workers;
- R3 – Adjacent land users (primarily residential occupants and pedestrians);
- R4 – Surface waters (beyond site boundary);

- R5 – Groundwater;
- R6 – Terrestrial ecology; and
- R7 – In ground building structures.

6.3 Potential Receptors

Potential pathways for contamination to impact receptors include the following:

- P1 – Ingestion and dermal contact with soil;
- 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 of contaminated ground; 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 3.

Table 3: Preliminary Conceptual Site Model

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

7. Field Work, Analysis and QA/QC

7.1 Sample Locations and Rationale

The part of the site at 73 Swallow Drive covers approximately 0.44 ha. According to NSW EPA *Sampling Design Guidelines*, 1995, a minimum of 12 systematic sampling points are required to characterise a site of this size. As the investigation was designed to be preliminary in nature, five sample points (Test Pits 1 to 5) were positioned to provide general coverage of the park (i.e. a sampling density of 42% of the recommended density was utilised).

The part of the site at 85 Swallow Drive covers approximately 0.16 ha. According to NSW EPA, 1995, a minimum of seven systematic sampling points are required to characterise a site of this size. As the investigation was designed to be preliminary in nature, three sample points (Test Pits 6 to 8) were

positioned to provide general coverage of this part of the site (i.e. a sampling density of 43% of the recommended density was utilised).

Sample locations are shown in Drawing 1, Appendix A.

7.2 Soil Sampling Procedures

Prior to commencing sampling, all test pit locations were cleared for underground services. Soil samples were collected from excavator bucket returns or from the sides of the test pit. Soil samples were collected at regular depth intervals and from different stratum. All sampling data was recorded on DP's test pit 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.

Replicate samples were collected in zip-lock bags for volatile screening using a PID as well as analysis for asbestos.

7.3 Analytical Scheme and Rationale

Samples for laboratory analysis, listed in Table 4, were selected based on field observations and the preliminary conceptual site model. The majority of samples selected for analysis were collected from filling as filling (11 samples) was considered to have a generally higher potential for containing contaminants than the underlying natural soils (2 samples). Samples collected from filling observed to contain building materials were selected for analysis for asbestos given that asbestos can sometimes be associated with building rubble.

Table 4: Analytical Scheme

Sample Location	Sample Depth (m)	Sample Type	Metals	TRH & BTEX	PAH	OCP & OPP	PCB	Asbestos
1	0.0-0.2	Filling	√	√	√	√	√	√
2	0.0-0.3	Filling	√	√	√	√	√	√
3	0.0-0.3	Filling	√	√	√			√
BD2-020616	-	Filling	√		√			
3	0.8-0.9	Filling	√	√	√	√	√	√
4	0.0-0.1	Filling	√	√	√	√	√	√
4	0.4-0.5	Natural	√	√	√			

Sample Location	Sample Depth (m)	Sample Type	Metals	TRH & BTEX	PAH	OCP & OPP	PCB	Asbestos
5	0.0-0.2	Filling	√	√	√	√	√	√
5	0.5-0.6	Filling	√	√	√			
6	0.0-0.1	Filling	√	√	√	√	√	√
7	0.0-0.1	Filling	√	√	√	√	√	√
7	0.4-0.5	Natural	√	√	√			
8	0.0-0.1	Filling	√	√	√	√	√	√

Notes: BD2-020616 is blind replicate of sample Test Pit 3, depth 0-0.3 m.

7.4 Quality Assurance and Quality Control

The field QC procedures for sampling were undertaken as prescribed in Douglas Partners' *Field Procedures Manual*. The results of field QA/QC procedures as well as a discussion of Data Quality Objectives (DQO) and Data Quality Indicators (DQI) for the assessment are provided in Appendix H.

The analytical laboratory, accredited by NATA, 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 reports in Appendix I and discussed in Appendix H.

8. Site Assessment Criteria

The Site Assessment Criteria (SAC) applied in the current investigation is 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 CLM 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.

The site is proposed to be rezoned for low density residential use. Therefore, the following SAC have been adopted for this investigation are investigation levels, screening levels and management limits for a generic residential land use that includes gardens or accessible soil (i.e. the 'Residential A' generic land use).

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 HIL are generic to all soil types and apply generally to a depth of 3 m below the surface for residential use.

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 HIL and HSL are considered to be appropriate for the assessment of contamination at the site. HIL A and HSL A have been adopted as the applicable Tier 1 criteria for the proposed residential land use. As soils at the site primarily comprised silty clay, the most conservative HSL for the clay and silt soil types have been adopted. HSL are for the top 1 m of the soil profile which are more conservative than those for greater depths.

The adopted HIL and HSL are shown in Table 5.

Table 5: HIL and HSL for Soil Contaminants

Contaminant	HIL A (mg/kg)	HSL A for vapour intrusion (mg/kg)
Metals and Inorganics		
Arsenic	100	-
Cadmium	20	-
Chromium (VI)	100	-
Copper	6000	-
Lead	300	-
Mercury (inorganic)	40	-
Nickel	400	-
Zinc	7400	-
TRH		
C6 – C10 (less BTEX)	-	40
>C10-C16 (less Naphthalene)	-	230
BTEX		
Benzene	-	0.6
Toluene	-	390
Ethylbenzene	-	NL
Xylenes	-	95
PAHs		
Benzo(a)pyrene TEQ	3	-
Naphthalene	-	4
Total PAHs	300	-
OCP		
DDT+DDE+DDD	240	-
Aldrin + Dieldrin	6	-
Chlordane	50	-
Endosulfan (total)	270	-
Endrin	10	-
Heptachlor	6	-
HCB	10	-
Methoxychlor	300	-
OPP		
Chlorpyrifos	160	-
Other Organics		
PCBs (non dioxin- like PCB only)	1	-

Note: TEQ is Toxic Equivalency Quotient.

NL is 'Not Limiting'. If the derived soil HSL exceeds the soil saturation concentration, a soil vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario. For these scenarios, the HSL is given as NL.

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:

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

The ABC is determined through direct measurement at an appropriate reference site (preferred) or through the use of methods defined by Olszowy et al *Trace element concentrations in soils from rural and urban areas of Australia*, Contaminated Sites monograph no. 4, South Australian Health Commission, Adelaide, Australia 1995 (Olszowy, 1995) or Hamon et al, *Geochemical indices allow estimation of heavy metal background concentrations in soils*, Global Biogeochemical Cycles, vol. 18, GB1014, (Hamon, 2004). ACL is based on the soil characteristics of pH, CEC and clay content.

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. An *Interactive (Excel) Calculation Spreadsheet* may be used for calculating site-specific EIL for these contaminants, and has been provided in the ASC NEPM Toolbox available on the SCEW (Standing Council on Environment and Water) website (<http://www.scew.gov.au/node/941>).

The adopted EIL, from using the *Interactive (Excel) Calculation Spreadsheet*, are shown in Table 6. EIL for a residential land use scenario have been adopted. The following site specific data and assumptions have been used to determine the EILs:

- The EILs apply to the top 2 m of the soil profile;
- Given the likely source of soil contaminants (i.e. previous filling) the contamination is considered as “aged” (>2 years);
- ABCs have been derived using the *Interactive (Excel) Calculation Spreadsheet* using input parameters of NSW for the State in which the site is located, and low for traffic volumes;
- A pH of 5.5 has been used as an input value based on site specific data. This input value is conservative as it is equal to the two lowest pH values of the four analysed filling samples which had pH values of 6.5, 7.2, 5.5 and 5.5 (see laboratory certificate 147895, Appendix I);
- A CEC of 11 cmol/kg has been used as an input value based on site specific data. This input value is conservative as it is the lower value for the two analysed filling samples which had CEC values of 11 cmol/kg and 13 cmol/kg (see laboratory certificate 147895, Appendix I); and
- In the absence of site specific data, a conservative clay content value of 10% and a conservative organic carbon content value of 0.5% have been used.

Table 6: Ecological Investigation Levels (EIL)

Analyte		EIL – Urban Residential (mg/kg)
Metals	Arsenic	100
	Copper	85
	Nickel	180
	Chromium III	410
	Lead	1100
	Zinc	350
PAH	Naphthalene	170
OCP	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 apply to the top 2 m of the soil profile as for EIL.

ESL have been derived in NEPC (2013) for petroleum fractions F1 to F4 as well as BTEX and benzo(a)pyrene. The adopted ESL, from Table 1B(6), Schedule B1 of NEPC (2013) are shown in Table 7 and are for an urban residential land use scenario. ESL for fine grained soils have been adopted as soils at the site are predominately fine grained (silts and clays).

Table 7: Ecological Screening Levels (ESL)

Analyte		ESL – Urban Residential (mg/kg)
TRH	C6 – C10 [F1] (less BTEX)	180*
	>C10-C16 [F2]	120*
	>C16-C34 [F3]	1300
	>C34-C40 [F4]	5600
BTEX	Benzene	65
	Toluene	105
	Ethylbenzene	125
	Xylenes	45
PAH	Benzo(a)pyrene	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 HSLs and ESLs, 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, from Table 1B(7), Schedule B1 of NEPC (2013) are shown in Table 8. The following site specific data and assumptions have been used to determine the Management Limits:

- The Management Limits will apply to any depth within the soil profile;
- The Management Limits for a residential land use scenario applies; and
- The Management Limits for fine textured soils has been adopted as the soil types encountered were primarily fine grained (silts and clays).

Table 8: Management Limits

Analyte	Management Limit – Residential (mg/kg)
TRH C ₆ – C ₁₀	800
TRH >C ₁₀ -C ₁₆	1000
TRH >C ₁₆ -C ₃₄	3500
TRH >C ₃₄ -C ₄₀	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 and Analytical Results

9.1 Field Observations and Results

Test pits for soil sampling were excavated on 2 June 2016. Test pit logs are provided in Appendix G.

At 73 Swallow Drive, observed filling depths and material types were variable and are summarised as follows:

- At Test Pit 1, brown silty clay filling with a trace of gravel and roots (and a piece of concrete) was observed to a depth of 0.25 m;
- At Test Pit 2, brown silty clay filling with a trace of roots, gravel, cobbles, brick, tile, metal, plastic, timber, glass and concrete was observed to a depth of 0.45 m;
- At Test Pit 3, brown silty clay filling with a trace of sandstone fragments, brick and metal to a depth of 0.45 m was underlain by brown silty clay filling to a depth of 0.7 m, then brown silty clay filling with a trace of bricks, timber, concrete pieces and plastic to a depth of greater than 0.9 m;
- At Test Pit 4, brown sandy, silty clay filling with a trace of gravel and rootlets was observed to a depth of 0.15 m; and
- At Test Pit 5, brown silty clay filling with some sand and boulder sized concrete and a trace of rootlets, cobbles, gravel and brick to a depth of 0.35 m was underlain by brown silty clay filling with a trace of cobbles to a depth of 0.7 m.

Natural soil was not encountered at Test Pit 3 as a layer of boulder sized concrete fragments was encountered at a depth of 0.9 m and could not be penetrated by the excavator bucket, even after lengthening the test pit. Natural red-brown mottled grey silty clay was encountered beneath filling at the other test pits (Test Pits 1, 2, 4 and 5).

At 85 Swallow Drive, each test pit (Test Pits 6, 7 and 8) was observed to have a thin layer (up to 0.2 m thick) of brown silty clay filling underlain by natural brown or red-brown mottled grey silty clay. No anthropogenic materials were observed in the filling which was noted as possibly natural soil or possibly reworked natural soil.

Possible ACM was not observed in any of the test pits, despite the presence of building rubble (which can sometimes be associated with ACM) observed in filling at some sampling locations at 73 Swallow Drive.

Free groundwater was not observed in any of the test pits.

No odours were noted whilst sampling. Replicate soil samples collected in plastic zip lock bags were allowed to equilibrate under ambient temperatures before screening for Total Photo-ionisable Compounds (TOPIC) using a calibrated photo-ionisation detector (PID). The PID readings, as shown in the test pit logs in Appendix G, were all <1 ppm indicating a low potential for volatile compounds.

9.2 Laboratory Results

The laboratory certificate of analysis is provided in Appendix I. A summary of results compared to the SAC is shown in Table 9.

Table 9: Summary of Results of Soil Analysis (All results in mg/kg unless otherwise stated)

Sample Location (Test Pit) or Sample ID	Sample Depth (m)	Sample Type	Metals								Polycyclic Aromatic Hydrocarbons				Petroleum Hydrocarbons										Organochlorine Pesticides										Organophosphorus Pesticides	PCBs (total)	Asbestos (detected 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	Chlorpyriphos				
1	0.0-0.2	Filling	7	<0.4	18	14	19	<0.1	8	30	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD	
2	0.0-0.3	Filling	7	<0.4	17	19	16	<0.1	9	30	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD	
3	0.0-0.3	Filling	5	<0.4	11	20	13	<0.1	10	34	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	NAD	
BD2-020616	-	Filling	<4	<0.4	5	18	9	<0.1	4	20	<0.05	<0.5	<0.1	NIL (+)VE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3	0.8-0.9	Filling	8	0.7	21	17	28	<0.1	7	120	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD	
4	0.0-0.1	Filling	<4	<0.4	9	7	10	<0.1	4	24	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD		
4	0.4-0.5	Natural	7	<0.4	14	19	14	<0.1	6	23	<0.05	<0.5	<0.1	NIL (+)VE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
5	0.0-0.2	Filling	<4	<0.4	8	8	8	<0.1	13	19	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD		
5	0.5-0.6	Filling	6	<0.4	15	7	14	<0.1	2	10	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	0.0-0.1	Filling	7	0.5	21	7	15	<0.1	4	13	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD		
7	0.0-0.1	Filling	8	<0.4	14	12	12	<0.1	4	17	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD		
7	0.4-0.5	Natural	<4	<0.4	13	11	10	<0.1	2	10	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	0.0-0.1	Filling	7	<0.4	15	12	13	<0.1	3	14	<0.05	<0.5	<0.1	NIL (+)VE	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.1	<0.3	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.7	NAD		
8 - TRIPLICATE	0.0-0.1	Filling	8	<0.4	11	11	10	<0.1	3	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Site Assessment Criteria																																						
Health Investigation Levels (HIL A)			100	20	100	6000	300	40	400	7400	-	3	-	300	-	-	-	-	-	-	-	-	-	-	-	240	6	50	270	10	6	10	300	160	1	-		
Health Screening Levels for Vapour Intrusion (HSL A)			-	-	-	-	-	-	-	-	-	-	4	-	40	230	-	-	-	-	0.6	390	NL	95	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ecological Investigation Levels (EIL - Residential)			100	-	410	85	1100	-	180	350	-	-	170	-	-	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	
Ecological Screening Levels (ESL - Residential)			-	-	-	-	-	-	-	-	0.7	-	-	-	180	-	-	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-	-	-	-	-	-	
Management Limit			-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	1000	3500	10000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Adopted Screening Level			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AD	

Notes
NAD No asbestos detected at limit of reporting (0.1g/kg)
BD2-020616 is blind replicate of sample from Test Pit 3, depth 0 - 0.3 m
8 - TRIPLICATE is laboratory triplicate of sample from Test Pit 8, depth 0-0.1 m
- Not tested / Not applicable
TEQ Toxicity Equivalent Quotient

10. Discussion of Results

10.1 Site History

Although the site has not been subject to building works (according to historical aerial photographs), some disturbance of the site was likely during development of the surrounding area during the 1980s when the surrounding land transitioned from being used for grazing to being used for low density residential purposes as well as roadways. Filling may have been imported and used to form the site for use as parkland. Fly tipping has likely occurred at the site during its use as parkland.

10.2 Analytical Results for Soil

Concentrations of metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) were within the respective HIL and EIL.

Concentrations of TRH, PAH, OCP, OPP and PCB were below the practical quantitation limits and, hence, within the respective HIL, HSL, EIL, ESL and Management Limits.

Despite the presence of building rubble in filling at some test locations, asbestos was not detected at the laboratory's limit of reporting (0.1g/kg) and was not observed during the site walkover or whilst sampling.

11. Conclusion

Based on results and findings of the investigation, it is considered that the site is suitable for the proposed rezoning. It is noted, however, that significant building rubble was present in the filling at 73 Swallow Drive, Erskine Park, and may be indicative of possible (unidentified) contamination. Therefore, further investigation to characterise the filling at this part of the site should be undertaken to confirm (or otherwise) that this component of the site is suitable from a contamination perspective before development of the land.

12. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project at 73 and 85 Swallow Drive, Erskine Park NSW in accordance with DP's proposal dated 24 May 2016. This report is provided for the exclusive use of Penrith City Council 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. It is therefore considered possible that HBM, including asbestos, may be present in 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.

Douglas Partners Pty Ltd

Appendix A

Drawing

Appendix B


Site Photographs



Photograph 1 - Park at 73 Swallow Drive



Photograph 2 - Shrubs on mounded soil at south-eastern corner of park at 73 Swallow Drive


	Site Photographs		PROJECT: 85512
	Proposed Rezoning		PLATE No: 1
	73 & 85 Swallow Drive, Erskine Park		REV: A
	CLIENT: Penrith City Council		DATE: 3-Jun-16



Photograph 3 - Evidence of fly tipping at 73 Swallow Drive




Photograph 4 - Park at 85 Swallow Drive

	Site Photographs		PROJECT:	85512
	Proposed Rezoning		PLATE No:	2
	73 & 85 Swallow Drive, Erskine Park		REV:	A
	CLIENT: Penrith City Council		DATE:	3-Jun-16



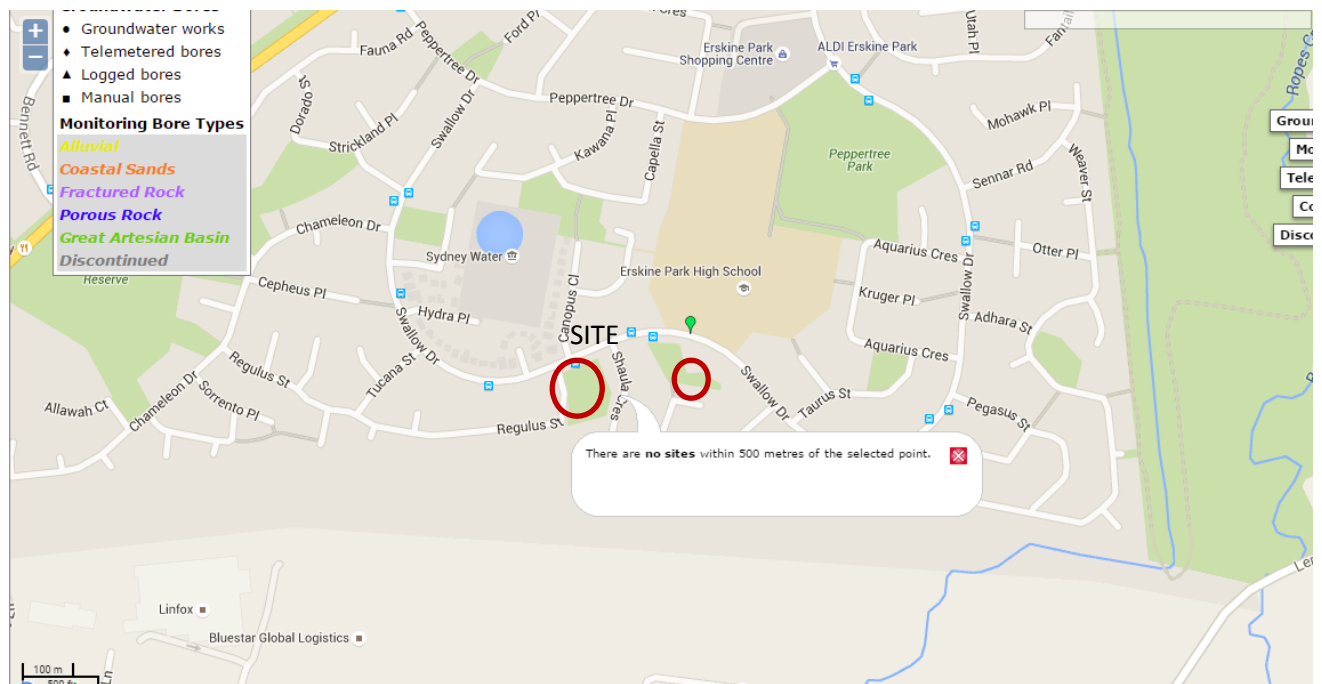
Photograph 5 - Evidence of fly tipping at 73 Swallow Drive

	Site Photographs	PROJECT: 85512
	Proposed Rezoning	PLATE No: 3
	73 & 85 Swallow Drive, Erskine Park	REV: A
	CLIENT: Penrith City Council	DATE: 3-Jun-16

Appendix C

Results of Registered Groundwater Bore Search

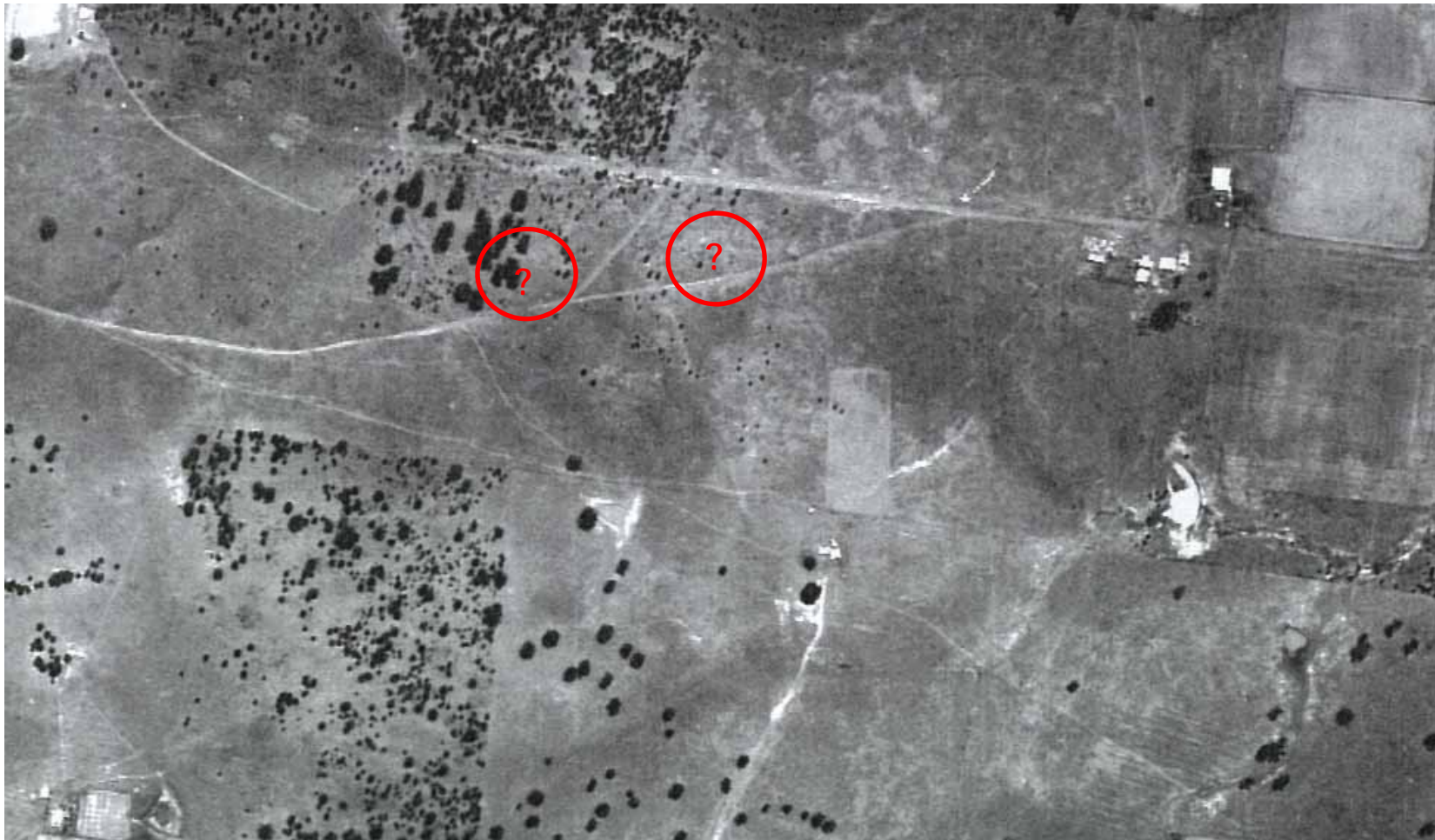
Results of Registered Groundwater Bore Search (31/5/2016)



Source: <http://allwaterdata.water.nsw.gov.au/water.stm>

Appendix D

Historical Aerial Photographs



Legend

— Approximate Site Location

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

1947 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 1

REVISION: A



Legend

— Approximate Site Location

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

1970 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 2

REVISION: A



Legend

— Approximate Site Location

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

1982 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 3

REVISION: A



Legend

— Approximate Site Boundary

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

1991 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 4

REVISION: A



Legend

— Approximate Site Boundary

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

2002 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 5

REVISION: A



Legend

— Approximate Site Boundary

↑ N



CLIENT: Penrith City Council

OFFICE: Sydney

DATE: 30 May 2016

2014 Aerial Photograph

Preliminary Site Investigation

73 & 85 Swallow Drive, Erskine Park

PROJECT No: 85512

PLATE No: 6

REVISION: A

Appendix E

Historical Title Deeds

ABN: 42 166 543 255
Ph: 02 9099 7400
Fax: 02 9232 7141
(Ph: 0412 199 304)

Level 14, 135 King Street
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LPI

Sydney

Address: - 73 & 85 Swallow Drive, Erskine Park

Description: - Lots 3280 & 3281 DP786811

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
27.2.1908 (1908 to 1918)	Bridget Dorahy (Widow) and Henry Sylvester Dorahy (Farmer)	Vol 1853 Fol 238
2.12.1918 (1918 to 1927)	Henry Gray Parker Sellen (Auctioneer)	Vol 1853 Fol 238
17.5.1927 (1927 to 1931)	John Samuel Edgecombe (Farmer)	Vol 1853 Fol 238
13.3.1931 (1931 to 1931)	Susan Robertson (Feme Sole)	Vol 1853 Fol 238
30.11.1931 (1931 to 1938)	George Charles Golding (Property Owner)	Vol 1853 Fol 238
8.2.1938 (1938 to 1944)	Charles Henry Buckley (Farmer)	Vol 1853 Fol 238
8.12.1944 (1944 to 1946)	Leslie Charles Roberts (Dairy Farmer)	Vol 1853 Fol 238
23.9.1946 (1946 to 1950)	Bernard Vandyke (Farmer)	Vol 1853 Fol 238 then Vol 5636 Fol 111
6.6.1950 (1950 to 1950)	William Arthur Graetz (Agent)	Vol 5636 Fol 111
15.9.1950 (1950 to 1951)	Charles Arthur Speller (Farmer)	Vol 5636 Fol 111
4.9.1951 (1951 to 1953)	Sydney Clarence Ward (Farmer)	Vol 5636 Fol 111
27.3.1953 (1953 to 1969)	Hugh Heugh MacKillop (Farmer & Grazier) and Frederick Charles MacKillop [Junior] (Farmer & Grazier)	Vol 5636 Fol 111 then Vol 6657 Fols 89 & 90, Vol 8420 Fols 76 & 77 and Vol 9918 Fols 55A & 55B later Vol 10312 Fol 133

Continued on Page 2

ABN: 42 166 543 255
Ph: 02 9099 7400
Fax: 02 9232 7141
(Ph: 0412 199 304)

Level 14, 135 King Street
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
4.7.1969 (1969 to 1980)	Austrocom Pty Limited	Vol 10312 Fol 133 then Vol 13443 Fol 54 later Vol 13974 Fol 185
7.2.1980 (1980 to 2006)	Land Commission of New South Wales later Land and Housing Corporation then Landcom	Vol 13974 Fol 185 then Folio 1115/709078 and Folio 2179/776426 now Folio 3280/786811 and Folio 3281/786811
6.6.2006 (2006 to Date)	# Penrith City Council (Dedicated as Public Reserve 23.8.1996)	Folio 3280/786811 and Folio 3281/786811

Denotes Current Registered Proprietor

Easements: - NIL

Leases: -

- 1906 to William Taylor (Farmer) – expired 1910

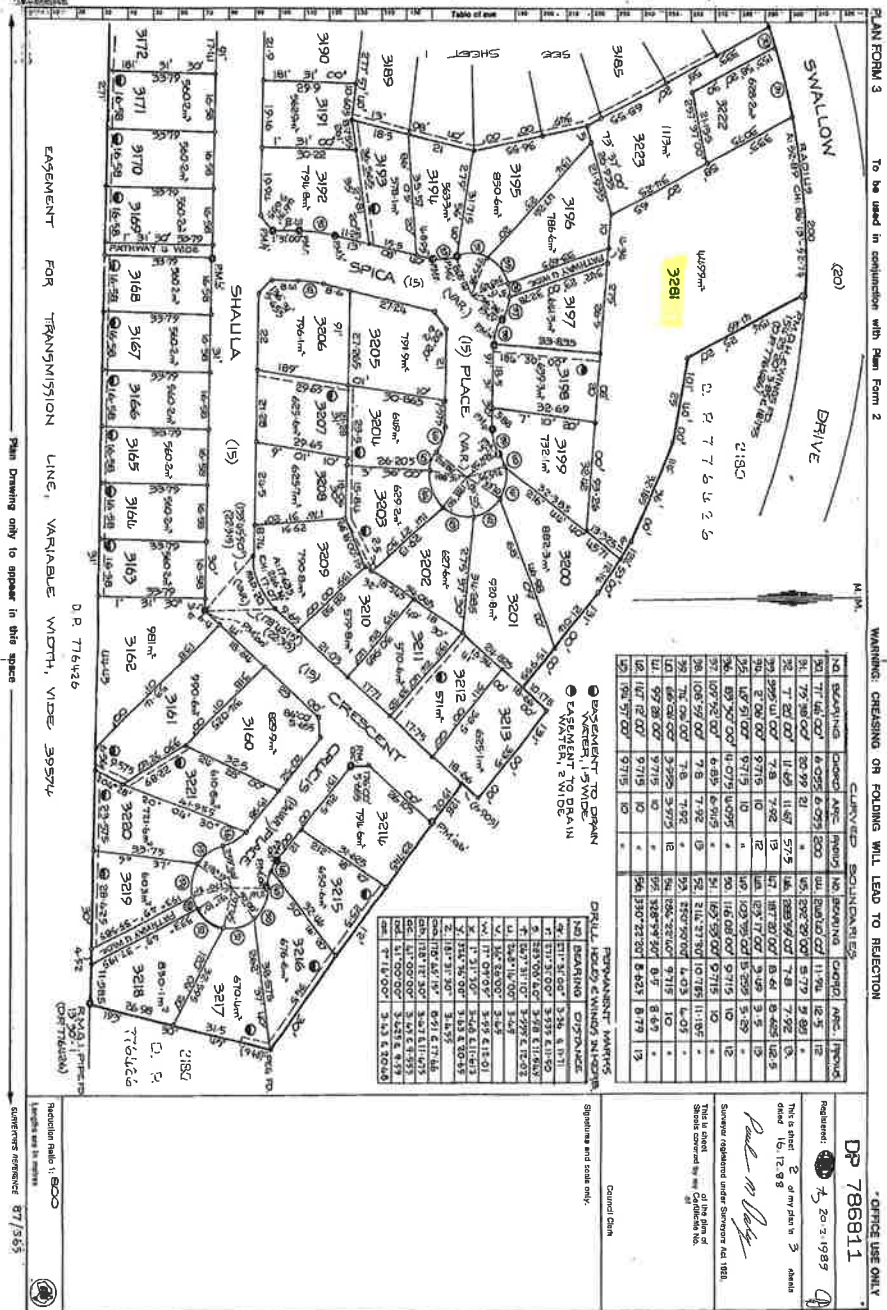
Peter Boyer
31 May 2016

[illegible]

2

10 20 30 40 50 60 70 Table of mm 110 120 130 140

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day 22nd February, 1992.



45

PLAN FORM 2

SIGNED BY ME IAN HAROLD MATTHEWS
DELEGATE OF THE LAND AND HOUSING
CORPORATION AND I HEREBY CERTIFY
THAT I HAVE NO NOTICE OF THE
REVOCATION OF SUCH DELEGATION.

IAN HAROLD MATTHEWS

1. Subdivision and sale only.

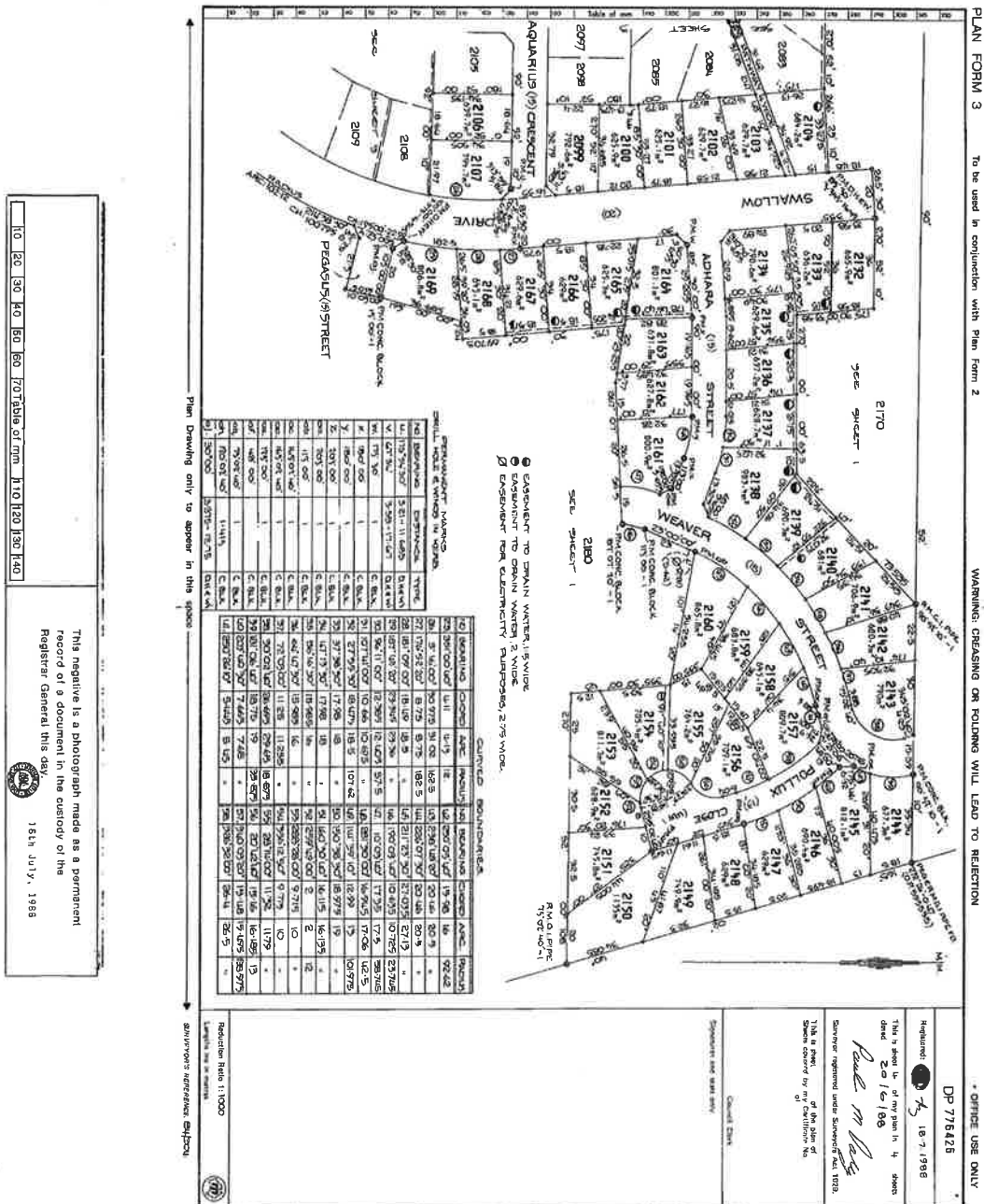
2. This form is to be used for the subdivision of land into lots, blocks, or sections, and for the sale of such land.

3. This form is to be used for the subdivision of land into lots, blocks, or sections, and for the sale of such land.

PERMANENT MARKS (SHOW LOCATIONS AND TYPES IN REVERSE OF THIS SHEET)

NO.	DESCRIPTION	NO.	DESCRIPTION
1	10' x 10' x 10' x 10'	1	10' x 10' x 10' x 10'
2	10' x 10' x 10' x 10'	2	10' x 10' x 10' x 10'
3	10' x 10' x 10' x 10'	3	10' x 10' x 10' x 10'
4	10' x 10' x 10' x 10'	4	10' x 10' x 10' x 10'
5	10' x 10' x 10' x 10'	5	10' x 10' x 10' x 10'
6	10' x 10' x 10' x 10'	6	10' x 10' x 10' x 10'
7	10' x 10' x 10' x 10'	7	10' x 10' x 10' x 10'
8	10' x 10' x 10' x 10'	8	10' x 10' x 10' x 10'
9	10' x 10' x 10' x 10'	9	10' x 10' x 10' x 10'
10	10' x 10' x 10' x 10'	10	10' x 10' x 10' x 10'
11	10' x 10' x 10' x 10'	11	10' x 10' x 10' x 10'
12	10' x 10' x 10' x 10'	12	10' x 10' x 10' x 10'
13	10' x 10' x 10' x 10'	13	10' x 10' x 10' x 10'
14	10' x 10' x 10' x 10'	14	10' x 10' x 10' x 10'
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55	10' x 10' x 10' x 10'	55	

[illegible]



NEW SOUTH WALES

Application No. 14321

Prior Title Vol. 8420 Fol. 76

CERTIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.



Vol. **9918** Fol. **55 A**

1st Edition issued 3-2-1965

IT J833685

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.

Witness

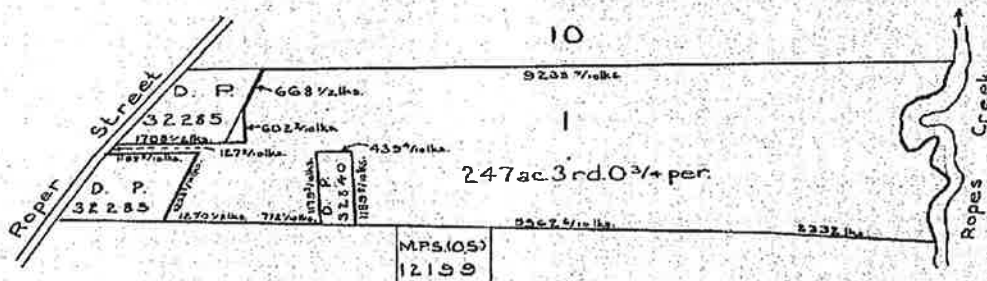
[Signature]

[Signature]
Registrar General.



PLAN SHOWING LOCATION OF LAND

CANCELLED



J833685 *[Signature]*

Scale: 20 chains to one inch.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in an undivided one half share in Lot 1 in Deposited Plan 513139 in the City of Penrith Parish of Melville and County of Cumberland being part of Portion 44 granted to James Erskine on 8-5-1818.

[Signature]
Registrar General.

FIRST SCHEDULE (continued overleaf)

HUGH HEUGH MACKILLOP of St. Mary's, Farmer and Grazier.

[Signature]
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Mortgage No. F830841 to Australia and New Zealand Bank Limited. Entered 4-5-1953.

[Signature]
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

9918 Vol. 55 A

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR		INSTRUMENT		ENTERED		SIGNATURE OF REGISTRAR GENERAL	
NATURE	NUMBER	DATE	ENTERED	SIGNATURE OF REGISTRAR GENERAL	ENTERED	SIGNATURE OF REGISTRAR GENERAL	
<p>This deed is entered as to <u>He Wille</u></p> <p>New Certificates of Title have issued for lots in</p> <p><u>Lot 10, Plan No. 22915</u> as follows:</p> <p><u>Lot 10, Plan No. 22915</u> Vol. 10312, Fol. 12113 respectively</p> <p><u>ed 11/11/12</u> issued 12.5.1966</p> <p><i>Jonathan</i></p> <p></p>							

SECOND SCHEDULE (continued)

INSTRUMENT		PARTICULARS		ENTERED		SIGNATURE OF REGISTRAR GENERAL		CANCELLATION	
NATURE	NUMBER	DATE	ENTERED	SIGNATURE OF REGISTRAR GENERAL	ENTERED	SIGNATURE OF REGISTRAR GENERAL	ENTERED	SIGNATURE OF REGISTRAR GENERAL	
	K 316554		Interest created pursuant to Section 888 Conveyancing Act, 1919, by the registration of Deposited Plan 22915	5.5.1966	<i>Jonathan</i>				

FORM No. 62

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

CANCELLED

TORRENS TITLE
Register Book

NEW SOUTH WALES

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

Application No. 14321
Prior Title Vol. 8420 Fol. 77



Vol. 9918 Fol. 55B

1st Edition issued 3-2-1965

IT J833685

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.

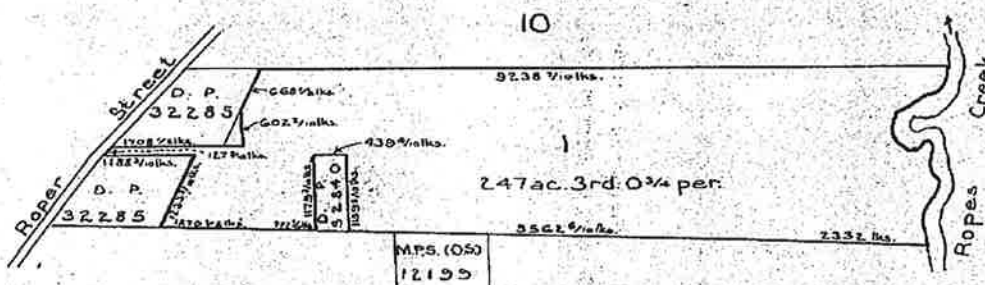
Witness

[Signature]

[Signature]
Registrar General.



PLAN SHOWING LOCATION OF LAND



J833685

Scale: 20 chains to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in an undivided one half share in Lot 1 in Deposited Plan 513139 in the City of Penrith Parish of Melville and County of Cumberland being part of Portion 44 granted to James Erskine on 8-5-1818.

[Signature]
Registrar General.

FIRST SCHEDULE (continued overleaf)

FREDERICK CHARLES MACKILLOP Junior of St. Mary's, Farmer and Grazier.

[Signature]
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Mortgage No. F830841 to Australia and New Zealand Bank Limited. Entered 4-5-1953.

[Signature]
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.

100

REGISTERED PROPRIETOR

This deed is cancelled as to *the whole*

Now—Certificates of Title—issued—for sale—

dwivedi / Plan No. 229/5th as follows:-

Vol. 103/2, 103/3 respectively.

ed 1710p 1550d. 12.5.1961

REGISTRAR GENERAL

**SECOND SCHEDULE (continued)**[illegible]

FORM No. 62

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

Reg: R7944486 / Doc: CT 09918-055 CT / Rev: 14-Jan-2011 / Sls: OK, SC / Pgs: ALL / Ptn: 30-May-2016 15:34 / Seq: 4 of 4



10312133

NEW SOUTH WALES

Applications Nos.14321 and 40942

Prior Titles Vol.8450 Fols.108 and 109
Vol.9918 Fol. 55

CIFICATE OF TITLE

ERTY ACT, 1900, as amended.



MA

Vol. 10312 Fol. 133

Edition issued 12-5-1966

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.

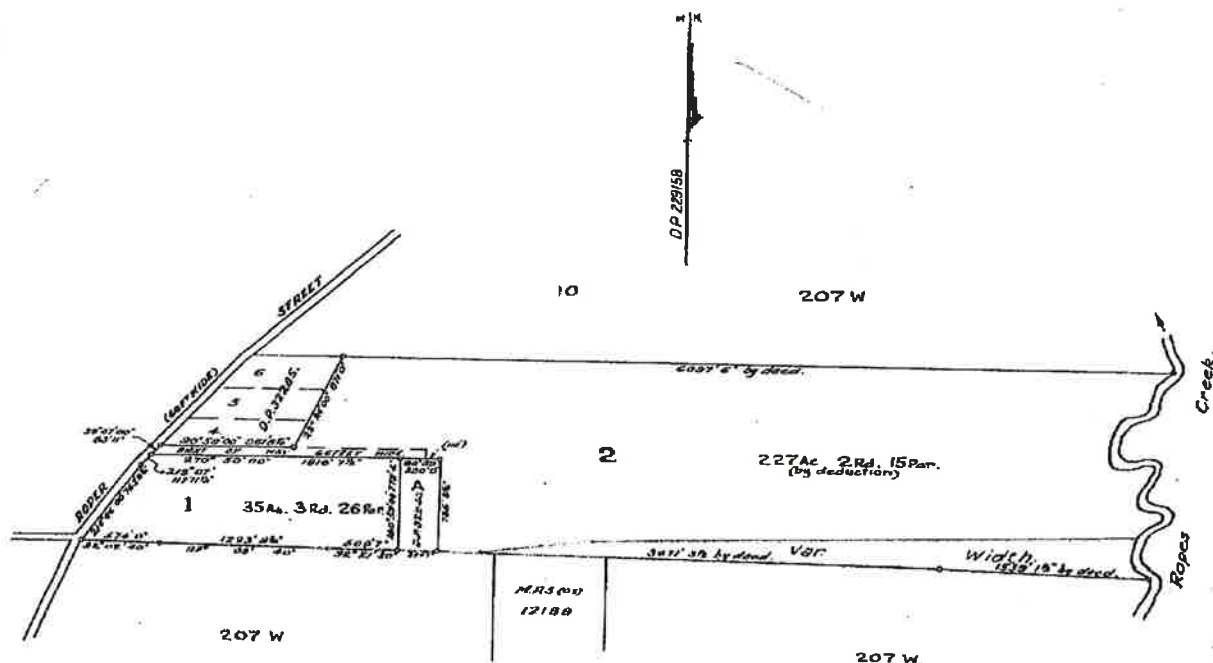
Witness

J. Charles

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 229158 at St.Marys in the City of Penrith Parish of Melville and County of Cumberland being part of Portion 44 granted to James Erskine on 8-5-1818.

FIRST SCHEDULE (continued overleaf)

~~HUGH HEUGH MACKILLOP and FREDERICK CHARLES MACKILLOP, both of St.Marys, Farmers and Graziers, as Tenants in Common in equal shares~~

Jawatson
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Mortgage No. F830841 of that part of the land above described formerly comprised in Certificates of Title Volumes 9918 Folios 55A and 55B to Australia and New Zealand Bank Limited. Entered 4-9-1953 Discharged 14 80897
3. Right of Way affecting the part of the land above described shown in plan hereon as right of way 66 feet wide created by the registration of Deposited Plan 229158. See K316554.

Jawatson
Registrar General.

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

[illegible]**SECOND SCHEDULE (continued)**

SECOND SCHEDULE (continued)						
INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION	
NUMBER	DATE					
Transfer	L37571	1-5-1968				
		Exempt for transmission fine (as more fully set out in the said instrument) affecting that part of the land within described above as "X" with "in the plan" (see South corner of mortgage)				
Consent	222315	3-10-1968	18-6-1968	Jackson		
Mortgage	4450900	30-5-1968	4-7-1968	Jackson	Withdrawn	4450908
		to Hugh Hugh Macdonald and Joseph Charles Macdonald, both of St. Mary's College, and				
		James Macdonald, both of St. Mary's College, and				
		to Hugh Hugh Macdonald and Joseph Charles Macdonald, both of St. Mary's College, and				
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		James Macdonald, both of St. Mary's College, and				

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

Ref: Erskine park /Src: M

NEW SOUTH WALES

CERTIFICATE OF TITLE

PROPERTY ACT, 1900



13443054

Appln. Nos. 14321 & 40942

Vol. **13443** Fol. **54**

Prior Title Vol. 10312 Fol. 133

EDITION ISSUED

20 9 1977



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.

[Signature]

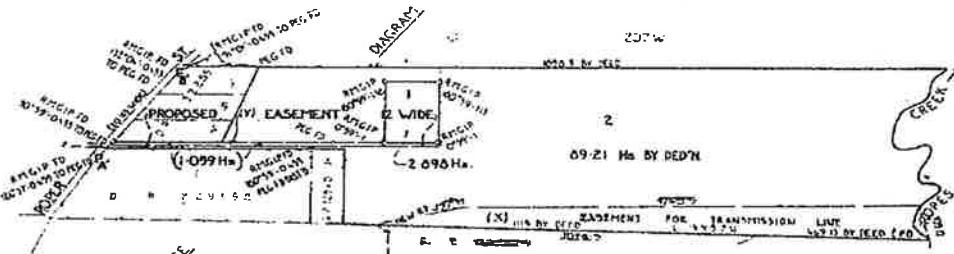
Registrar General.



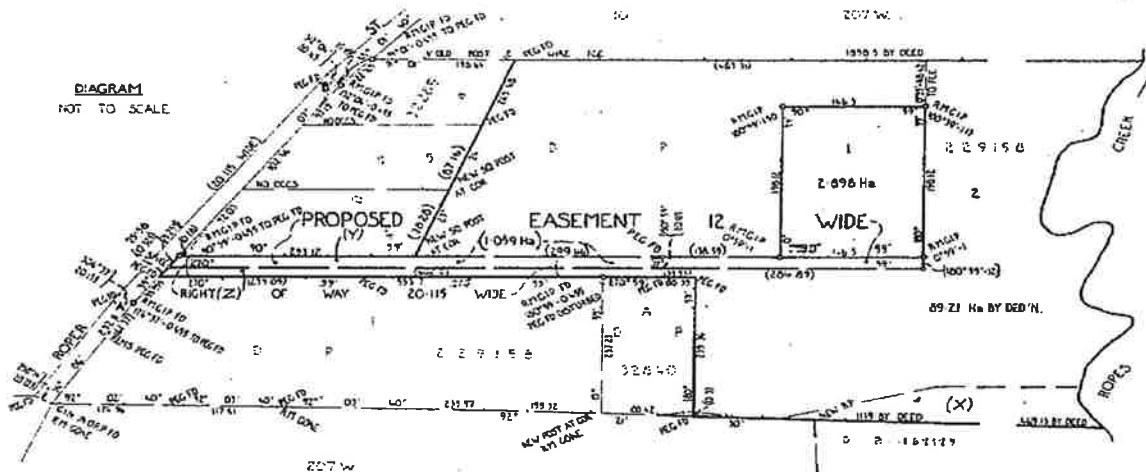
PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

CANCELLED



NOTE: SURVEY ONLY AS REGARDS LOT 1 & PROPOSED EASEMENT. LOT 2 COMPILED FROM D.P. 229158. EASEMENT FOR TRANSMISSION LINE COMPILED FROM L. 99974.



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 578786 at St. Marys in the City of Penrith Parish of Melville and County of Cumberland being part of Portion 44 granted to James Erskine on 8-5-1818.

FIRST SCHEDULE

AUSTROCON LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Right of Way affecting the land designated (Y) in the plan hereon created by the registration of Deposited Plan 229158. See K316554.
3. L39574 Easement for Transmission Line affecting the land designated (Z) in the plan hereon.
4. P614917 Easement for Water Supply affecting the land designated (X) in the plan hereon.

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

New South Wales Planning and Environment Commission of Sept 21 in A. 545535 and
 next even. My limited knowledge of the residue being left 545535 on 11.5.545535.

Transfer

7579889

1


17-10-177

AB

05445014
Pg 747
275/178
087788976

Q327752T
Lot 22 of 5955

SECOND SCHEDULE (continued)

SECOND SCHEDULE (continued)					
INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
NATURE	NUMBER				
		<p>This deed is cancelled as to <u>the whole</u></p> <p>New Certificates of Title have issued on <u>18-10-1979</u></p> <p>for lots in <u>Deposited</u> Plan No. <u>545535</u> as follows:-</p> <p><u>lots 21 & 22 Vol 13974</u> <u>1-1-1894/85</u> respectively.</p> <p style="text-align: center;"> REGISTRAR GENERAL</p>			
	</				

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

CERTIFICATE OF TITLE

PROPERTY ACT, 1900



NEW SOUTH WALES

Appln. Nos.14321 & 40942

Prior Title Vol.13443 Fol.54

Vol. 13974 Fol. 185



EDITION ISSUED

31 10 1979

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.

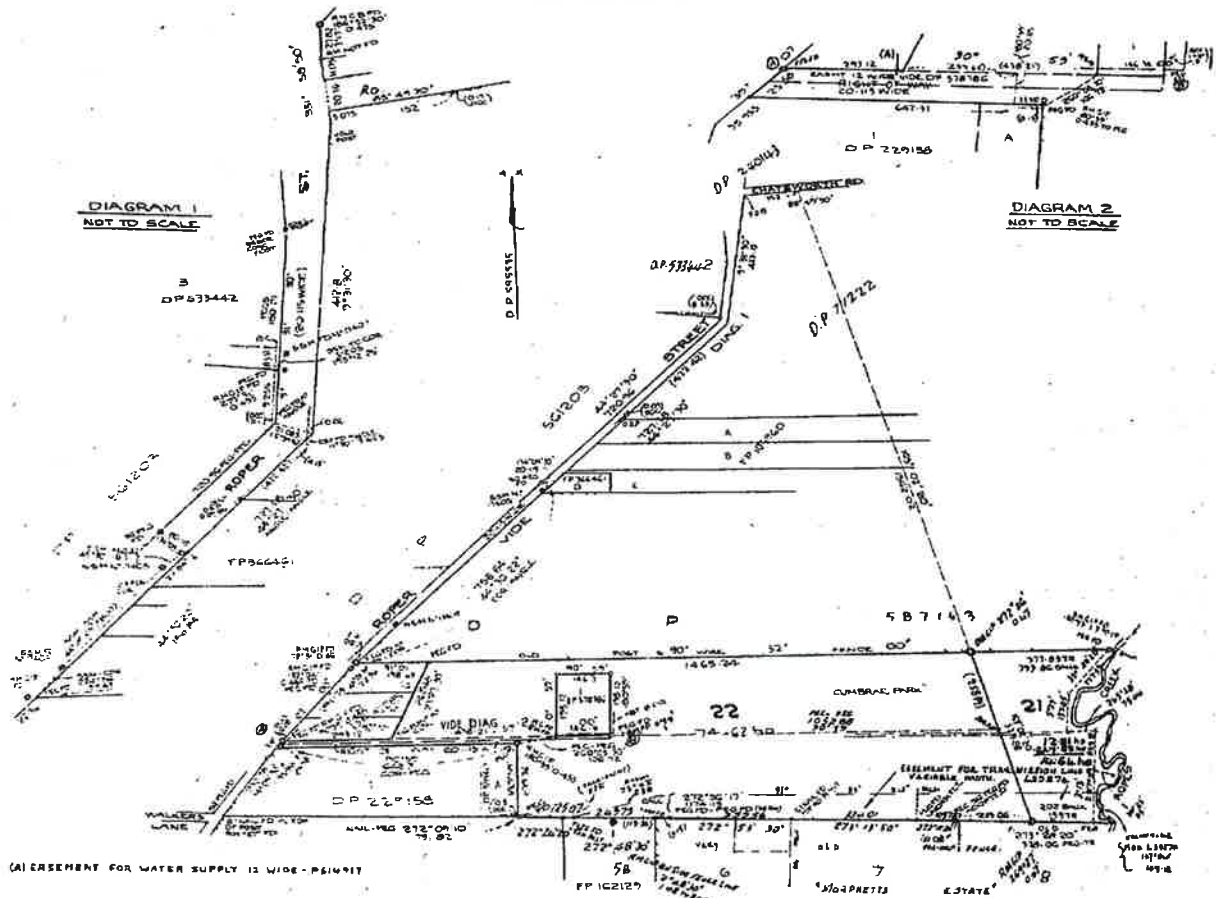
[Signature]
 Registrar General.



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

CANCELLED



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 22 in Deposited Plan 595535 at St.Marys in the City of Penrith Parish of Melville and County of Cumberland being part of Portion 44 granted to James Erskine on 8-5-1818.

FIRST SCHEDULE

AUSTROCOM PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. K316554 Right of way affecting the land shown so burdened in Deposited Plan 595535.
3. L39574 Easement for transmission line affecting the part of the land above described shown so burdened in Deposited Plan 595535.
4. P614917 Easement for water supply affecting the land shown so burdened in Deposited Plan 595535.

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 REGISTRAR GENERAL'S OFFICE.

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT		REGISTERED	Signature of Registrar General
	NATURE	NUMBER		
Land Commission of New South Wales	Transfer	R227152	7-2-1980	<i>[Signature]</i>
DP 709078 Registered 17-12-1984				
This folio is cancelled as to whole from open c/o				
of cemetery folios for lots 1001 to 1115 and in 2				
shewmentioned plan.				
<i>[Signature]</i>				
Registrar General				

SECOND SCHEDULE (continued)

INSTRUMENT		PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION
NATURE	NUMBER				
		Interest created pursuant to Section 88B Conveyancing Act, 1919, by the registration of DP 709078 Registered 17-12-1984   By Order Signed V433117 Application. The registered proprietor holds subject to Section 14 of the Land Commission Act, 1976, as regards Lots 1001 to 1104 inclusive in DP709078. Registered 18-12-1984. 			
		The residue of land in this folio comprises of DP 709078  REGISTRAR GENERAL 			

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

A32715 2/16
 D.P. 636444
 A32715 2/16
 DP 709078
 V433117 bc K.

Ref:PB-Erskine Park /Src:M

Form: 11R
Release: 2.0
www.lands.nsw.gov.au

REQUEST

New South Wales
Real Property Act 1900



AC217468K

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the collection and use of the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

(A) STAMP DUTY	If applicable. Office of State Revenue use only		
(B) LAND	Torrens Title 6021/776516, 3281/786811, 3280/786811, 1032/809077, 5097/776517, 5096/776517		
(C) REGISTERED DEALING	Number	Torrens Title	
(D) LODGED BY	Document Collection Box 984A	Name, Address or DX and Telephone <i>Landcom 123 704X</i> Reference: <i>4</i> AGR/PENRITH	CODE R
(E) APPLICANT	LANDCOM		
(F) NATURE OF REQUEST	Recording of notification as dedication Housing Act 1976 Section 15 (3) & (4)		

(G) TEXT OF REQUEST

The applicant requests the Register General to:

- Record in the register that Penrith City Council is the registered proprietor of the land pursuant to Government Gazette dated 23 August 1996 folios 4934 & 4935, a copy of which is attached and marked "A"
- Issue Certificates of Title in the name of Penrith City Council.

DATE

- (H) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:

Name of witness:
Address of witness:

Carina Carter
CARINA CARTER
LANDCOM
330 CHURCH ST
PARRAMATTA

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of applicant:

Gladys Riley
Signed by me GLADYS RILEY as delegate of Landcom and I hereby certify that I have no notice of revocation of such delegation.

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.
0507

Page 1 of 13

DEPARTMENT OF LANDS
LAND AND PROPERTY INFORMATION DIVISION

4934

OFFICIAL NOTICES

23 August 1996

EDUCATION REFORM ACT 1990

Land Acquisition (Just Terms Compensation) Act 1991

Notice of Compulsory Acquisition of Land for Public School

ERRATUM

THE Notification of Compulsory Acquisition appearing in the *Government Gazette* of 26 July 1996, Folio 4433, under the above heading is amended as follows:

Lavington Public School

by the deletion of the figures and numerals "Portion 319, D.P. 753326 of 1.821 hectares" and insertion of "Portion 400, D.P. 753326 of 1.821 hectares" in lieu thereof.

and

Brocklesby Public School

by the deletion of the figures and numerals "Portion 208, D.P. 753274" and insertion of "Portion 208, D.P. 753724" in lieu thereof.

Ref: SB94/010533(96)

Dated at Sydney, this 20th day of August 1996.

T. CARROLL,
for J. AQUILINA, M.P.,
Minister for Education and Training.

FAIR TRADING ACT 1987

Interim Order under section 30 (1)

I, ROBERT DOUGLAS MARTIN, Acting Minister for Fair Trading, pursuant to section 30 (1) of the Fair Trading Act 1987:

1. prohibit the supply of the goods specified in the Schedule; and
2. declare that this Order shall expire three months after the date of its publication in the *New South Wales Government Gazette*.

SCHEDULE

Goods being a portable outdoor stool known as the "Fish'n Ezy Fishing Seat" consisting of a seat which is supported by a single stem or shaft.

Dated this 9th day of August 1996.

ROBERT DOUGLAS MARTIN, M.P.,
Acting Minister for Fair Trading.

HOUSING ACT 1976

Dedication Of Land As Public Reserve

PURSUANT to section 15 (3) and 15 (4) of the Housing Act 1976, the New South Wales Land and Housing Corporation, by this notification dedicates as Public Reserve, the land described in the Schedule hereto and vests the said land in the Councils respectively.

Dated at Sydney this 31st day of July 1996.

G. KIBBLE,
Director-General.

SCHEDULE

The land shown as Lot 51 in Deposited Plan No. 261621, as Public Reserve at Bonnyrigg in the City of Fairfield, Parish of St Luke, County of Cumberland and shown coloured green on diagram "A". (Project 12616)

The land shown as Lot 1044 in Deposited Plan No. 736966, as Public Reserve at Abbotsbury in the City of Fairfield, Parish of Melville, County of Cumberland and shown coloured green on diagram "B". (Project 12616)

The land shown as Lot 280 in Deposited Plan No. 775185 as Public Reserve at Bonnyrigg in the City of Fairfield, Parish of St Luke, County of Cumberland and shown coloured green on diagram "C". (Project 12616)

The land shown as Lots 86 and 87 (Public Reserve) and Lot 88 (Drainage Reserve), in Deposited Plan No. 828945 at San Remo in the Shire of Wyong, Parish of Munmorah, County of Northumberland and shown coloured green and blue on diagram "D". (Project 12818).

The land shown as Lot 1114 in Deposited Plan No. 709078, as Public Reserve at Erskine Park in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "E".

The land shown as Lot 1032 in Deposited Plan No. 809077, as Public Reserve at Erskine Park in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "F".

The land shown as Lots 331 and 332 in Deposited Plan No. 261734, as Public Reserve at St Marys in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "G".

The land shown as Lot 6021 in Deposited Plan No. 776516, as Public Reserve at Emu Plains in the City of Penrith, Parish of Strathdon, County of Cook and shown coloured green on diagram "H".

The land shown as Lot 1190 in Deposited Plan No. 801781, as Public Reserve at Cranebrook in the City of Penrith, Parish of Castlereagh, County of Cumberland and shown coloured green on diagram "I".

The land shown as Lots 996 and 1132 in Deposited Plan No. 803591, as Public Reserve at Cranebrook in the City of Penrith, Parish of Castlereagh, County of Cumberland and shown coloured green on diagram "J".

The land shown as Lot 254 in Deposited Plan No. 815531, as Public Reserve at North Cranebrook in the City of Penrith, Parish of Castlereagh, County of Cumberland and shown coloured green on diagram "K".

The land shown as Lot 5079 in Deposited Plan No. 817298, as Public Reserve at Cranebrook in the City of Penrith, Parish of Castlereagh, County of Cumberland and shown coloured green on diagram "L".

The land shown as Lots 5096 and 5097 in Deposited Plan No. 776517, as Public Reserve at Emu Plains in the City of Penrith, Parish of Strathdon, County of Cook and shown coloured green on diagram "M".

2 of 3

23 August 1996

OFFICIAL NOTICES

4935

The land shown as Lots 3280 and 3281 in Deposited Plan No. 786811, as Public Reserve at St Marys in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "N".

The land shown as Lots 2171, 2174 and 2177 in Deposited Plan No. 776426, as Public Reserve at Erskine Park in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "O".

The land shown as Lot 4996 in Deposited Plan No. 260508, as Public Reserve at Erskine Park in the City of Penrith, Parish of Melville, County of Cumberland and shown coloured green on diagram "P".

ERRATUM GAZ. 19-3-2004 FOL 1474

LEGAL PROFESSION ACT 1987

Amendments To The Solicitors Rules

THE Council of the Law Society of New South Wales has resolved, pursuant to its powers under section 57B of the Legal Profession Act, to amend the Revised Professional Conduct and Practice Rules published in the *Government Gazette* No. 138, on Friday, 10 November 1995, in the following respects:

1. Rule 5 is amended by the addition of the following new paragraph:

5.3 Without limiting the general application of Rule 5.1, a practitioner, who is acting for a legally assisted client in any proceedings, may terminate the practitioners retainer upon giving reasonable notice in writing to the client of the practitioners intention so to do, if the client's grant of legal aid is withdrawn, or otherwise terminated, and the client is unable to make any other satisfactory arrangements for payment of the practitioner's costs which would be incurred if the retainer continued.

2. Rule 18 is amended by substituting the word "opponent" wherever appearing with the words "opposing party".

3. Rule 30 is amended by the addition of the following paragraph:

30.4 Where a practitioner who is engaged in the conduct of a legal practice forms, with another practitioner, a partnership, which continues to conduct the practice, it will be a sufficient compliance with this Rule if the practitioner gives notice in writing of the admission of the partner to the clients of the practice within fourteen (14) days of that event.

These amendments commence one (1) month after their publication in the N.S.W. *Government Gazette*.

LEGAL PROFESSION ACT 1987

Legal Practitioners Transitional Admission Rules 1994

THE following amendment was made by the Legal Practitioners Admission Board at its meeting on 6 August 1996:

Rule 95 (3)

This rule is rescinded and the following Rule is substituted.

Rule 95 (3)

The Board may, after considering the views of the Bar Association and of the Law Society, grant an exemption from the requirement of Rule 94 (3) to a person who has:

- (a) attained the age of 30 years; and
- (b) completed either
 - (i) 7 years service as a New South Wales government, or government related, employee performing legal services; or
 - (ii) 15 years service in courts administration in New South Wales; and
- (c) satisfied the Board that the service has provided the person with adequate practical legal experience; and
- (d) undertaken to the Board that the person will practise, as either a barrister or a solicitor, only within the Public Service of New South Wales until the person has completed 5 years of such practice.

LEGAL PROFESSION ACT 1987

Legal Practitioners Transitional Admission Rules 1994

THE following amendment was made by the Legal Practitioners Admission Board at its meeting on 6 August 1996:

SECOND SCHEDULE

Name of Accredited Law School	Degree
University of Sydney	LLB
University of New South Wales	LLB
Macquarie University	LLB or BLeg S
University of Technology, Sydney	LLB
University of Wollongong	LLB
University of New England	LLB
Southern Cross University	LLB
University of Newcastle	LLB
University of Western Sydney (Macarthur)	LLB
University of Western Sydney (Nepean)	LLB

LEGAL PROFESSION ACT 1987

Legal Practitioners Transitional Admission Rules 1994

THE following amendment was made by the Legal Practitioners Admission Board at its meeting on 6 August 1996:

THIRD SCHEDULE (FEES)

	Fee \$
Student Registration Application 120	
Examination (from 1 October 1996)	70
Rule 67 application	30
Student Course Application	30
Review - Rule 71	30
Academic Transcript	30
Interview with Examiner (from 1 January 1997)	80
Credit Application	140
S.13 Application	120
Exemption Practical Training Application	120
Rule 98 Application	120
Rule 100 Application	120
Admission Application	350
Re-Admission Application	500
Certificate of Admission/Good Standing	30
Original Diplomas and Certificates	100
Other Applications and Certificates	30
Express service (Certificate)	30
Late application (where permitted)	50

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3280/786811

SEARCH DATE	TIME	EDITION NO	DATE
31/5/2016	10:11 AM	2	6/6/2006

LAND

LOT 3280 IN DEPOSITED PLAN 786811
AT ERSKINE PARK
LOCAL GOVERNMENT AREA PENRITH
PARISH OF MELVILLE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP786811

FIRST SCHEDULE

PENRITH CITY COUNCIL

(R AC217468)

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 EASEMENT(S) APPURTENANT TO THE LAND ABOVE DESCRIBED CREATED BY:
DP786811 TO DRAIN WATER 2 WIDE
- 3 THE LAND WITHIN DESCRIBED IS PUBLIC RESERVE

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3281/786811

SEARCH DATE	TIME	EDITION NO	DATE
31/5/2016	10:11 AM	2	6/6/2006

LAND

LOT 3281 IN DEPOSITED PLAN 786811
AT ERSKINE PARK
LOCAL GOVERNMENT AREA PENRITH
PARISH OF MELVILLE COUNTY OF CUMBERLAND
TITLE DIAGRAM DP786811

FIRST SCHEDULE

PENRITH CITY COUNCIL

(R AC217468)

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 EASEMENT(S) APPURTENANT TO THE LAND ABOVE DESCRIBED CREATED BY:
DP786811 TO DRAIN WATER 2 WIDE
- 3 THE LAND WITHIN DESCRIBED IS PUBLIC RESERVE

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Appendix F

Section 149 Certificates

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 550512
Your Reference: RZI16/0001 - Collect

Issue Date: 30/05/2016
Certificate No: 16/02566
Receipt Date: 30/05/2016
Journal No: 292990

Issued to: Penrith City Council
PO Box 60
PENRITH NSW 2751

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND

Parish: MELVILLE

Location: 73 Swallow Drive ERSKINE PARK NSW 2759

Land Description: Lot 3280 DP 786811

- PART 1 PRESCRIBED MATTERS -

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs

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

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):

State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)

State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)

State Environmental Planning Policy No.21 - Caravan Parks.

State Environmental Planning Policy No.30 - Intensive Agriculture.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land).

(Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)

State Environmental Planning Policy No.33 - Hazardous and Offensive Development.

State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.

State Environmental Planning Policy No.55 - Remediation of Land.

State Environmental Planning Policy No.62 - Sustainable Aquaculture.

State Environmental Planning Policy No.64 - Advertising and Signage.

State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.

State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.

State Environmental Planning Policy (Major Development) 2005.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.

State Environmental Planning Policy (Infrastructure) 2007.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

State Environmental Planning Policy (Affordable Rental Housing) 2009.

State Environmental Planning Policy (State and Regional Development) 2011.

1(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:

(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 ZONING AND LAND USE UNDER RELEVANT LEPs

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Zone RE1 Public Recreation

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To ensure that development is secondary and complementary to the use of land as public open space, and enhances public use, and access to, the open space.
- To provide land for the development of services and facilities by public authorities for the benefit of the community.

2 Permitted without consent

Nil

3 Permitted with consent

Boat launching ramps; Boat sheds; Building identification signs; Car parks; Business identification signs; Charter and tourism boating facilities; Child care centres; Community facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Jetties; Kiosks; Markets; Moorings; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Respite day care centres; Restaurants or cafes; Roads; Water recreation structures; Water storage facilities

4 Prohibited

Any other development not specified in item 2 or 3

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(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:

(Information is provided in this section only if 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.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE

(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section “public purpose” means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section “public purpose” means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

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

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

6 ROAD WIDENING AND ROAD REALIGNMENT

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

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) an environmental planning instrument, or
- (c) a resolution of council.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies

The land is affected by the Asbestos Policy adopted by Council.

The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies

The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.

The land is not affected by a policy 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 land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) This land has not been identified as being below the adopted flood planning level (ie. the 1% Annual Exceedance Probability flood level plus 0.5 metre) and as such flood related development controls generally do not apply for dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) if such uses are permissible on the land. Council reserves the right, however, to apply flood related development controls depending on the merits of any particular application. Should future studies change this situation this position may be reviewed.

(2) This land has not been identified as being below the adopted flood planning level (ie. the 1% Annual Exceedance Probability flood level plus 0.5 metre) and as such flood related development controls generally do not apply for any other purpose not referred to in (1) above. Council reserves the right, however, to apply flood related development controls depending on the merits of any particular application. Should future studies change this situation this position may be reviewed.

8 LAND RESERVED FOR ACQUISITION

No 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.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See

[<http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning_Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP\(1\).pdf>](http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning_Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf)

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*)).

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

The land is not identified as bush fire prone land according to Council records.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that 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.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if 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.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

- (a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or
- (b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

- (a) 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/or
- (b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

- (a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

149(5) Certificate

**This Certificate is directed to the following
relevant matters affecting the land**

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au. Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.

*** Threatened Species Conservation Act 1995**

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

* Council's records indicate that the land has been filled and construction thereon might need to be carried out to special requirements.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles
- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.

The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair, and
- St Marys / St Marys North.

Penrith Development Control Plan 2014 may be accessed at

<https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/>

Alan Stoneham
General Manager

PER 

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 550521
Your Reference: RZI16/0001 - Collect

Issue Date: 30/05/2016
Certificate No: 16/02567
Receipt Date: 30/05/2016
Journal No: 292990

Issued to: Penrith City Council
PO Box 60
PENRITH NSW 2751

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND

Parish: MELVILLE

Location: 85 Swallow Drive ERSKINE PARK NSW 2759

Land Description: Lot 3281 DP 786811

- PART 1 PRESCRIBED MATTERS -

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs

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

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):

State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)

State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)

State Environmental Planning Policy No.21 - Caravan Parks.

State Environmental Planning Policy No.30 - Intensive Agriculture.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land).

(Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)

State Environmental Planning Policy No.33 - Hazardous and Offensive Development.

State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.

State Environmental Planning Policy No.55 - Remediation of Land.

State Environmental Planning Policy No.62 - Sustainable Aquaculture.

State Environmental Planning Policy No.64 - Advertising and Signage.

State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.

State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.

State Environmental Planning Policy (Major Development) 2005.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.

State Environmental Planning Policy (Infrastructure) 2007.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

State Environmental Planning Policy (Affordable Rental Housing) 2009.

State Environmental Planning Policy (State and Regional Development) 2011.

1(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:

(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 ZONING AND LAND USE UNDER RELEVANT LEPs

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Zone RE1 Public Recreation

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To ensure that development is secondary and complementary to the use of land as public open space, and enhances public use, and access to, the open space.
- To provide land for the development of services and facilities by public authorities for the benefit of the community.

2 Permitted without consent

Nil

3 Permitted with consent

Boat launching ramps; Boat sheds; Building identification signs; Car parks; Business identification signs; Charter and tourism boating facilities; Child care centres; Community facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Function centres; Information and education facilities; Jetties; Kiosks; Markets; Moorings; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Respite day care centres; Restaurants or cafes; Roads; Water recreation structures; Water storage facilities

4 Prohibited

Any other development not specified in item 2 or 3

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(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:

(Information is provided in this section only if 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.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE

(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section “public purpose” means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

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

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

6 ROAD WIDENING AND ROAD REALIGNMENT

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

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) an environmental planning instrument, or
- (c) a resolution of council.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies

The land is affected by the Asbestos Policy adopted by Council.

The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies

The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.

The land is not affected by a policy 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 land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) This land has not been identified as being below the adopted flood planning level (ie. the 1% Annual Exceedance Probability flood level plus 0.5 metre) and as such flood related development controls generally do not apply for dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) if such uses are permissible on the land. Council reserves the right, however, to apply flood related development controls depending on the merits of any particular application. Should future studies change this situation this position may be reviewed.

(2) This land has not been identified as being below the adopted flood planning level (ie. the 1% Annual Exceedance Probability flood level plus 0.5 metre) and as such flood related development controls generally do not apply for any other purpose not referred to in (1) above. Council reserves the right, however, to apply flood related development controls depending on the merits of any particular application. Should future studies change this situation this position may be reviewed.

8 LAND RESERVED FOR ACQUISITION

No 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.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See

[http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning_Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP\(1\).pdf](http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning_Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf)

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

The land is not identified as bush fire prone land according to Council records.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that 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.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if 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.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

- (a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or
- (b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

- (a) 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/or
- (b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

- (a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

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Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au. Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

*** Threatened Species Conservation Act 1995**

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

* Council's records indicate that the land has been filled and construction thereon might need to be carried out to special requirements.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

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- Infrastructure and Services.

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as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.

The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

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- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair, and
- St Marys / St Marys North.

Penrith Development Control Plan 2014 may be accessed at
<https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/>

Alan Stoneham
General Manager

PER



Appendix G

Test Pit Logs
& Notes About This Report

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.

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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, 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 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx 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 $Is_{(50)}$

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 ₅₀	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

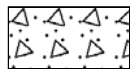
General



Asphalt



Road base



Concrete

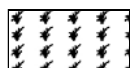


Filling

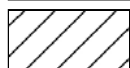
Soils



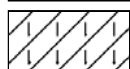
Topsoil



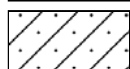
Peat



Clay



Silty clay



Sandy clay



Gravelly clay



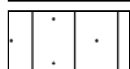
Shaly clay



Silt



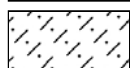
Clayey silt



Sandy silt



Sand



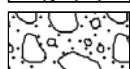
Clayey sand



Silty sand



Gravel



Sandy gravel



Cobbles, boulders



Talus

Sedimentary Rocks



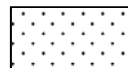
Boulder conglomerate



Conglomerate



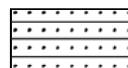
Conglomeratic sandstone



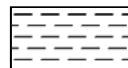
Sandstone



Siltstone



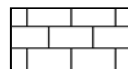
Laminite



Mudstone, claystone, shale

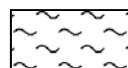


Coal

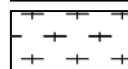


Limestone

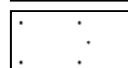
Metamorphic Rocks



Slate, phyllite, schist

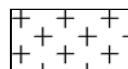


Gneiss

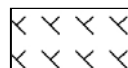


Quartzite

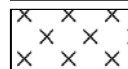
Igneous Rocks



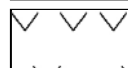
Granite



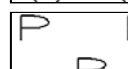
Dolerite, basalt, andesite



Dacite, epidote



Tuff, breccia



Porphyry

TEST PIT LOG

CLIENT: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~69.8m AHD[^] **PIT No:** 1
EASTING:
NORTHING:
PROJECT No: 85512.00
DATE: 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown, silty clay filling with a trace of gravel and roots (possibly reworked natural) - trace of concrete at 0.05m		E*	0.0		PID<1					
	0.25	SILTY CLAY - very stiff, red-brown mottled grey silty clay		E	0.2							
				E	0.4		PID<1					
				E	0.5							
	1			E	0.9		PID<1					
				E	1.2							
	1.3	Pit discontinued at 1.3m - target depth reached										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)
 *BD1-020616 is blind replicate from 0.0-0.2m

☐ 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 _s	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _s	Water seep
E	Environmental sample	W _L	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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~68.7m AHD[^] **PIT No:** 2
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown, silty clay filling with a trace of roots, gravel, cobbles, brick, tile, metal, plastic, timber, glass and concrete			0.0		PID<1					
				E								
					0.3							
	0.45	SILTY CLAY - very stiff, red-brown mottled grey silty clay			0.5		PID<1					
				E								
					0.6							
		- possibly filling to 0.7m										
					0.9		PID<1					
				E								
					1.0							
	1.35	Pit discontinued at 1.35m - target depth reached										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)




☐ 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	> Water seep	S Standard penetration test	
E Environmental sample	≡ Water level	V Shear vane (kPa)	

TEST PIT LOG

CLIENT: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~69.8m AHD[^] **PIT No:** 3
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown, silty clay filling with a trace of sandstone fragments, brick and metal		E*	0.0		PID<1					
					0.3							
	0.45	FILLING - brown, silty clay filling			0.5		PID<1					
				E								
	0.7	FILLING - brown, silty clay filling with a trace of bricks, timber, concrete pieces and plastic			0.7							
					0.8		PID<1					
				E								
	0.9	Pit discontinued at 0.9m - refusal on boulder sized concrete fragments in filling			0.9							
1												

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)
 *BD2-020616 is blind replicate from 0.0-0.3m



☐ 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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~72.7m AHD[^] **PIT No:** 4
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown sandy silty clay filling with a trace of sand and rootlets		E	0.0		PID<1					
	0.15	SILTY CLAY - very stiff, red-brown mottled grey silty clay with a trace of tree roots - possibly reworked to 0.3m		E	0.1							
				E	0.4		PID<1					
				E	0.5							
				E	0.9		PID<1					
				E	1.0							
		- some brown shale from 1.2m										
	1.25	Pit discontinued at 1.25m - target depth reached										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)



☐ 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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~72.7m AHD[^] **PIT No:** 5
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown silty clay filling with some sand and boulder sized concrete and a trace of rootlets, cobbles, gravel and brick		E	0.0		PID<1					
					0.2							
	0.35	FILLING - brown silty clay filling with a trace of cobbles		E	0.5		PID<1					
					0.6							
	0.7	SILTY CLAY - very stiff, red-brown mottled grey silty clay with a trace of ironstone gravel		E	0.9		PID<1					
					1.0							
	1.35	Pit discontinued at 1.35m - target depth reached										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)



☐ 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 _s	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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~66.7m AHD[^] **PIT No:** 6
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown silty clay filling with a trace of gravel and rootlets (possibly natural)		E*	0.0		PID<1					
					0.1							
	0.18	SILTY CLAY - very stiff to hard, brown mottled grey silty clay										
				E	0.4		PID<1					
					0.5							
					0.9		PID<1					
				E								
1	1.0	Pit discontinued at 1.0m - target depth reached			1.0							

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)
 *BD3-020616 is blind replicate from 0.0-0.1m


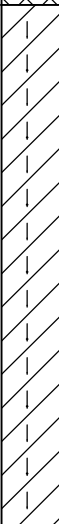
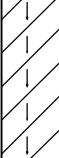
☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~67.7m AHD[^] **PIT No:** 7
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown, silty clay filling with a trace of gravel (possibly reworked natural)		E	0.0		PID<1					
					0.1							
	0.2	SILTY CLAY - very stiff to hard, red-brown mottled grey silty clay										
				E	0.4		PID<1					
					0.5							
		- trace of shale from 0.9m		E	0.9		PID<1					
					1.0							
1												
1.1		Pit discontinued at 1.1m										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)


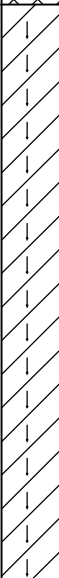
☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U _s	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _s	Water seep
E	Environmental sample	W _l	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: Penrith City Council
PROJECT: Proposed Rezoning
LOCATION: 73 and 85 Swallow Drive, Erskine Park

SURFACE LEVEL: ~68.2m AHD[^] **PIT No:** 8
EASTING: **PROJECT No:** 85512.00
NORTHING: **DATE:** 2/6/2016
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - brown silty clay filling with a trace of rootlets (possibly natural)		E*	0.0		PID<1					
	0.15	SILTY CLAY - very stiff to hard, brown mottled grey silty clay			0.1							
					0.4		PID<1					
				E	0.5							
					0.9		PID<1					
		- trace of shale from 0.9m		E	1.0							
1												
1.1		Pit discontinued at 1.1m - target depth reached										

RIG: 3.5 tonne excavator with 300mm bucket

LOGGED: D Walker

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed whilst excavating

REMARKS: [^]Interpolated from contour plan provided by client (dated 30 May 2016)
 *BD4-020616 is blind replicate from 0.0-0.1m

☐ 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 _s	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _s	Water seep
E	Environmental sample	W _l	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)

Appendix H

QA/QC Procedures

QA/QC PROCEDURES AND RESULTS

Q1. Data Quality Objectives

The Preliminary Site Investigation 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

Data Quality Objective	Report Section Where Addressed
State the Problem	S1 Introduction
Identify the Decision	S10 Discussion of Results S11 Conclusion
Identify Inputs to the Decision	S1 Introduction S3 Site Identification and Description S5 Site History S6 Potential Contamination Sources and Preliminary Conceptual Site Model S8 Site Assessment Criteria S9 Fieldwork Observation and Analytical Results
Define the Boundary of the Assessment	S3 Site Identification and Description
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 Works S7 Fieldwork, Analysis and QA/QC

Q2. FIELD QUALITY ASSURANCE AND QUALITY CONTROL

The field QC procedures for sampling as prescribed in Douglas Partners' *Field Procedures Manual* were followed at all times during the assessment.

Q2.1 Sampling Team

Field sampling was undertaken by a DP Environmental Engineer, David Walker. Sampling was undertaken on 2 June 2016. Sampling was undertaken during cool to warm and mostly sunny weather conditions.

Q2.2 Sample Collection

Soil samples were collected from excavator bucket returns or from the sides of the test pit. Further details of the sampling methodology is presented in Section 7 of the report.

Q2.3 Logs

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 and replicate locations.

Q2.4 Decontamination

Samples were collected using disposal gloves between each sampling event. Stainless steel sampling equipment was not used, and therefore, decontamination of sampling equipment was not required.

Q2.5 Chain of Custody

Chain of custody information was recorded on the Chain-of-Custody (COC) sheets and accompanied samples to the analytical laboratory.

Q2.6 Replicate Samples

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 test pit logs, so as to conceal their relationship to their primary sample from the analytical laboratory.

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. RPDs have only been considered where a concentration is greater than five times the PQL.

Replicate samples were collected at a rate of at least one replicate sample for every ten original samples collected.

An intra-laboratory replicate was analysed as an internal check of the reproducibility within the primary laboratory (Envirolab Pty Ltd) and as a measure of consistency of sampling techniques.

The comparative results of analysis between original and replicate sample is summarised in Table Q2.

Table Q2: Intra-laboratory Results

Analyte	Primary Sample [Test Pit 3, depth 0-0.3 m] Concentration (mg/kg)	Replicate Sample [BD2-020616] Concentration (mg/kg)	Difference (mg/kg)	RPD (%)
Arsenic	5	<4	1	22
Cadmium	<0.4	<0.4	0	0
Chromium	11	5	6	75
Copper	20	18	2	11
Lead	13	9	4	18
Mercury	<0.1	<0.1	0	0
Nickel	10	4	6	86
Zinc	34	20	14	59
All PAHs	<PQL	<PQL	0	0

The calculated RPD values were within the acceptable range except for those shown in bold. The results in bold are not of concern given the non-homogeneous nature of the filling and the low actual differences in concentrations. 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.

Q2.7 Field Instrument Calibration

The photoionisation detector (PID) was calibrated and serviced at Active Environmental Solutions on 23 March 2016 and prior to fieldwork using with isobutylene gas.

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 as summarised in Table Q3.

Table Q3: Holding Times for Soil Samples

Analyte	Recommended maximum holding time	Holding time met
Metals	6 months	Yes
TRH C ₆ -C ₉	14 days	Yes
TRH C ₁₀ -C ₃₆	14 days	Yes
BTEX	14 days	Yes
PAH	14 days	Yes
OCP	14 days	Yes
OPP	14 days	Yes
PCB	14 days	Yes
pH	7 days	Yes

Q3.2 Analytical Laboratories

Samples were submitted to Envirolab Pty Ltd which is NATA accredited for the analysis undertaken.

Q3.3 Analytical Methods

The laboratory analytical methods are provided on the laboratory certificates of analysis.

Q3.4 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.

Q3.4.1 Surrogate Spike

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis of 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 laboratories indicating that the extraction technique was effective.

Q3.4.2 Practical Quantitation Limits (PQL)

The PQL is the lowest quantity of an analyte which can be measured with a high degree of confidence that the analyte is present at or above that concentration. PQL at different analytical laboratories can differ based on the analytical techniques.

Q3.4.3 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 the results are compared against each other to determine how the laboratory has performed with regard to sample preparation and analytical procedure. LCS 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.

Q3.4.4 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 $>5 \times \text{PQL}$ – a 30% or 50% RPD is acceptable depending on the analyte. RPDs were within the acceptance standards except for copper analysis in sample 147895-12. For this reason, a triplicate result was issued as sample number 147895-14. This RPD exceedance is not of concern given that sample 147895-12 was collected from filling where some variation in concentrations of metals is expected.

Q3.4.5 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 typically 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.

Q3.4.6 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. Recorded matrix spike results were within the acceptance standards.

Q3.4.7 Overall Laboratory QA/QC

It is considered that an acceptable level of laboratory precision and consistency was achieved and that surrogate spikes, LCS, laboratory replicate results, method blanks and matrix spike results were of an acceptable level overall. On the basis of this assessment, the laboratory data sets are considered to be reliable and useable for this assessment.

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 Q4.

Table Q4: DQI Assessment

DQI	Considerations as specified in NEPM Schedule B2	Comment
Completeness		
Field Considerations	All critical locations sampled	All critical locations sampled in accordance with the proposal.
	All samples collected (from grid and at depth)	Grid based soil sampling has been used to provide coverage of the site. The sampling density is considered appropriate for a preliminary investigation.
	Standard operating practices (SOPs) appropriate and complied with	Field staff followed SOPs as defined in the DP <i>Field Procedures Manual</i> .
	Experienced sampler	DP environmental engineer with more than 7 years experience undertook the sampling.

DQI	Considerations as specified in NEPM Schedule B2	Comment
	Documentation correct	Field staff followed SOPs as defined in the DP <i>Field Procedures Manual</i> . Documentation reviewed and signed off by project reviewer.
Laboratory Considerations	All critical samples analysed according to the proposal and site information	All critical samples analysed according to the proposal and site information
	All analytes analysed according to proposal	All analytes analysed according to the proposal. Any variation has been recorded in the report.
	Appropriate methods and PQLs/LOR	NATA approved methods have been adopted. Limits of reporting (LORs) and practical quantitation limits (PQLs) in accordance with the method have been used by the contract laboratory.
	Sample Documentation complete	Chain-of-custody (CoC) maintained and appended to the Certificates of Analysis. All Certificates of Analysis are complete and appended to the report.
	Sample holding times complied with	Sample holding times complied with the NATA accredited Laboratory.
Comparability		
Field Considerations	Same SOPs used on each occasion	Field staff followed SOPs sampling as defined in the DP <i>Field Procedures Manual</i>
	Experienced sampler	DP environmental engineer with more than 7 years experience undertook the sampling.
	Climatic conditions	Field staff recorded the climatic conditions at the time of sampling
	Same types of samples collected	Field staff followed SOPs as defined in the DP <i>Field Procedures Manual</i> and sampling regime defined in the proposal.

DQI	Considerations as specified in NEPM Schedule B2	Comment
Laboratory Considerations	Sample analytical methods used	Laboratories used are accredited by NATA for the analyses undertaken. Laboratory methods are as stated on the Certificates of Analysis
	Sample PQLs / LORs	PQL or LOR set by the laboratories are below the adopted site criteria or indicate across-the-board lack of detection.
	Same laboratories	Envirolab Pty Ltd was used for all sample analysis.
	Same units	All laboratory results are expressed in consistent units for each media type.
Representativeness		
Field Considerations	Appropriate media sampled according to the proposal	Appropriate media were sampled in accordance with the proposal
	All media identified in proposal sampled	All media identified in proposal were sampled.
Laboratory Considerations	All samples analysed according to the proposal	All samples analysed according to proposal
Precision		
Field Considerations	SOPs appropriate and complied with	Field staff followed SOPs as defined in the DP <i>Field Procedures Manual</i>

DQI	Considerations as specified in NEPM Schedule B2	Comment
Laboratory Considerations	Analysis of: <ol style="list-style-type: none"> 1) intra-laboratory replicates 2) field duplicates 	Laboratory acceptance limits are: <ol style="list-style-type: none"> 1) Average relative percentage difference (RPD) result <5 times PQL/LOR, no limit; results >5 times PQL/LOR, 30% or 50% depending on analyte 2) Average relative percentage difference (RPD) result <5 times PQL/LOR, no limit; results >5 times PQL/LOR, 30% or 50% depending on analyte
Accuracy (bias)		
Field Considerations	SOPs Appropriate and complied with	Field staff to follow SOPs as defined in the DP <i>Field Procedures Manual</i>
Laboratory Considerations	Analysis of: <ol style="list-style-type: none"> 1) field blanks 2) reagent blank/method blank 3) matrix spike 4) surrogate spike 5) reference material 	Laboratory acceptance limits are <ol style="list-style-type: none"> 1) Concentrations of analytes are <PQL/LOR 2) Results are within acceptance limits as specified by the laboratory (<i>recovery usually within 60-140%</i>). 3) Results are within acceptance limits as specified by the laboratory (<i>recovery within 70-130% for inorganics and 60-140% for organics</i>). 4) Results are within acceptance limits as specified by the laboratory (<i>recovery within 70-130% for inorganics and 60-140% for organics</i>). 5) Analysis within the

DQI	Considerations as specified in NEPM Schedule B2	Comment
	6) laboratory control sample	<p>acceptable limits of the Certificate of Analysis for the reference material. These results are generally not contained in the Certificate of Analysis.</p> <p>6) Results are within acceptance limits as specified by the laboratory (recovery within 70-130% for inorganics and 60-140% for organics).</p>

Appendix I

Laboratory Certificates & Chain of Custody Documentation



12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS

147895

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: David Walker

Sample log in details:

Your Reference:	85512.00, Erskine Park
No. of samples:	13 Soils
Date samples received / completed instructions received	03/06/16 / 03/06/16

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

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

Report Details:

Date results requested by: / Issue Date:	10/06/16 / 9/06/16
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:


Jacinta Hurst
Laboratory Manager



Envirolab Reference: 147895
Revision No: R 00

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vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-3 3	147895-4 3	147895-5 4
Depth	-----	0.0-0.2	0.0-0.3	0.0-0.3	0.8-0.9	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	103	107	103	106

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	147895-7 5	147895-8 5	147895-9 6	147895-10 7	147895-11 7
Depth	-----	0.0-0.2	0.5-0.6	0.0-0.1	0.0-0.1	0.4-0.5
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	103	103	108	106

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	147895-12
Your Reference	-----	8
	-	
Depth	-----	0.0-0.1
Date Sampled		2/06/2016
Type of sample		Soil
Date extracted	-	06/06/2016
Date analysed	-	07/06/2016
TRHC ₆ - C ₉	mg/kg	<25
TRHC ₆ - C ₁₀	mg/kg	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	108

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-3 3	147895-4 3	147895-5 4
Depth	-----	0.0-0.2	0.0-0.3	0.0-0.3	0.8-0.9	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	106	107	103	100	105

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	147895-7 5	147895-8 5	147895-9 6	147895-10 7	147895-11 7
Depth	-----	0.0-0.2	0.5-0.6	0.0-0.1	0.0-0.1	0.4-0.5
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	106	106	108	107	107

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	147895-12
Your Reference	-----	8
	-	
Depth	-----	0.0-0.1
Date Sampled		2/06/2016
Type of sample		Soil
Date extracted	-	06/06/2016
Date analysed	-	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100
Surrogate o-Terphenyl	%	108

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-3 3	147895-4 3	147895-5 4
Depth	-----	0.0-0.2	0.0-0.3	0.0-0.3	0.8-0.9	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	109	113	113	104	116

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	147895-6 4	147895-7 5	147895-8 5	147895-9 6	147895-10 7
Depth	-----	0.4-0.5	0.0-0.2	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	118	110	117	108	116

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	147895-11 7	147895-12 8	147895-13 BD2-020616
Depth	-----	0.4-0.5	0.0-0.1	-
Date Sampled		2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	111	119	113

Organochlorine Pesticides in soil	UNITS	147895-1	147895-2	147895-4	147895-5	147895-7
Our Reference:	-----	1	2	3	4	5
Your Reference	-					
Depth	-----	0.0-0.2	0.0-0.3	0.8-0.9	0.0-0.1	0.0-0.2
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HeptachlorEpoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	93	90	94	98

Organochlorine Pesticides in soil				
Our Reference:	UNITS	147895-9	147895-10	147895-12
Your Reference	-----	6	7	8
	-			
Depth	-----	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	95	101

Organophosphorus Pesticides	UNITS	147895-1	147895-2	147895-4	147895-5	147895-7
Our Reference:	-----	1	2	3	4	5
Your Reference	-					
Depth	-----	0.0-0.2	0.0-0.3	0.8-0.9	0.0-0.1	0.0-0.2
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	93	90	94	98

Organophosphorus Pesticides	UNITS	147895-9	147895-10	147895-12
Our Reference:	-----	6	7	8
Your Reference	-			
Depth	-----	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	95	101

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-4 3	147895-5 4	147895-7 5
Depth	-----	0.0-0.2	0.0-0.3	0.8-0.9	0.0-0.1	0.0-0.2
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	95	93	90	94	98

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	147895-9 6	147895-10 7	147895-12 8
Depth	-----	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	96	95	101

Acid Extractable metals in soil	UNITS	147895-1	147895-2	147895-3	147895-4	147895-5
Our Reference:	-----	1	2	3	3	4
Your Reference	-					
Depth	-----	0.0-0.2	0.0-0.3	0.0-0.3	0.8-0.9	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Arsenic	mg/kg	7	7	5	8	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.7	<0.4
Chromium	mg/kg	18	17	11	21	9
Copper	mg/kg	14	19	20	17	7
Lead	mg/kg	19	16	13	28	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	9	10	7	4
Zinc	mg/kg	30	30	34	120	24

Acid Extractable metals in soil	UNITS	147895-6	147895-7	147895-8	147895-9	147895-10
Our Reference:	-----	4	5	5	6	7
Your Reference	-					
Depth	-----	0.4-0.5	0.0-0.2	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Arsenic	mg/kg	7	<4	6	7	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	<0.4
Chromium	mg/kg	14	8	15	21	14
Copper	mg/kg	19	8	7	7	12
Lead	mg/kg	14	8	14	15	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	13	2	4	4
Zinc	mg/kg	23	19	10	13	17

Acid Extractable metals in soil					
Our Reference:	UNITS	147895-11	147895-12	147895-13	147895-14
Your Reference	-----	7	8	BD2-020616	8-TRIPLICATE
Depth	-				
Date Sampled	-----	0.4-0.5	0.0-0.1	-	0.0-0.1
Type of sample		2/06/2016	2/06/2016	2/06/2016	02/06/2016
		Soil	Soil	Soil	Soil
Date prepared	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Arsenic	mg/kg	<4	7	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	15	5	11
Copper	mg/kg	11	12	18	11
Lead	mg/kg	10	13	9	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	3	4	3
Zinc	mg/kg	10	14	20	13

Moisture Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-3 3	147895-4 3	147895-5 4
Depth Date Sampled Type of sample	----- ----- -----	0.0-0.2 2/06/2016 Soil	0.0-0.3 2/06/2016 Soil	0.0-0.3 2/06/2016 Soil	0.8-0.9 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil
Date prepared	-	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016
Date analysed	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Moisture	%	8.2	8.7	9.4	9.9	5.8

Moisture Our Reference: Your Reference	UNITS ----- -	147895-6 4	147895-7 5	147895-8 5	147895-9 6	147895-10 7
Depth Date Sampled Type of sample	----- ----- -----	0.4-0.5 2/06/2016 Soil	0.0-0.2 2/06/2016 Soil	0.5-0.6 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil
Date prepared	-	6/06/2016	6/06/2016	6/06/2016	6/06/2016	6/06/2016
Date analysed	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Moisture	%	15	2.6	13	7.8	11

Moisture Our Reference: Your Reference	UNITS ----- -	147895-11 7	147895-12 8	147895-13 BD2-020616
Depth Date Sampled Type of sample	----- ----- -----	0.4-0.5 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil	- 2/06/2016 Soil
Date prepared	-	6/06/2016	6/06/2016	6/06/2016
Date analysed	-	7/06/2016	7/06/2016	7/06/2016
Moisture	%	12	12	9.4

Asbestos ID - soils Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-2 2	147895-3 3	147895-4 3	147895-5 4
Depth	-----	0.0-0.2	0.0-0.3	0.0-0.3	0.8-0.9	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Sample mass tested	g	Approx 30g	Approx 40g	Approx 50g	Approx 35g	Approx 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils Our Reference: Your Reference	UNITS ----- -	147895-7 5	147895-9 6	147895-10 7	147895-12 8
Depth	-----	0.0-0.2	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		2/06/2016	2/06/2016	2/06/2016	2/06/2016
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Sample mass tested	g	Approx 35g	Approx 40g	Approx 70g	Approx 45g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	147895-1 1	147895-3 3	147895-9 6	147895-12 8
Depth Date Sampled Type of sample	----- 	0.0-0.2 2/06/2016 Soil	0.0-0.3 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil	0.0-0.1 2/06/2016 Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
pH 1:5 soil:water	pH Units	6.5	7.2	5.5	5.5

CEC			
Our Reference:	UNITS	147895-3	147895-9
Your Reference	-----	3	6
	-		
Depth	-----	0.0-0.3	0.0-0.1
Date Sampled		2/06/2016	2/06/2016
Type of sample		Soil	Soil
Date prepared	-	08/06/2016	08/06/2016
Date analysed	-	08/06/2016	08/06/2016
Exchangeable Ca	meq/100g	4.6	4.7
Exchangeable K	meq/100g	0.2	0.6
Exchangeable Mg	meq/100g	5.6	7.7
Exchangeable Na	meq/100g	0.54	0.44
Cation Exchange Capacity	meq/100g	11	13

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			07/06/2016	147895-1	07/06/2016 07/06/2016	LCS-8	07/06/2016
TRHC ₆ - C ₉	mg/kg	25	Org-016	<25	147895-1	<25 <25	LCS-8	102%
TRHC ₆ - C ₁₀	mg/kg	25	Org-016	<25	147895-1	<25 <25	LCS-8	102%
Benzene	mg/kg	0.2	Org-016	<0.2	147895-1	<0.2 <0.2	LCS-8	88%
Toluene	mg/kg	0.5	Org-016	<0.5	147895-1	<0.5 <0.5	LCS-8	98%
Ethylbenzene	mg/kg	1	Org-016	<1	147895-1	<1 <1	LCS-8	105%
m+p-xylene	mg/kg	2	Org-016	<2	147895-1	<2 <2	LCS-8	109%
o-Xylene	mg/kg	1	Org-016	<1	147895-1	<1 <1	LCS-8	105%
naphthalene	mg/kg	1	Org-014	<1	147895-1	<1 <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	103	147895-1	103 104 RPD: 1	LCS-8	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH(C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			07/06/2016	147895-1	07/06/2016 07/06/2016	LCS-8	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	147895-1	<50 <50	LCS-8	124%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	147895-1	<100 <100	LCS-8	127%
TRHC ₂₈ - C ₃₆	mg/kg	100	Org-003	<100	147895-1	<100 <100	LCS-8	104%
TRH>C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	147895-1	<50 <50	LCS-8	124%
TRH>C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	147895-1	<100 <100	LCS-8	127%
TRH>C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	147895-1	<100 <100	LCS-8	104%
Surrogate o-Terphenyl	%		Org-003	101	147895-1	106 108 RPD: 2	LCS-8	107%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	115%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	108%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	118%
Anthracene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	110%
Pyrene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	116%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	LCS-8	106%
Benzo(b,j)+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	147895-1	<0.2 <0.2	[NR]	[NR]

Client Reference: 85512.00, Erskine Park

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	147895-1	<0.05 <0.05	LCS-8	112%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	100	147895-1	109 82 RPD: 28	LCS-8	109%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
HCB	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	72%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	106%
Heptachlor	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	72%
delta-BHC	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	77%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	62%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	73%
Dieldrin	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	76%
Endrin	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	73%
pp-DDD	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	63%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	LCS-8	66%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	91	147895-1	95 99 RPD: 4	LCS-8	83%

Client Reference: 85512.00, Erskine Park

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	84%
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	82%
Dimethoate	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	78%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	111%
Malathion	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	87%
Parathion	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	118%
Ronnel	mg/kg	0.1	Org-008	<0.1	147895-1	<0.1 <0.1	LCS-8	99%
Surrogate TCMX	%		Org-008	91	147895-1	95 99 RPD: 4	LCS-8	89%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Date analysed	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-8	06/06/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	LCS-8	92%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	147895-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	91	147895-1	95 99 RPD: 4	LCS-8	89%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date prepared	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-1	06/06/2016
Date analysed	-			06/06/2016	147895-1	06/06/2016 06/06/2016	LCS-1	06/06/2016
Arsenic	mg/kg	4	Metals-020	<4	147895-1	7 6 RPD: 15	LCS-1	105%
Cadmium	mg/kg	0.4	Metals-020	<0.4	147895-1	<0.4 0.4	LCS-1	98%
Chromium	mg/kg	1	Metals-020	<1	147895-1	18 18 RPD: 0	LCS-1	101%
Copper	mg/kg	1	Metals-020	<1	147895-1	14 13 RPD: 7	LCS-1	101%
Lead	mg/kg	1	Metals-020	<1	147895-1	19 18 RPD: 5	LCS-1	99%
Mercury	mg/kg	0.1	Metals-021	<0.1	147895-1	<0.1 <0.1	LCS-1	95%
Nickel	mg/kg	1	Metals-020	<1	147895-1	8 7 RPD: 13	LCS-1	97%
Zinc	mg/kg	1	Metals-020	<1	147895-1	30 30 RPD: 0	LCS-1	98%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Misc Inorg - Soil						Base II Duplicate II %RPD		
Date prepared	-			07/06/2016	[NT]	[NT]	LCS-1	07/06/2016
Date analysed	-			07/06/2016	[NT]	[NT]	LCS-1	07/06/2016
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	100%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
CEC						Base II Duplicate II %RPD		
Date prepared	-			08/06/2016	[NT]	[NT]	LCS-1	08/06/2016
Date analysed	-			08/06/2016	[NT]	[NT]	LCS-1	08/06/2016
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	104%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	110%
Exchangeable Mg	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	102%
Exchangeable Na	meq/100 g	0.1	Metals-009	<0.1	[NT]	[NT]	LCS-1	108%
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
vTRH(C6-C10)/BTEXN in Soil				Base + Duplicate + %RPD				
Date extracted	-	147895-12		06/06/2016 06/06/2016		147895-2	06/06/2016	
Date analysed	-	147895-12		07/06/2016 07/06/2016		147895-2	07/06/2016	
TRHC ₆ - C ₉	mg/kg	147895-12		<25 <25		147895-2	99%	
TRHC ₆ - C ₁₀	mg/kg	147895-12		<25 <25		147895-2	99%	
Benzene	mg/kg	147895-12		<0.2 <0.2		147895-2	86%	
Toluene	mg/kg	147895-12		<0.5 <0.5		147895-2	96%	
Ethylbenzene	mg/kg	147895-12		<1 <1		147895-2	102%	
m+p-xylene	mg/kg	147895-12		<2 <2		147895-2	106%	

Client Reference: 85512.00, Erskine Park

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
o-Xylene	mg/kg	147895-12	<1 <1	147895-2	102%
naphthalene	mg/kg	147895-12	<1 <1	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%	147895-12	108 105 RPD: 3	147895-2	103%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	07/06/2016 07/06/2016	147895-2	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	147895-12	<50 <50	147895-2	116%
TRHC ₁₅ - C ₂₈	mg/kg	147895-12	<100 <100	147895-2	119%
TRHC ₂₉ - C ₃₆	mg/kg	147895-12	<100 <100	147895-2	101%
TRH>C ₁₀ -C ₁₆	mg/kg	147895-12	<50 <50	147895-2	116%
TRH>C ₁₆ -C ₃₄	mg/kg	147895-12	<100 <100	147895-2	119%
TRH>C ₃₄ -C ₄₀	mg/kg	147895-12	<100 <100	147895-2	101%
Surrogate o-Terphenyl	%	147895-12	108 109 RPD: 1	147895-2	107%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Naphthalene	mg/kg	147895-12	<0.1 <0.1	147895-2	105%
Acenaphthylene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	147895-12	<0.1 <0.1	147895-2	104%
Phenanthrene	mg/kg	147895-12	<0.1 <0.1	147895-2	106%
Anthracene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	147895-12	<0.1 <0.1	147895-2	100%
Pyrene	mg/kg	147895-12	<0.1 <0.1	147895-2	106%
Benzo(a)anthracene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	147895-12	<0.1 <0.1	147895-2	86%
Benzo(b,j+k)fluoranthene	mg/kg	147895-12	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	147895-12	<0.05 <0.05	147895-2	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	147895-12	119 118 RPD: 1	147895-2	110%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
HCB	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	147895-12	<0.1 <0.1	147895-2	64%
gamma-BHC	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	147895-12	<0.1 <0.1	147895-2	100%
Heptachlor	mg/kg	147895-12	<0.1 <0.1	147895-2	68%
delta-BHC	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	147895-12	<0.1 <0.1	147895-2	89%
Heptachlor Epoxide	mg/kg	147895-12	<0.1 <0.1	147895-2	63%
gamma-Chlordane	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	147895-12	<0.1 <0.1	147895-2	72%
Dieldrin	mg/kg	147895-12	<0.1 <0.1	147895-2	72%
Endrin	mg/kg	147895-12	<0.1 <0.1	147895-2	71%
pp-DDD	mg/kg	147895-12	<0.1 <0.1	147895-2	74%
Endosulfan II	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	147895-12	<0.1 <0.1	147895-2	61%
Methoxychlor	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	147895-12	101 100 RPD: 1	147895-2	83%

Client Reference: 85512.00, Erskine Park

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Azinphos-methyl (Guthion)	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Bromophos-ethyl	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	147895-12	<0.1 <0.1	147895-2	78%
Chlorpyrifos-methyl	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Diazinon	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Dichlorvos	mg/kg	147895-12	<0.1 <0.1	147895-2	78%
Dimethoate	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	147895-12	<0.1 <0.1	147895-2	85%
Fenitrothion	mg/kg	147895-12	<0.1 <0.1	147895-2	103%
Malathion	mg/kg	147895-12	<0.1 <0.1	147895-2	107%
Parathion	mg/kg	147895-12	<0.1 <0.1	147895-2	108%
Ronnel	mg/kg	147895-12	<0.1 <0.1	147895-2	95%
Surrogate TCMX	%	147895-12	101 100 RPD: 1	147895-2	92%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Aroclor 1016	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	147895-12	<0.1 <0.1	147895-2	87%
Aroclor 1260	mg/kg	147895-12	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	147895-12	101 100 RPD: 1	147895-2	92%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Date analysed	-	147895-12	06/06/2016 06/06/2016	147895-2	06/06/2016
Arsenic	mg/kg	147895-12	7 8 RPD: 13	147895-2	73%
Cadmium	mg/kg	147895-12	<0.4 <0.4	147895-2	75%
Chromium	mg/kg	147895-12	15 14 RPD: 7	147895-2	82%
Copper	mg/kg	147895-12	12 26 RPD: 74	147895-2	75%
Lead	mg/kg	147895-12	13 12 RPD: 8	147895-2	74%
Mercury	mg/kg	147895-12	<0.1 <0.1	147895-2	92%
Nickel	mg/kg	147895-12	3 3 RPD: 0	147895-2	85%
Zinc	mg/kg	147895-12	14 12 RPD: 15	147895-2	93%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 147895-12 for Cu. Therefore a triplicate result has been issued as laboratory sample number 147895-14.

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NR: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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



Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Friskine Park
Project No: 85512-00
Project Mgr: D. Walker
Email: david.walker@douglaspartners.com.au
Date Required: Standard T/A

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Lab Quote No.

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes						Other	Notes
						Contd 6a	Contd 3	Contd 3a	PAH	metals (5)	PH	CEC	
1	0-0.2'	1	2/6/16	S	Jar	✓					✓		
2	0-0.3'	2				✓							
3	0-0.3'	3						✓			✓		
4	0.8-0.9'	4				✓							
5	0-0.1'	5				✓				✓			
6	0.4-0.5'	6				✓							
7	0-0.2'	7				✓	✓						
8	0.5-0.6'	8				✓						✓	
9	6-0.1'	9				✓					✓		
10	0-0.1'	10				✓							
11	0.4-0.5'	11				✓	✓						
12	0-0.1'	12				✓					✓		

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No:

147895

Date Received: 3/6/16

Time Received: 13:00

Received by: PH

Temp: Cool/Ambient

Sealing: Ice/icepack

Security: Intact/Broken/None

Lab Report No.

Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114

Relinquished by: D. Walker Signed: D. Walker Date & Time: 3/6/16

Relinquished by: Signed: Date & Time:

Phone: (02) 9809 0666

Fax: (02) 9809 4095

Received By: EUS Date & Time: 3/6 13:00

Received By: Date & Time:

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Lab Report No.

Send Results to: **Douglas Partners** Address: 96 Hermitage Road, West Ryde 2114

Relinquished by: *D. Walker* Signed: *P. Walker* Date & Time: *3/6/16* Received By: *ELS* Phone: (02) 9809 0666 Fax: (02) 9809 4095

Relinquished by: Signed: Date & Time: Received By: Date & Time: *3/6 13:00*

SAMPLE RECEIPT ADVICE

Client Details	
Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details	
Your Reference	85512.00, Erskine Park
Envirolab Reference	147895
Date Sample Received	03/06/2016
Date Instructions Received	03/06/2016
Date Results Expected to be Reported	10/06/2016

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	13 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	11.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

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

Sample and Testing Details on following page

Sample Id	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils	pH 1:5 soil:water	CEC
1-0.0-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2-0.0-0.3	✓	✓	✓	✓	✓	✓	✓	✓		
3-0.0-0.3	✓	✓	✓				✓	✓	✓	✓
3-0.8-0.9	✓	✓	✓	✓	✓	✓	✓	✓		
4-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓		
4-0.4-0.5			✓				✓			
5-0.0-0.2	✓	✓	✓	✓	✓	✓	✓	✓		
5-0.5-0.6	✓	✓	✓				✓			
6-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓		
7-0.4-0.5	✓	✓	✓				✓			
8-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BD2-020616			✓				✓			