



**ENVIRONMENTAL INVESTIGATION SERVICES**

**REPORT**

**TO**

**HANSEN YUNCKEN PTY LTD**

**ON**

**PRELIMINARY ENVIRONMENTAL SITE  
ASSESSMENT**

**FOR**

**PROPOSED INDUSTRIAL ESTATE**

**AT**

**CORNER OF THE HORSLEY DRIVE & COWPASTURE  
ROAD, WETHERILL PARK NSW 2164**

**December 2011**

**Ref: E25371KGrpt**



## **EXECUTIVE SUMMARY**

Hansen Yuncken Pty Ltd commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake a preliminary environmental site assessment (ESA) for the proposed development located at the corner of The Horsley Drive and Cowpasture Road, Wetherill Park (the Site).

The site is located on the northern side of The Horsley Drive, at the intersection of Cowpasture Road, Wetherill Park. At the time of the investigation the site was vacant and predominantly covered with long grasses. In general the site was surrounded by parklands or residential properties, except to the east. Commercial properties were located to the east of the site. Property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) was excluded from this preliminary ESA.

At the time of this investigation the site was generally occupied by a vacant land with abandoned market gardens.

A geotechnical investigation was undertaken in conjunction with the environmental site screening by J&K and the results are presented in a separate report.

EIS understand that the proposed development will comprise a new industrial estate.

The objectives of the investigation were to:

- Assess the risk of significant widespread soil contamination conditions at the site in relation to the proposed development; and
- Prepare a report presenting the results of the investigation generally in accordance with the EPA Guidelines for Consultants Reporting on Contaminated Sites (1997) and State Environmental Planning Policy No.55 – Remediation of Land (1998).

A search of the EPA on-line database did not indicate the existence of any notices for the site under section 58 of the CLM Act 1997. However, a search of the list of contaminated sites notified to the EPA indicated that the property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) had been notified as a contaminated site which was used as a fuel storage depot in the past. EIS note that this property is currently excluded from the Preliminary ESA as it is privately owned (not owned by the Western Sydney Parklands Trust). However, EIS understand that this property will be included into the proposed development in the future. A search of the EPS public register (POEO) did not indicate the existence of any notices, applications and licenses for the site. However we have noted that a number of such notices were issued to other properties at the adjacent industrial estate.

Soil samples were obtained from 12 sampling locations for this investigation. This density is less than 1% of the minimum sampling density recommended by the NSW guidelines. Assessment of the groundwater contamination status was not included in this investigation.

Elevated concentrations of contaminants were not encountered in the soil samples analysed for the investigation. All results were below the site assessment criteria. Asbestos was not detected above the reporting limit in the soil samples analysed for the investigation.

Based on the scope of work undertaken for this assessment EIS consider that the site can be made suitable for the proposed development provided that the following recommendations are implemented. EIS identified a number of potential sources of contamination within the site and in the adjacent properties to the east of the site:

- Undertake a comprehensive environmental site assessment, according to EPA Guidelines, to meet the minimum sampling density i.e. drill approximately 164 additional boreholes within the site;
- Convert a number of boreholes into groundwater monitoring wells and assess the groundwater contamination conditions;



- Sample at identified potential fill area, stockpiles and rusted car bodies and scrap metals areas; and
- Sample the water and sediments in the dams.

The property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) is of particular concern. This property was formerly a fuel storage depot and as a result of contamination has been reported to the EPA. Although the property is not part of the site EIS understand that there may be plans to acquire it in the future. If acquired this property should be included in any future site assessment.

Prior to commencement of any future contamination investigations EIS recommend that the grass is cut so that the surface of the site can be assessed.

The conclusions presented in this report have been made within the limitations of the scope of works undertaken for the investigation. The conclusions and recommendations should be read in conjunction with the limitations presented in the body of the report.



## TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Proposed Development Details	1
1.2	References to the State Body for Environmental Regulation	1
2	OBJECTIVES AND SCOPE OF WORK	1
2.1	Objectives	1
2.2	Scope of Work	2
3	SITE INFORMATION	3
3.1	Site Identification	3
3.2	Site Description	3
3.3	Regional Geology	4
3.4	Hydrogeology	4
4	SITE HISTORY ASSESSMENT	5
4.1	Aerial Photographs	5
4.2	Land Title Search	6
4.3	Council Records	15
4.4	EPA Records	15
4.5	Assessment of Historical Information Integrity	16
4.6	Summary of Historical Site Use	16
5	POTENTIAL CONTAMINATION SOURCES	16
5.1	Site Specific Contaminants of Concern	17
5.2	Potential Receptors	18
5.3	Contaminant Laydown and Transport Mechanisms	19
6	ASSESSMENT CRITERIA DEVELOPMENT	19
6.1	Regulatory Background	19
6.2	Evaluation of Soil Analysis Data and Contaminant Threshold Concentrations	23
6.3	Groundwater Contamination	23
7	ASSESSMENT PLAN	23
7.1	Soil Sampling Density	23
7.2	Data Quality Objectives (DQOs)	24
7.3	Data Quality Indicators (DQIs) and Quality Assurance	24
8	INVESTIGATION PROCEDURE	25
8.1	Soil Sampling Methods	25
8.2	Photoionisation Detector (PID) Screening	26
8.3	Laboratory Analysis	26
9	RESULTS OF INVESTIGATION	27
9.1	Subsurface Conditions	27
9.2	Laboratory Results	28
10	ASSESSMENT OF ANALYTICAL QA/QC	29
11	DISCUSSION	30
11.1	Summary of Soil Conditions	30
11.2	Conclusion	30
12	LIMITATIONS	31

Abbreviations

Important Information About Your Environmental Site Assessment

### LIST OF TABLES:

Table A:	Summary of Laboratory Test Data – Soil Characterisation Assessment
Table B:	Summary of Laboratory Test Data – QA/QC Duplicate RPD Results



**LIST OF FIGURES:**

- Figure 1: Site Location Plan**  
**Figure 2: Borehole Location Plan**

**LIST OF APPENDICES:**

- Appendix A: Borehole Logs and Geotechnical Explanatory Notes**  
**Appendix B: Laboratory Reports and Chain of Custody Documents**  
**Appendix C: Site History Assessment Documents**  
**Appendix D: Sampling Protocols and QA/QC Definitions**



## **1 INTRODUCTION**

Hansen Yuncken Pty Ltd commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake a preliminary environmental site assessment (ESA) for the proposed development located at the corner of The Horsley Drive and Cowpasture Road, Wetherill Park (the Site).

At the time of this investigation the site was generally occupied by a vacant land with abandoned market gardens. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2.

The screening was undertaken generally in accordance with an EIS proposal (Ref: EP5979KH) of 8 November 2011.

A geotechnical investigation was undertaken in conjunction with the environmental site screening by J&K and the results are presented in a separate report (Ref. 25371ZRrpt).

### **1.1 Proposed Development Details**

EIS understand that the proposed development will comprise a new industrial estate. Details of the proposed development were not available to EIS at the time of the preparation of this report.

### **1.2 References to the State Body for Environmental Regulation**

Over the past few years the environmental regulatory body has undergone a number of name changes, including:

- Environmental Protection Authority (EPA);
- Department of Environment and Conservation (DEC);
- Department of Environment and Climate Change (DECC);
- Department of Environment, Climate Change and Water (DECCW); and
- Office of Environment and Heritage (OEH).

The department is currently known as the Environmental Protection Authority (EPA).

## **2 OBJECTIVES AND SCOPE OF WORK**

### **2.1 Objectives**

The objectives of the investigation were to:

- Assess the risk of significant widespread soil contamination conditions at the site in relation to the proposed development; and
- Prepare a report presenting the results of the investigation generally in accordance with the *EPA Guidelines for Consultants Reporting on Contaminated*



*Sites (1997<sup>1</sup>) and State Environmental Planning Policy No.55 – Remediation of Land (1998<sup>2</sup>).*

## **2.2 Scope of Work**

The scope of work undertaken to achieve the objective included:

- Review of available geological/hydro-geological groundwater data;
- Review of the salinity risk map for the site;
- Site History Assessment:
  - Review of historical aerial photographs and land title records;
  - Purchase and review of Section 149 (2) and (5) certificates for the site;
  - Search of the EPA notices for the site under Section 58 of the Contaminated Land Management Act (1997);
  - Search of the EPA public register (POEO) for licences, applications or notices for the site;
- Walkover inspection of the site to identify potential on-site and off-site contamination sources;
- Soil Sampling and Laboratory Analysis:
  - Soil sampling from 12 boreholes drilled for the J&K geotechnical investigation;
  - Sampling of fill and natural soil/bedrock during drilling based on field observations;
  - Screening the samples obtained during the assessment for volatile organic compounds, using a photoionisation detector (PID);
  - Analysing a selected soil samples for the following contaminants: heavy metals, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons (TPH), monocyclic aromatic hydrocarbons (BTEX), organochlorine (OC) and organophosphate (OP) pesticides, polychlorinated biphenyls (PCBs) and asbestos;
- Implementation of field QA/QC procedure (duplicate) during the soil sampling; and
- Preparation of a report presenting the results of the assessment with recommendations for additional investigation work.

Field work for this investigation was undertaken on 21 and 22 November 2011. Investigation on groundwater contamination condition was not included in the scope of the investigation.

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<sup>1</sup> *Guidelines for Consultants Reporting on Contaminated Sites*, NSW EPA (now DECCW), 1997 (Reporting Guidelines 1997)

<sup>2</sup> *State Environmental Planning Policy No. 55 – Remediation of Land*, NSW Government, 1998 (SEPP55)



### 3 SITE INFORMATION

#### 3.1 Site Identification

The site identification details are summarised in the following table:

<b>Site Owner:</b>	Western Sydney Parkland Trust
<b>Site Address:</b>	Corner of The Horsley Drive & Cowpasture Road, Wetherill Park NSW 2164
<b>Lot &amp; Deposited Plan:</b>	<ul style="list-style-type: none"><li>• Lots 25, 28B, 30, 30A, 30B, 32 &amp; 32A DP 13961</li><li>• Lots 1, 2, 3, 4 &amp; 5 DP 1098128</li><li>• Lot C DP 103755</li><li>• Lot 100 DP 879680</li><li>• Lot 1 DP 1036933</li></ul>
<b>Current Land Use:</b>	Vacant
<b>Proposed Land Use:</b>	Industrial Estate
<b>Local Government Authority:</b>	Fairfield City Council
<b>Site Area:</b>	Approximately 16ha
<b>AHD:</b>	Approximately 70m
<b>Geographical Location (MGA):</b>	N:335045 E:1505233 (approximately)
<b>Site Locality Plan:</b>	Refer to Figure 1
<b>Borehole Location Plan:</b>	Refer to Figure 2

#### 3.2 Site Description

The site is located on the northern side of The Horsley Drive, at the intersection of Cowpasture Road, Wetherill Park. The site is situated within undulating regional terrain.

At the time of the investigation the site was vacant and predominantly covered with long grasses. Scattered scrub was located in the north-west sections of the site. Small to medium size trees were scattered throughout the site. The topography of the site was dominated by an elevated area over the central portion of the site with moderately steep slopes down to the north and south.

Two dams were located over the north-western corner of the site within a gully feature.

Two lots extended into the site from the central portion of the Cowpasture Road frontage and the eastern portion of The Horsley Drive frontage. Single storey brick and rendered houses with metal clad shed or garage structures were located close to the street frontages.



To the west of the site, set back about 1.0m from the boundary, was a concrete paved bicycle path running the length of the site. Beyond the path, set back approximately 35m from the site, was the Sydney Western Water Supply Canal.

In general the site was surrounded by parklands or residential properties, except to the east. Commercial properties were located to the east of the site.

The presence of relatively tall grasses over the majority of the site did not allow for a thorough inspection of the site surface. Waste items from the previous land users were, however, evident in some areas adjacent to the dams and included rusted car bodies and scrap metal. Potentially filled areas were also evident adjacent to the dams. Possible stockpiles, covered with thick grass, were evident near the south west corner of the site adjacent to The Horsley Drive.

There were no obvious signs of significant salinity impacts at the site including salt scalds or vegetation dieback.

The property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) was excluded from this preliminary ESA as requested by the client. However during the site investigation EIS observed a number of oil and/or fuel drums and a locked shipping container within this property.

### **3.3 Regional Geology**

The geological map of Penrith (1991<sup>3</sup>) indicates the site to be underlain by Bringelly Shale of the Wianamatta Group, which typically consists of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.

Generally, the boreholes revealed a subsurface profile comprising a limited thickness of topsoil overlying residual clays then weathered bedrock at shallow to moderate depth. Groundwater was not encountered over the depth of the investigation. For further detailed subsurface conditions at each borehole location, reference should be made to the attached borehole logs presented as Appendix A.

### **3.4 Hydrogeology**

NSW Office of Water<sup>4</sup> records were researched for the investigation and indicated that no registered groundwater bores lie within 1km of the site.

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<sup>3</sup> 1:100,000 Geological Map of Penrith (Series 9030), Department of Mineral Resources (1991)

<sup>4</sup> <http://www.waterinfo.nsw.gov.au/gw/>, visited on 7 December 2011



The stratigraphy of the site is expected to consist of residual clayey soils overlying relatively shallow bedrock. Based on these conditions groundwater is not considered to be a significant resource in the immediate area of the site.

#### **4 SITE HISTORY ASSESSMENT**

##### **4.1 Aerial Photographs**

Aerial photographs of the site taken in 1930, 1947, 1961, 1978, 1986, 1994 and 2005 were obtained from the Department of Lands and were reviewed as part of the assessment of the site history. The information obtained from the photographs are summarised in the following table:

<b>Year</b>	<b>Details</b>
1930	The site and the surrounding area was undeveloped land which was generally covered with grass and scattered trees. Dense trees were noted adjacent to the east of the site. The Sydney Western Water Supply Canal was visible to the west of the site.
1943	Farming activities had commenced within the site and the surrounding areas, except to the east. The land to the east of the site remained covered with dense trees. A dam associated with the farming activities was located in the north west section of the site. A number of rural residential properties were located in the south section of the site along The Horsley Drive frontage.
1961	Farming activity had intensified within the site and the surrounding areas. Two additional dams had been constructed within the site within close proximity to the existing dam. The number of the residential properties alongside The Horsley Drive had increased. Two new residential properties were apparent to the east of the site, alongside Cowpasture Road.  The land to the east of the site had been partially cleared for farming activities.
1978	The site generally appeared similar to 1961 photograph.  Farming activities had been intensified in the surrounding areas.
1986	The site generally appeared similar to 1978 photograph.



	Agricultural activity in the property to the east of the site had ceased and commercial activities had commenced.
1994	Agricultural activity had ceased in the northern area of the site. The other areas of the site were essentially unchanged since 1986.  Commercial activity to the east of the site had been significantly increased.
2005	Agricultural activity had ceased across the entire site and within the surrounding areas.  Commercial activity to the east of the site had been significantly increased.

#### 4.2 Land Title Search

A limited historical land title search was performed on our behalf by Advanced Legal Search Pty Ltd. Copies of the title records are presented in Appendix C and a summary of the relevant information is provided in the following table:

Registration Date	Proprietor
	<b>Lot 25 DP 13961</b>
2008 – todate	Western Sydney Parklands Trust
1988 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lot 25 DP 13961 – Area 9 Acres 1 Rood 7 ¼ Perches – CTVol 5330 Fol 201)
1987 – 1988	Minister Administering the Environmental Planning and Assessment Act, 1979
1959 – 1987	Tarsillo Crestani, farmer
1955 – 1959	Livio Crestani, farmer Tarsillo Crestani, farmer
1949 – 1955	Jean Isabel Lymbery, married woman
1942 – 1949	Vaclav Svatos, market gardner
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1942	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)



1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 32 DP 13961</b>
2008 – todate	Western Sydney Parklands Trust
1999 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1993 – 1999	Franco Morassut Deloras Elizabeth Morassut
1988 – 1993	Luciano Morassut, transport worker Franco Morassut, boilermaker
	(Lot 32 DP 13961 – CTVol 9879 Fol 15)
1964 – 1988	Luciano Morassut, transport worker Franco Morassut, boilermaker
	(Lots 32 & 32A DP 13961 – Area 6 Acres 3 Roods 5 ¾ Perches – CTVol 6020 Fol 156)
1960 – 1964	Elido Bortolazzo, market gardener
1949 – 1960	Antonette Bortolazzo, wife of market gardener
1949 – 1949	Francesco Ragonesi, market gardener
	(Lot 32 DP 13961 – Area 5 Acres 1 Rood 30 ¼ perches – CTVol 4338 Fol 167)
1930 – 1949	Arthur Rickard & Co Limited
1929 – 1930	Mary Jane Turner, wife of civil servant
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1929	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 32A DP 13961</b>
2008 – todate	Western Sydney Parklands Trust
1999 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1993 – 1999	Deloras Elizabeth Morassut



1991 – 1993	Luciano Morassut, transport worker  (Lot 32A DP 13961 – CTVol 9879 Fol 16)
1964 – 1991	Luciano Morassut, transport worker  (Lots 32 & 32A DP 13961 – Area 6 Acres 3 Roods 5 ¾ Perches – CTVol 6020 Fol 156)
1960 – 1964	Elido Bortolazzo, market gardener
1949 – 1960	Antonette Bortolazzo, wife of market gardener
1949 – 1949	Francesco Ragonesi, market gardener  (Lot 32 DP 13961 – Area 5 Acres 1 Rood 30 ¼ perches – CTVol 4338 Fol 167)
1930 – 1949	Arthur Rickard & Co Limited
1929 – 1930	Mary Jane Turner, wife of civil servant  (Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1929	Arthur Richard & Co Limited  (Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lots 30, 30A &amp; 30B DP 13961 – A/C 7943-58</b>
2008 – todate	Western Sydney Parklands Trust
2005 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1992 – 2005	Gabriele Menolotto, carrier Giannino Menolotto, carrier Mario Nivino Menolotto, carrier  (Lots 30, 30A & 30B DP 13961 – Area 5 Acres 1 Rood 13 ¼ Perches – CTVol 7943 Fol 58)
1966 – 1992	Gabriele Menolotto, carrier Giannino Menolotto, carrier Mario Nivino Menolotto, carrier
1960 – 1966	Giacomo Battaglin, bricklayer  (Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)
1947 – 1960	Guerino Maronese, farmer  (Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 & 20)



1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1937	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 28B DP 13961</b>
2010 – todate	Western Sydney Parklands Trust
2006 – 2010	Minister Administering the Environmental Planning and Assessment Act, 1979
1989 – 2006	Leslie Gordon Lindsay Hall, butcher
	(Lot 28B DP 13961 – CTVol 15498 Fol 176)
1987 – 1989	Leslie Gordon Lindsay Hall, butcher
	(Lot 28B DP 13961 – Area 2 Roods 39 Perches – CTVol 4949 Fol 193)
1953 – 1987	Leslie Gordon Lindsay Hall, butcher
1938 – 1953	John Lindsay Hall, butcher
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1938	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lots 1 &amp; 2 DP 1098128 – A/C 4370-247</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	(Lots 29 & 29A DP 13961 – A/C 4370-247)
1995 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979



1993 – 1995	New South Wales Planning and Environment Commission
	(Lots 29 & 29A DP 13961 – Area 4 Acres 2 Roods 15 ½ Perches – CTVol 4370 Fol 247)
1977 – 1993	New South Wales Planning and Environment Commission
1974 – 1977	Maria Morosin, widow
1954 – 1974	Angelo Morosin, miner Maria Morosin
1948 – 1954	Esmee Muriel Gifford Attard, wife of merchantile mariner
1930 – 1948	Mary Jane Turner, wife of civil servant
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1938	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 3 DP 1098128</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	(Lot 29B DP 13961)
1989 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
	(Lot 29B DP 13961 – Area 2 Roods 0 Roods 38 Perches – CTVol 5911 Fol 213)
1984 – 1989	Minister Administering the Environmental Planning and Assessment Act, 1979
1981 – 1984	David William Blain Diana Mary Blain
1951 – 1981	Albert Fittler, kiln burner
<b>1948 – 1951</b>	<b>Samuel Foster Money (jnr), garage proprietor</b>
	(Lot 29B DP 13961 and other lands – Area 1103 Acres 0 Roods 11 ¾ Perches – CTVol 5400 Fol 220)
1943 – 1948	Arthur Rickard & Co Limited
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1943	Arthur Richard & Co Limited



	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 4 DP 1098128</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lot 28A DP 13961)
1995 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
1990 – 1995	The Cumberland County Council (Lot 28A DP 13961 – Area 2 Roods 39 ¾ Perches – CTVol 4376 Fol 72)
1953 – 1990	The Cumberland County Council
1951 – 1953	Edmond Brian Johnson, welder
1948 – 1951	Gladys Lillian Tucker, widow
1930 – 1948	Annie Maud Ackerman, widow
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1930	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 5 DP 1098128</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lot 101 DP 879680)
2002 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
1998 – 2002	Santina Piccinin Aurelia Cincotta (Lot 1 DP 516627)
1993 – 1998	Santina Piccinin



	Aurelia Cincotta
1988 – 1993	Attilio Crosariol, retired
	(Lot 1 DP 516627 – CTVol 10145 Fol 211)
1969 – 1988	Attilio Crosariol, retired
1965 – 1969	Giuseppe Cipressi, labourer
	(Lot 28C DP 13961 – CTVol 9982 Fol 210)
1965 – 1965	Giuseppe Cipressi, labourer
	(Lots 28 & 28C DP 13961 – Area 3 Acres 2 Roods 6 ¾ Perches – CTVol 7250 Fol's 69 & 70)
1957 – 1965	Giuseppe Cipressi, labourer Teodoro Cipressi, labourer
	(Lot 28C DP13961 – Area 2 Roods 29 ¾ Perches – CTVol 5082 Fol 191)
1945 – 1957	Otto Gustav Karl Harting, poultry farmer
1945 – 1945	Margaret Florence Walker, wife of retired farmer
1939 – 1945	Leo Austin O'Loughlin, farmer Annie Eleanor O'Loughlin
1939 – 1939	Elijah Sisson, storekeeper
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1939	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot C DP 103755</b>
2008 – todate	Western Sydney Parklands Trust
1995 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1989 – 1995	New South Wales Planning and Environment Commission
	(Lot C DP 103755 – CTVol 10045 Fol 33)
1979 – 1989	New South Wales Planning and Environment Commission
<b>1965 – 1979</b>	Romeo Morosin, <b>motor mechanic</b>
	(Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)
1947 – 1965	Guerino Maronese, farmer
	(Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 & 20)



1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1937	Arthur Richard & Co Limited
	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 100 DP 879680</b>
2008 – todate	Western Sydney Parklands Trust
2002 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1998 – 2002	Santina Piccinin Aurelia Cincotta
	(Lot 28 DP 13961)
1993 – 1998	Santina Piccinin Aurelia Cincotta
1988 – 1993	Attilio Crosariol, retired
	(Lot 28 DP 13961 – CTVol 9982 Fol 209)
1969 – 1988	Attilio Crosariol, retired
1965 – 1969	Giuseppe Cipressi, labourer
	(Lots 28 & 28C DP 13961 – CTVol 7250 Fol's 69 & 70)
1957 – 1965	Giuseppe Cipressi, labourer Teodoro Cipressi, labourer
	Lot 28 DP 13961 – Area 2 Acres 3 Roods 17 Perches – CTVol 4868 Fol 188)
1945 – 1957	Otto Gustave Karl Harting, poultry farmer
1945 – 1945	Margaret Florence Walker, wife of retired farmer
1939 – 1945	Leo Austin O'Loughlin, farmer Annie Eleanor O'Loughlin
1939 – 1939	Elijah Sisson, storekeeper
1937 – 1939	Rosetta Marion Collier, married woman
	(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1937	Arthur Richard & Co Limited



	(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent
	<b>Lot 1 DP 1036933</b>
2008 – todate	Western Sydney Parklands Trust
2002 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lot A DP 103755)
1989 – 2002	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lot A DP 103755 – CTVol 15529 Fol 165)
1988 – 1989	Minister Administering the Environmental Planning and Assessment Act, 1979 (Lots A & B DP 103755 – Area 11 Acres 3 Roods 33 ¾ Perches – CTVol 7691 Fol 216)
1959 – 1988	Lino Menolotto, farmer (Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)
1947 – 1959	Guerino Maronese, farmer (Lots 26, 27, 30, 30A, 30B, 31, 31A & 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 & 20)
1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer (Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A & 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)
1928 – 1937	Arthur Richard & Co Limited (Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
(1912 – 1924)	(lease to Stanley Ross Antib, farmer)
1911 – 1923	John Weston Perry, stock and station agent

The land search has not indicated any particular land use that may be considered to have resulted in significant contamination of the soil in the site apart from two lots. The Lot 3 DP 1098128 was owned by a garage proprietor between 1948–1951 and



the Lot C DP 103755 was owned by a motor mechanic between 1965–1979. If these trades were carried out on site then this may have resulted in contamination of the soil and groundwater at the site.

#### **4.3 Council Records**

A search of Development Application (DA) and Building Approval (BA) records/the property file held by Fairfield City Council is currently underway and the results will be forwarded when received.

##### **4.3.1 Section 149 Planning Certificate**

The s149 (2 and 5) planning certificate for the site is included in Appendix C. A summary of the information most relevant to the preliminary ESA information is presented below:

- The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of CLM Act 1997;
- Council is not aware that a Site Audit Statement (SAS) has been issued for the site; and
- The site is not located within a Class 1 or 2 ASS risk area.

#### **4.4 EPA Records**

A search of the EPA on-line database<sup>5</sup> did not indicate the existence of any notices for the site under section 58 of the CLM Act 1997. **However**, a search of the list<sup>6</sup> of contaminated sites notified to the EPA indicated that the property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) had been notified as a contaminated site which was used as a fuel storage depot in the past. EIS note that this property is currently excluded from the Preliminary ESA as it is privately owned (not owned by the Western Sydney Parklands Trust). However, EIS understand that this property will be included into the proposed development in the future.

A search of the EPS public register (POEO)<sup>7</sup> did not indicate the existence of any notices, applications and licenses for the site. However we have noted that a number of such notices were issued to other properties at the adjacent industrial estate.

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<sup>5</sup> <http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx>, visited on 8 December 2011

<sup>6</sup> <http://www.environment.nsw.gov.au/clm/publiclist.htm>, visited on 8 December 2011

<sup>7</sup> <http://www.environment.nsw.gov.au/prpoeoapp/searchregister.aspx>, visited on 8 December 2011



#### **4.5 Assessment of Historical Information Integrity**

The site history assessment has generally been obtained from government records including the NSW land titles office, local government historical archives, historical aerial photographs and NSW WorkCover records. The veracity of the information from these sources is considered to be high, however, given the age of the development, the gap of up to 17 years between aerial photographs and the lack of information available on activities prior to 1930s, a certain degree of information loss is to be expected.

Non verifiable anecdotal information has not been relied upon during assessment of historical site use. Therefore, there is considered to be a high level of integrity associated with information obtained with respect to historical use of the site.

#### **4.6 Summary of Historical Site Use**

The search of historical information has indicated the following:

- The site has been used for farming purposes since at least 1947;
- There are no recorded notices listed on the EPA, CLM or POEO register; and
- EPA records indicated that the property identified as 200-212 Cowpasture Road, Wetherill Park (excluded from current investigation) had been notified as a contaminated site. This property had been used as a fuel storage depot in the past.

### **5 POTENTIAL CONTAMINATION SOURCES**

Based on the scope of work undertaken for the assessment, the following potential contamination sources or potentially contaminating activities have been identified at the site:

- Potentially contaminated, imported fill material;
- Potential asbestos contamination associated with demolition of the former site buildings/sheds;
- Stockpiles with unknown sources of origin;
- Historical use of the site for farming purposes;
- Historical activities such as use of pesticides;
- Prior use of the Lot 10 DP 879 209 property as a fuel storage depot; and
- Contaminated properties at the adjacent industrial estate.



## 5.1 Site Specific Contaminants of Concern

### 5.1.1 Site Specific Soil Contaminants of Concern

The assessment has identified a number of potential soil contaminants of concern that may be associated with the potential contamination sources and/or potentially contaminating activities. The potential soil contaminants of concern are listed in the following table along with a description of the potential source/land use associated with each contaminant.

Potential Contaminant	Potential Source and/or Land Use Associated with the Contaminant
Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works; and</li> <li>• Stockpiles with unknown sources of origin.</li> </ul>
Total Petroleum Hydrocarbons (TPHs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of the site for motor mechanical works;</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot.</li> </ul>
Monocyclic Aromatic Hydrocarbons (BTEX compounds)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works; and</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot.</li> </ul>
Volatile Organic Compounds (VOCs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Contaminated properties at the adjacent industrial estate.</li> </ul>
Polycyclic Aromatic Hydrocarbons (PAHs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works;</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot; and</li> <li>• Contaminated properties at the adjacent industrial estate.</li> </ul>
Organochlorine and Organophosphorus pesticides (OCPs & OPPs)	<ul style="list-style-type: none"> <li>• Imported fill soils; and</li> <li>• The application of pesticides for pest control.</li> </ul>
Polychlorinated Biphenyls (PCBs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• The substation located in the north-west corner of the site; and</li> <li>• Contaminated properties at the adjacent industrial estate.</li> </ul>
Asbestos	<ul style="list-style-type: none"> <li>• Imported fill soils; and</li> <li>• Demolition of the former shed in the north section of the site.</li> </ul>



### 5.1.2 Site Specific Groundwater Contaminants of Concern

The potential for groundwater contamination is likely to be associated with the presence of soil contaminants at the site. Therefore at this stage, the potential groundwater contaminants of concern have been established based on the more common groundwater contaminants encountered in Sydney (this list may be subject to revision in the event that actual soil contamination is identified at the site). The potential groundwater contaminants of concern are listed in the following table along with a description of the potential source/land use associated with each contaminant.

Potential Contaminant	Potential Source and/or Land Use Associated with the Contaminant
Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works; and</li> <li>• Stockpiles with unknown sources of origin.</li> </ul>
Total Petroleum Hydrocarbons (TPHs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of the site for motor mechanical works;</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot.</li> </ul>
Monocyclic Aromatic Hydrocarbons (BTEX compounds)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works; and</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot.</li> </ul>
Volatile Organic Compounds (VOCs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Contaminated properties at the adjacent industrial estate.</li> </ul>
Polycyclic Aromatic Hydrocarbons (PAHs)	<ul style="list-style-type: none"> <li>• Imported fill soils;</li> <li>• Previous industrial use of parts of the site during the 1940s and 1970s for motor mechanical works;</li> <li>• Prior use of the Lot 10 DP 879 209 property as a fuel storage depot; and</li> <li>• Contaminated properties at the adjacent industrial estate.</li> </ul>

### 5.2 Potential Receptors

The main potential contamination receptors are considered to include:

- Sydney Western Water Supply Canal located approximately 50m to the west of the site;
- Site visitors, workers and adjacent property owners, who may come into contact with contaminated soil and/or be exposed to contaminated dust arising from construction activity; and
- Future site occupants.



### **5.3 Contaminant Laydown and Transport Mechanisms**

At this site, mobile contaminants would be expected to move down to the rock surface and migrate laterally down-slope from the source. The movement of contaminants would be expected to be associated with groundwater flow and seepage at the top of the bedrock.

## **6 ASSESSMENT CRITERIA DEVELOPMENT**

### **6.1 Regulatory Background**

In 1997 the NSW Government introduced the CLM Act. This Act has been amended by the *Contaminated Land Management Amendment Act* (2008<sup>8</sup>).

The CLM Act 1997, associated regulations and EPA guidelines, were designed to provide uniform state-wide control of the management, investigation and remediation of contaminated land.

Prior to granting consent for any proposed rezoning or development, SEPP55 requires the consent authority to:

- Consider whether the land is contaminated;
- Consider whether the site is suitable, or if contaminated, can be made suitable by remediation, for the proposed land use; and
- Be satisfied that remediation works will be undertaken prior to use of the site for the proposed use.

Should the assessment indicate that the site poses a risk to human health or the environment, remediation of the site may be required prior to occupation of the proposed development. SEPP55 requires that the relevant local council be notified of all remediation works, whether or not development consent is required. Where development consent is not required, 30 days written notice of the proposed works must be provided to council. Details of validation of remediation work must also be submitted to Council within one month of completion of remediation works.

The consent authority may request that a site audit be undertaken during, or following the completion of the site assessment process. Under the terms of the CLM Act 1997 the EPA Site Auditor Scheme was developed to provide a system of independent review for assessment reports. An accredited Contaminated Site Auditor is engaged to review reports prepared by suitably qualified consultants to ensure that the

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<sup>8</sup> *Contaminated Land Management Amendment Act*, NSW Government Legislation, 2008 (CLM Amendment Act 2008)



investigation has been undertaken in accordance with the guidelines and confirm that the sites are suitable for their intended use.

Section 59(2) of the CLM Act 1997 states that specific notation relating to contaminated land issues must be included on Section 149 (s149) planning certificates prepared by Council where the land to which the certificate relates is:

- Within an investigation or remediation area;
- Subject to an investigation or remediation order by the EPA;
- The subject of a voluntary investigation or remediation proposal; and/or
- The subject of a site audit statement.

Submission of contaminated site investigation and validation reports to council as part of rezoning or development application submissions may also result in notation of actual or potential site contamination on future s149 certificates prepared for the site.

Section 60 of the CLM Amendment Act 2008 sets out a positive duty on a land owner, or person whose activities have caused contamination, to notify the EPA if they are or become aware that contamination exists on a site that generally poses "*an unacceptable risk to human health or the environment, given the site's current or approved use*". This duty to report is based on trigger values, above which notification is required.

Off-site disposal of fill, contaminated material and excess soil/rock excavated as part of the proposed development works is regulated by the provisions of the *Protection of the Environment Operations Act* (1997<sup>9</sup>) and associated regulations and guidelines including the *EPA Waste Classification Guidelines - Part 1: Classifying Waste* (2009<sup>10</sup>). All materials should be classified in accordance with these guidelines prior to disposal.

Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner.

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<sup>9</sup> *Protection of Environment Operations Act*, NSW Government, 1997 (POEO Act 1997)

<sup>10</sup> *Waste Classification Guidelines, Part 1: Classifying Waste*, NSW DECC, 2009 (Waste Classification Guidelines 2009)



### 6.1.1 Asbestos in Soil

NEPM 1999 does not provide numeric guidelines for the assessment of asbestos in soil. EPA advice (2006) has indicated that consultants should use their 'professional judgement' regarding determination of appropriate investigation and remediation levels for asbestos in soils; however the EPA have not published numerical guidelines for the assessment of asbestos in subsurface soils.

The WorkCover publication *Working with Asbestos Guide* (2008<sup>11</sup>) states that, where buried asbestos is encountered, "A competent occupational hygienist should assess the site to determine:

- If asbestos material is bonded or friable
- The extent of asbestos contamination
- Safe work procedures for the remediation of the site"

*"Any asbestos cement products that have been subjected to weathering, or damaged by hail, fire or water blasting are considered to be friable asbestos and an asbestos removal contractor with a WorkCover license for friable asbestos removal is required for its removal"*. Under the *NSW Occupational Health and Safety (OHS) Regulations 2001*<sup>12</sup> and WorkCover requirements all necessary disturbance works associated with friable asbestos containing materials must be conducted by a licensed AS-1 Asbestos Removal Contractor.

### 6.1.2 Site Assessment Criteria (SAC) for Soil Contaminants

The 'commercial/industrial' (Column F) exposure setting has been adopted for this assessment and the appropriate soil criteria are listed in the following table:

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<sup>11</sup> *Working with Asbestos Guide*, NSW WorkCover, 2008 (WorkCover Working with Asbestos Guide 2008)

<sup>12</sup> *Occupational Health and Safety Regulation*, NSW Government, 2001 (NSW OH&S Regulation 2001)



Contaminant	SAC - HILs Column F (mg/kg)
<b>Heavy Metals</b>	
Arsenic (total)	500
Cadmium	100
Chromium (III)	60%
Copper	5000
Lead	1500
Mercury (inorganic)	75
Nickel	3000
Zinc	35000
<b>Petroleum Hydrocarbons</b>	
TPH (C <sub>6</sub> -C <sub>9</sub> )	65 <sup>a</sup>
TPH (C <sub>10</sub> -C <sub>36</sub> )	1000 <sup>a</sup>
Benzene	1 <sup>a</sup>
Toluene	1.4 <sup>a</sup>
Ethylbenzene	3.1 <sup>a</sup>
Total Xylenes	14 <sup>a</sup>
<b>PAHs</b>	
Total PAHs	100
Benzo(a)pyrene	5
<b>Pesticides (OCPs &amp; OPPs)</b>	
Aldrin + Dieldrin	50
Chlordane	250
DDT + DDD + DDE	1000
Heptachlor	50
Total OPPs	0.1 <sup>b</sup>
<b>Others</b>	
Asbestos	NDLR <sup>c</sup>

**Note:**

<sup>a</sup> Service Station Guidelines 1994

<sup>b</sup> Due to the absence of locally endorsed guideline criteria, the laboratory practical quantitation limit (PQL) has been adopted.

<sup>c</sup> Not Detected at Limit of Reporting (NDLR)



## **6.2 Evaluation of Soil Analysis Data and Contaminant Threshold Concentrations**

Assessment of the soil analytical data using the soil contaminant threshold concentrations has been undertaken in accordance with the methodology outlined in the NEPM 1999 Schedule 7(a)

The following criteria have been adopted for assessment of the analytical data:

- For a site to be considered suitable for the proposed land use each individual contaminant concentration should be less than the SAC; and
- Where the concentration of each contaminant is less than the SAC in all samples, the suitability of the site for the proposed use may be assessed based solely on individual analytical results.

Where contamination results exceed the SAC, a method of remediating the site is to physically and selectively remove the contamination hotspots from the site. This process should be continued until statistical analysis of the data meets the SAC. Validation of the remediated site is generally required to demonstrate that the site is suitable for the proposed land use.

## **6.3 Groundwater Contamination**

Assessment of the groundwater contamination status was not included in this investigation.

## **7 ASSESSMENT PLAN**

### **7.1 Soil Sampling Density**

The *NSW EPA Contaminated Sites Sampling Design Guidelines (1995<sup>13</sup>)*/*EPA Sampling Design Guidelines 1995* for contaminated site investigations state that samples should be obtained from a minimum of 176 evenly spaced sampling points for a site of this size (approximately 16ha).

Samples were obtained from 12 sampling locations for this investigation. This density is less than 1% of the minimum sampling density.

The boreholes were drilled on a judgemental sampling plan designed for geotechnical investigation by J&K.

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<sup>13</sup> *Contaminated Sites Sampling Design Guidelines*, NSW EPA, 1995 (EPA Sampling Design Guidelines 1995)



Sampling was not undertaken beneath in the property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) as this was excluded from the investigation.

## **7.2 Data Quality Objectives (DQOs)**

The DQOs for the assessment were developed with reference to the US EPA document *Data Quality Objectives Process for Hazardous Waste Site Investigations* (2000<sup>14</sup>). The document includes seven steps as follows:

1. State the problem
2. Identify the decision
3. Identify inputs into the decision
4. Study Boundaries
5. Develop a Decision Rule
6. Specify Limits on Decision Errors
7. Optimise the Design for Obtaining data

Field investigations are undertaken generally in accordance with EIS sampling protocols outlined in Appendix D.

## **7.3 Data Quality Indicators (DQIs) and Quality Assurance**

The validation, as part of the DQOs, involves the technical review of the data using defined QA Assessment Criteria. The success of the DQIs is based on assessment of the data set as a whole and not on individual acceptance or exceedance within the data set.

Review of QA criteria was based on laboratory data including surrogate recovery, repeat analysis, laboratory control sample (LCS), matrix spikes and method blanks.

Field QA/QC included collection and analysis of one (1) field soil sample as intra-laboratory duplicate.

Success of field DQIs is based on the following criteria:

- Relative percentage differences (RPDs) was calculated for the intra-laboratory duplicate. The RPD was calculated as the absolute value of the difference between the initial and repeat result divided by the average value, expressed as a percentage. The following acceptance criteria were used to assess the RPD results:
  - For results that were greater than 10 times the Practical Quantitation Limit (PQL) RPDs less than 50% were considered acceptable.

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<sup>14</sup> *Data Quality Objectives Process for Hazardous Waste Site Investigations*, US EPA, 2000 (US EPA 2000)



- For results that were between 5 and 10 times PQL RPDs less than 75% were considered acceptable.
- For results that were less than 5 times the PQL RPDs less than 100% were considered acceptable.

## 8 INVESTIGATION PROCEDURE

### 8.1 Soil Sampling Methods

Subsurface investigation was undertaken using a track mounted hydraulically operated drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) sampler or directly from the auger when conditions did not allow use of the SPT sampler.

The SPT sampler was washed with phosphate free detergent and rinsed following each sampling event. The spiral flight augers were decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water. Details of the decontamination procedure adopted during sampling are presented in Appendix D.

All samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. Sampling personnel used disposable nitrile gloves during sampling activities.

During the investigation, soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with AS 4482.1-2005<sup>15</sup> and AS 4482.2-1999<sup>16</sup> as summarised in the following table:

Analyte	Preservation	Storage
Heavy metals	Unpreserved glass jar with Teflon lined lid	Store at < 4°, analysis within 28 days (mercury and Cr[VI]) and 180 days (other metals).
VOCs (TPH/BTEX)		Store at < 4°, nil headspace, extract within 14 days, analysis within forty days
PAHs, OCP, OPP & PCBs		
Asbestos	Sealed plastic bag	None

<sup>15</sup> *Guide to the Investigation and Sampling of sites with Potentially Contaminated Soil*, Standards Australia, 2005 (AS 2005)

<sup>16</sup> *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part2: Volatile Substances*, Standards Australia, 1999 (AS 1999)



The samples were labelled with the job number, sampling location, sampling depth and date. All samples were recorded on the borehole logs presented in Appendix A and on the laboratory chain of custody (COC) record presented in Appendix B.

On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures. Detailed EIS field sampling protocols are included in Appendix D.

## **8.2 Photoionisation Detector (PID) Screening**

A portable PID was used to screen the samples for the presence of volatile organic compounds (VOCs).

The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source.

The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents.

PID screening of detectable volatile organic compounds (VOCs) was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. The PID headspace data is presented on the COC documents and borehole logs.

## **8.3 Laboratory Analysis**

Laboratory analysis was undertaken by Envirolab Services Pty Ltd (NATA Accreditation No. 2901).

### **8.3.1 Soil Samples**

Soil samples were analysed using the following analytical methods detailed in Schedule B(3) of NEPM (1999<sup>17</sup>):

- Heavy metals – Nitric acid digestion. Analysis by ICP/AES;
- OC and OP pesticides and PCBs – Extracted with dichloromethane/acetone. Analysis by GC/ECD;
- PAHs – Soil extracted with dichloromethane/acetone. Analysis by GC/MS;
- TPH (volatile) – Soil extracted with methanol. Analysis by P&T GC/MS;

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<sup>17</sup> *Guideline on Laboratory Analysis of Potentially Contaminated Soils*, Schedule B(3), NEPM, 1999 (Schedule B(3))



- TPH – Soil extracted with dichloromethane/acetone. Analysis by GC/FID;
- BTEX – Soil extracted with methanol. Analysis by P&T GC/MS; and
- Asbestos – Polarizing light microscopy.

## **9 RESULTS OF INVESTIGATION**

### **9.1 Subsurface Conditions**

Borehole locations are shown on Figure 2. For details of the subsurface soil profile reference should be made to the borehole logs in Appendix A. A summary of the subsurface conditions encountered in the boreholes is presented below:

#### ***Topsoil***

All the boreholes drilled during the first stage of the investigation encountered topsoil that ranged in depth from 50mm to 500mm in depth. The topsoil typically consisted of medium plasticity silty clay with a trace of ironstone gravel.

#### ***Fill***

Fill was not encountered on site during the current investigation.

#### ***Natural Soil***

In boreholes the topsoil was underlain by medium to high plasticity silty clay with traces of ironstone gravel. The silty clays were typically assessed to be very stiff and hard.

#### ***Bedrock***

Shale bedrock was generally encountered in the boreholes at depths that ranged from 1.2m to 3.0m.

#### ***Groundwater***

Groundwater seepage was not encountered in the boreholes during drilling. The maximum depth of the boreholes was 6m. The boreholes remained dry during drilling and a short time after the completion of drilling.



## **9.2 Laboratory Results**

The laboratory reports are presented in Appendix B. The results have been assessed against the SAC adopted for this investigation.

### **9.2.1 Soil Samples**

The soil laboratory results are presented in Table A. The results of the analyses are summarised below.

#### ***Heavy Metals***

Twelve soil samples were analysed for heavy metals. The results of the analyses were below the SAC.

#### ***Petroleum Hydrocarbons (TPH) and Monocyclic Aromatic Hydrocarbons (BTEX)***

PID soil sample headspace readings were all zero ppm equivalent isobutylene. These results indicate a lack of PID detectable volatile organic contaminants.

Twelve soil samples were analysed for TPH and BTEX compounds. The results of the analyses were below the SAC.

#### ***Polycyclic Aromatic Hydrocarbons (PAHs)***

Twelve soil samples were analysed for a range of PAHs including Benzo(a)pyrene. The results of the analyses were below the laboratory practical quantitation limit (PQL) and less than the SAC.

#### ***Organochlorine (OCPs) and Organophosphorous (OPPs) Pesticides***

Twelve soil samples were analysed for a range of OCPs and OPPs. The results of the analyses were below the laboratory PQL and less than the SAC.

#### ***Polychlorinated Biphenyls (PCBs)***

Twelve soil samples were analysed for a range of PCBs. The results of the analyses were below the laboratory PQL and less than the SAC.

#### ***Asbestos***

Twelve soil samples were screened for the presence of asbestos fibres. The results of the analyses indicated that asbestos fibres were not encountered within the samples and no respirable fibres were detected.



## 10 ASSESSMENT OF ANALYTICAL QA/QC

The DQOs and DQIs established for the investigation have been assessed in this section of the report. The assessment includes a review of the laboratory QA/QC procedure to assess whether the sample data is reliable.

The laboratory report for this investigation has been checked and issued as final by Envirolab Services Pty Ltd; NATA Accreditation No. 2901 (Report number: 65486).

The RPD results for the field QA/QC duplicate samples are summarised in Table B. An assessment of the DQIs adopted for this investigation is summarised in the following table. A brief explanation of the individual DQI is presented in Appendix D.

DQO	DQI
<b>Precision:</b>	
Intra-laboratory duplicate	The intra-laboratory RPD values indicated that field precision was acceptable.
<u>Sample Reference:</u> QC1 is a duplicate of soil sample BH11 (0.5-0.95m)	
Laboratory duplicate RPD values	Laboratory duplicate RPD results for the soil analysis were generally within the acceptance criteria adopted by the laboratory.
<b>Accuracy:</b>	
Surrogate Spikes	Laboratory accuracy was good and that no outliers were reported.
Matrix Spike	Laboratory accuracy was good and that no outliers were reported.
Laboratory Control Sample (LCS)	Laboratory accuracy was good and that no outliers were reported.
<b>Representativeness:</b>	
Samples extracted and analysed within holding time	All samples were extracted and analysed within the appropriate holding times outlined in the investigation procedure.
Analysis of Laboratory Blanks	All laboratory blanks were found to be free of analyte concentrations above the PQLs.
<b>Comparability:</b>	
EIS sampling protocols	Sampling was undertaken in accordance with the EIS sampling protocols outlined in Appendix D.
Standard laboratory analytical methods used	All Samples
Samples obtained by qualified staff	All Samples
<b>Completeness:</b>	
Documentation (including site notes, borehole logs and COC etc) was correctly maintained	All Samples
Samples obtained were analysed for the contaminants of concern	All Samples
Appropriate analytical methods used by the laboratory.	All Samples



## **11 DISCUSSION**

The preliminary environmental site assessment undertaken for the proposed industrial estate development was designed to assess the risk of significant soil contamination at the site in relation to the proposed commercial/industrial land use.

### **11.1 Summary of Soil Conditions**

Soil samples obtained for the investigation were analysed for the potential contaminants of concern identified at the site.

Elevated concentrations of contaminants were not encountered in the soil samples analysed for the investigation. All results were below the site assessment criteria (SAC).

#### **11.1.1 Asbestos in Soil**

Asbestos was not detected above the reporting limit in the soil samples analysed for the investigation.

### **11.2 Conclusion**

Based on the scope of work undertaken for this assessment EIS consider that the site can be made suitable for the proposed development provided that the following recommendations are implemented. EIS identified a number of potential sources of contamination within the site and in the adjacent properties to the east of the site:

- Undertake a comprehensive environmental site assessment, according to EPA Guidelines, to meet the minimum sampling density i.e. drill approximately 164 additional boreholes within the site;
- Convert a number of boreholes into groundwater monitoring wells and assess the groundwater contamination conditions;
- Sample at identified potential fill area, stockpiles and rusted car bodies and scrap metals areas; and
- Sample the water and sediments in the dams.

The property identified as 200-212 Cowpasture Road, Wetherill Park (Lot 10 DP 879 209) is of particular concern. This property was formerly a fuel storage depot and as a result of contamination has been reported to the EPA. Although the property is not part of the site EIS understand that there may be plans to acquire it in the future. If acquired this property should be included in any future site assessment.

Prior to commencement of any future contamination investigations EIS recommend that the grass is cut so that the surface of the site can be assessed.



## **12      LIMITATIONS**

The boreholes drilled for the investigation have enabled an assessment to be made of the existence of significant, large quantities of contaminated soils. EIS adopts no responsibility whatsoever for any problems such as underground storage tanks, buried items or contaminated material that may be encountered between sampling locations at the site. The proposed construction activities at the site should be planned on this basis, and any unexpected problem areas that are encountered between boreholes should be immediately inspected by experienced environmental personnel. This should ensure that such problems are dealt with in an appropriate manner, with minimal disruption to the project timetable and budget.

The conclusions developed in this report are based on site conditions which existed at the time of the site assessment and the scope of work outlined previously in this report. They are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, and visual observations of the site and vicinity, together with the interpretation of available historical information and documents reviewed as described in this report.

The investigation for this assessment and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined previously in this report.

Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated.

EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination.

Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected.

Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work.



EIS accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site.

EIS have not and will not make any determination regarding finances associated with the site.

Changes in the proposed or current site use may result in remediation or further investigation being required at the site.

During construction at the site, soil, fill and any unsuspected materials that are encountered should be monitored by qualified environmental and geotechnical engineers to confirm assumptions made on the basis of the limited investigation data, and possible changes in site level and other conditions since the investigation. Soil materials considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. Copyright in this report is the property of EIS. EIS has used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report.

Should you require any further information regarding the above, please do not hesitate to contact us.

Yours faithfully  
For and on behalf of  
ENVIRONMENTAL INVESTIGATION SERVICES

A handwritten signature in black ink, appearing to read 'Para Bokalawela', written over a light blue horizontal line.

Para Bokalawela  
Senior Environmental Engineer

A handwritten signature in black ink, appearing to read 'Adrian Kingswell', written over a light blue horizontal line.

Adrian Kingswell  
Senior Associate



## **ABBREVIATIONS**

AAS	Atomic Absorption Spectrometry
AGST	Above Ground Storage Tank
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment Conservation Council
ASS	Acid Sulfate Soil
B(a)P	Benzo(a)pyrene
BH	Borehole
BTEX	Benzene, Toluene, Ethyl benzene, Xylene
COC	Chain of Custody documentation
CLM	Contaminated Land Management
DECCW	Department of Environment, Climate Change and Water
DNR	NSW Department of Natural Resources
DWE	NSW Department of Water and Energy
DP	Deposited Plan
DQO	Data Quality Objective
EC	Electrical Conductivity
EPA	Environment Protection Authority (formerly OEH, DECCW, DECC and DEC)
GC-ECD	Gas Chromatograph-Electron Capture Detector
GC-FID	Gas Chromatograph-Flame Ionisation Detector
GC-MS	Gas Chromatograph-Mass Spectrometer
HIL	Health Based Investigation Level
HM	Heavy Metals
ICP-AES	Inductively Couple Plasma – Atomic Emission Spectra
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NHMRC	National Health and Medical Research Council
OEH	Office of Environment and Heritage
OCPs	Organochlorine Pesticides
OHS (OH&S)	Occupational Health and Safety
PAH	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photo-ionisation Detector
PPIL	Provisional Phyto-toxicity Investigation Levels
PQL	Practical Quantitation Limit
P&T	Purge & Trap
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria
SEPP	State Environmental Planning Policy
sPOCAS	suspension Peroxide Oxidation Combined Acidity and Sulfate
TPH	Total Petroleum Hydrocarbons
VOC	Volatile Organic Compounds



## **IMPORTANT INFORMATION ABOUT THE SITE ASSESSMENT REPORT**

These notes have been prepared by EIS to assist with the assessment and interpretation of this report.

### ***An Environmental Assessment Report is Based on a Unique Set of Project Specific Factors:***

This report has been prepared in response to specific project requirements as stated in the EIS proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- the proposed land use is altered;
- the defined subject site is increased or sub-divided;
- the proposed development details including size, configuration, location, orientation of the structures are modified;
- the proposed development levels are altered, eg addition of basement levels;  
or
- ownership of the site changes.

EIS/J&K will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by EIS to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

### ***Changes in Subsurface Conditions***

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (eg. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.



### ***This Assessment is Based on Professional Interpretations of Factual Data***

Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

### ***Environmental Site Assessment Limitations***

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

### ***Misinterpretation of Environmental Site Assessments by Design Professionals***

Costly problems can occur when other design professionals develop plans based on misinterpretation of an environmental assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

### ***Logs Should not be Separated from the Environmental Assessment Report***

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic



reproduction can eliminate this problems, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the test of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

***Read Responsibility Clauses Closely***

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

TABLE A  
SUMMARY OF LABORATORY TEST DATA  
SOIL CHARACTERISATION ASSESSMENT  
All data in mg/kg unless stated otherwise

ANALYTE	HEAVY METALS									PAHs		ORGANOCHLORINE PESTICIDES				OP Pesticides	PCBs	PETROLEUM HYDROCARBONS								PID VALUES	ASBESTOS FIBRES			
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Aldrin and Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Petroleum Hydrocarbons				Benzene	Toluene	Ethyl Benzene	Total Xylenes								
	C <sub>6</sub> -C <sub>9</sub>	C <sub>10</sub> -C <sub>14</sub>	C <sub>15</sub> -C <sub>28</sub>	C <sub>29</sub> -C <sub>36</sub>	C <sub>10</sub> - C <sub>36</sub>																									
PQL - Envirolab Services	4	0.5	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.5	0.5	1	3				
Site Assessment Criteria ^	500 *	100 *	60% *	5000 *	1500 *	75 *	3000 *	35000 *	100 *	5 *	50 *	250 *	1000 *	50 *	0.1 ^^	50 *	65 #	NSL	NSL	NSL	1000 #	1 #	1.4 #	3.1 #	14 #					
Location	Depth in metres	DESCRIPTION	LPQL	LPQL	9	38	13	LPQL	5	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH1	0.5-0.95	Natural	LPQL	LPQL	9	38	13	LPQL	5	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH2	0.1-0.3	Topsoil	7	LPQL	20	32	26	LPQL	14	51	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH3	0.1-0.3	Topsoil	8	LPQL	16	28	18	LPQL	14	51	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH4	0.5-0.95	Natural	31	LPQL	15	59	20	LPQL	16	80	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH5	0.5-0.95	Natural	8	LPQL	15	12	11	LPQL	3	13	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH6	0.1-0.3	Topsoil	8	LPQL	20	37	23	LPQL	17	61	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH7	0.5-0.95	Natural	5	LPQL	18	45	30	LPQL	13	68	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH8	0.1-0.3	Topsoil	LPQL	LPQL	7	11	8	LPQL	2	10	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH9	0.1-0.3	Topsoil	11	LPQL	23	36	22	LPQL	12	55	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH10	0.1-0.3	Topsoil	12	LPQL	19	42	28	0.1	10	54	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH11	0.5-0.95	Natural	7	LPQL	18	24	18	LPQL	18	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
BH12	0.1-0.3	Topsoil	10	LPQL	24	19	26	LPQL	26	36	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos found at reporting limit of 0.1g/kg
<b>Total no. of samples</b>			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
<b>Maximum Value</b>			31	0	24	59	30	LPQL	26	80	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	NC

**EXPLANATION:**  
 ^ Site Assessment Criteria: Guideline concentrations adopted for the investigation as outlined below:  
 \* National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC Guidelines)  
 Health Investigation Levels (HIL) - Column F, Commercial/Industrial  
 \*\* Provisional Phyto-toxicity Investigation Levels (PPILs)  
 # NSW DECC (EPA) Guidelines for Assessing Service Station Sites - 1994  
 ^^ In the absence of Australian guidelines, the laboratory PQL has been adopted as the site assessment criteria  
 \* Waste Classification Guidelines – Part 1: Classifying Waste (2009)

Concentration above the Site Assessment Criteria **VALUE**

**ABBREVIATIONS:**  
 PAHs: Polycyclic Aromatic Hydrocarbons  
 B(a)P: Benzo(a)Pyrene  
 PQL: Practical Quantitation Limit  
 LPQL: Less than PQL  
 NA: Not Analysed  
 NC: Not Calculated  
 OP: Organophosphorus Pesticides  
 PID: Photoionisation Detector  
 PCBs: Polychlorinated Biphenyls  
 NSL: No Set Limit



TABLE B  
SOIL INTRA-LABORATORY DUPLICATE RESULTS  
QA/QC - RELATIVE PERCENTAGE DIFFERENCES

SAMPLE	ANALYSIS	INITIAL (mg/kg)	REPEAT (mg/kg)	MEAN (mg/kg)	RPD %
Intra-laboratory Soil sample ID = BH11 (0.5-0.95m) Dup ID = QC-1 Envirolab Report: 65486	Arsenic	7	6	6.5	15
	Cadmium	LPQL	LPQL	NC	NC
	Chromium	18	16	17	12
	Copper	24	23	23.5	4
	Lead	18	16	17	12
	Mercury	LPQL	LPQL	NC	NC
	Nickel	9	9	9	0
	Zinc	34	33	33.5	3
	Naphthalene	LPQL	LPQL	NC	NC
	Acenaphthylene	LPQL	LPQL	NC	NC
	Acenaphthene	LPQL	LPQL	NC	NC
	Fluorene	LPQL	LPQL	NC	NC
	Phenanthrene	LPQL	LPQL	NC	NC
	Anthracene	LPQL	LPQL	NC	NC
	Fluoranthene	LPQL	LPQL	NC	NC
	Pyrene	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	LPQL	LPQL	NC	NC
	Chrysene	LPQL	LPQL	NC	NC
	Benzo(b)&(k)fluorant	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	LPQL	LPQL	NC	NC
	Total PAHs	LPQL	LPQL	NC	NC
	C <sub>6</sub> -C <sub>9</sub> TPH	LPQL	LPQL	NC	NC
	C <sub>10</sub> -C <sub>14</sub> TPH	LPQL	LPQL	NC	NC
	C <sub>15</sub> -C <sub>28</sub> TPH	LPQL	LPQL	NC	NC
	C <sub>29</sub> -C <sub>36</sub> TPH	LPQL	LPQL	NC	NC
	Benzene	LPQL	LPQL	NC	NC
	Toluene	LPQL	LPQL	NC	NC
	Ethylbenzene	LPQL	LPQL	NC	NC
	Total Xylenes	LPQL	LPQL	NC	NC

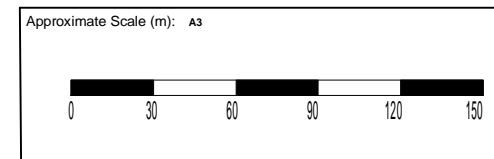
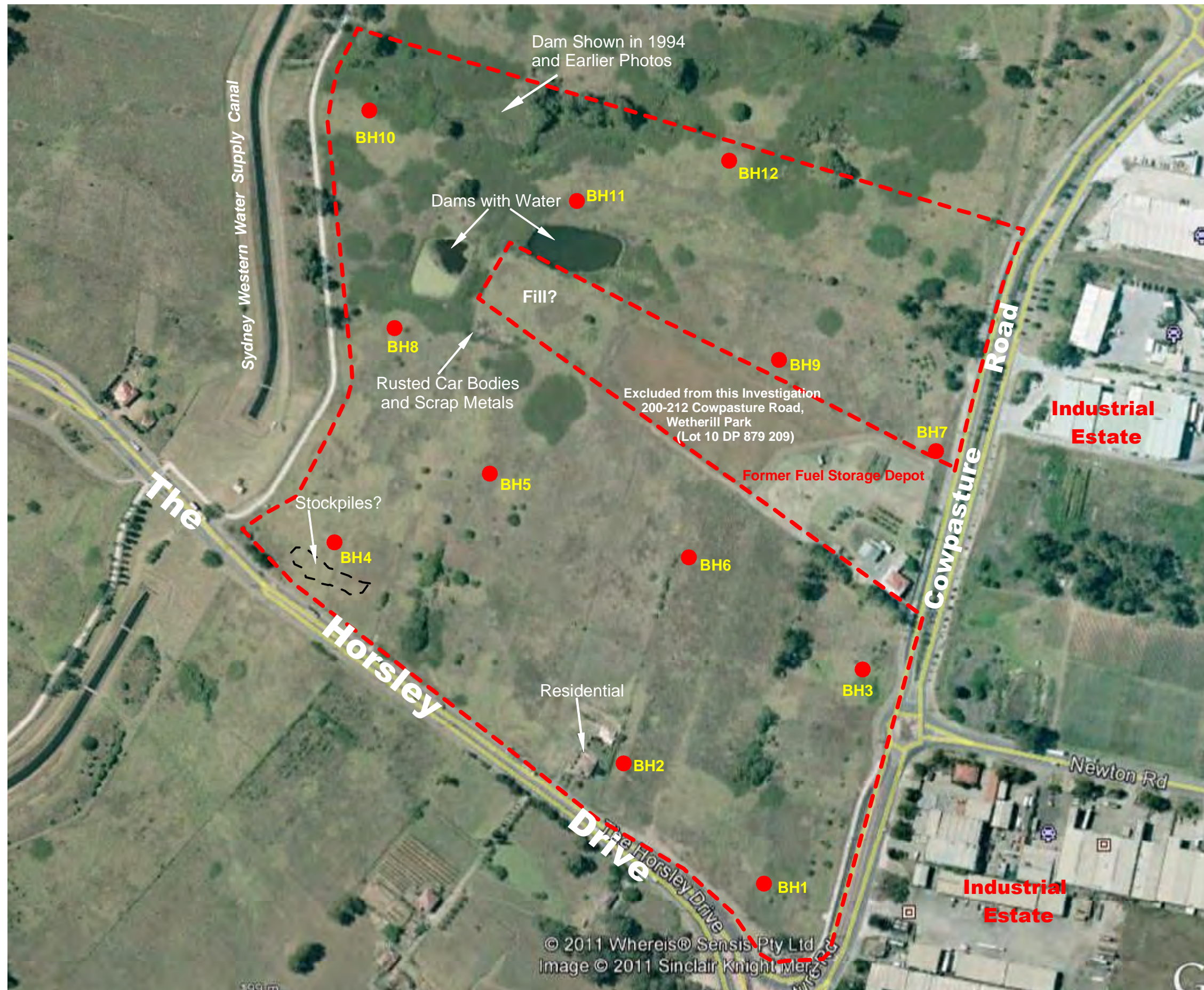
**ABBREVIATIONS:**

PQL: Practical Quantitation Limit  
LPQL: Less than PQL  
NC: Not Calculated



NOTES:  
 Figure 1 has been recreated from UBD maps  
 Figure is not to scale.  
 Reference should be made to the report  
 text for a full understanding of this plan.

	Project Number: E25371KG	Title: <b>Site Location Plan</b>
	Figure: 1	Address: Proposed Industrial Estate The Horsley Drive Wetherill Park NSW 2164



	Project Number:	E25371KG	Title:	Borehole Location Plan
	Figure:	2	Address:	Proposed Industrial Estate The Horsley Drive Wetherill Park NSW 2164



**APPENDIX A**  
**(Borehole Logs and Geotechnical Explanatory Notes)**



Borehole No.

1

1/1

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

**Client:** HANSEN YUNCKEN  
**Project:** PROPOSED INDUSTRIAL ESTATE  
**Location:** CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

**Job No.** E25371KG      **Method:** SPIRAL AUGER      **R.L. Surface:** N/A  
**Date:** 22-11-11      JK300      **Datum:**  
**Logged/Checked by:** D.S./

Groundwater Record	SAMPLING			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks	
	ES	ASS	SAL										
DRY ON COMPLETION				N = 5 1,2,3	0		CH	TOPSOIL: Silty clay, high plasticity, dark brown, trace of root fibres. SILTY CLAY: high plasticity, red brown, trace of fine to medium grained ironstone gravel and root fibres.	MC > PL MC > PL	VSt	-	GRASS COVER	
						1		-	as above, but mottled light grey.			230 240 250	
				N > 6 8,6/80mm REFUSAL	2		-	SHALE: light grey and red brown.	XW	EL			VERY LOW 'TC' BIT RESISTANCE
								SHALE: brown.	DW	L			LOW RESISTANCE
					3			END OF BOREHOLE AT 3.0m					
					4								
					5								
					6								
					7								



Borehole No.

**2**

1/1

# ENVIRONMENTAL LOG

*Environmental logs are not to be used for geotechnical purposes*

<b>Client:</b>	HANSEN YUNCKEN
<b>Project:</b>	PROPOSED INDUSTRIAL ESTATE
<b>Location:</b>	CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

<b>Job No.</b> E25371KG	<b>Method:</b> SPIRAL AUGER JK300	<b>R.L. Surface:</b> N/A
<b>Date:</b> 22-11-11		<b>Datum:</b>
<b>Logged/Checked by:</b> D.S./		

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION	█	█	█	N = 7 2,3,4	0	[Diagonal Hatching]	CH	TOPSOIL: Silty clay, high plasticity, red brown.				GRASS COVER
					1		SILTY CLAY: high plasticity, red brown mottled light grey, trace of fine to medium grained ironstone gravel.	MC > PL	VSt	270 290 310		
					2	SILTY CLAY: high plasticity, light grey and red brown, with fine to medium grained ironstone gravel.	MC < PL	H	> 600 > 600 > 600			
					2	SHALE: brown and dark grey.	DW	L		LOW 'TC' BIT RESISTANCE		
					3			END OF BOREHOLE AT 3.0m				
					4							
					5							
					6							
					7							



Borehole No.

3

1/1

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

<b>Client:</b>	HANSEN YUNCKEN	
<b>Project:</b>	PROPOSED INDUSTRIAL ESTATE	
<b>Location:</b>	CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW	
<b>Job No.</b> E25371KG	<b>Method:</b> SPIRAL AUGER JK300	<b>R.L. Surface:</b> N/A
<b>Date:</b> 22-11-11	<b>Logged/Checked by:</b> D.S./	<b>Datum:</b>

Groundwater Record	ES ASS ASB ASL SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0		CH	TOPSOIL: Silty clay, high plasticity, dark brown, trace of root fibres. SILTY CLAY: high plasticity, red brown mottled light grey, trace of root fibres.	MC > PL MC > PL	VSt	-	GRASS COVER
		N = 5 2,3,2	1						270 270 290	
		N = 10 2,3,7	2			SILTY CLAY: high plasticity, light grey, with fine to medium grained ironstone gravel.			250 290 310	
		N = 22 10,19,12	3		-	SHALE: brown and red brown.	XW	EL	-	VERY LOW 'TC' BIT RESISTANCE
			4			SHALE: brown and dark grey.	DW	L		LOW RESISTANCE
			5					L-M		
			6			END OF BOREHOLE AT 6.0m				
			7							



Borehole No.

4

1/1

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

**Client:** HANSEN YUNCKEN  
**Project:** PROPOSED INDUSTRIAL ESTATE  
**Location:** CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

**Job No.** E25371KG      **Method:** SPIRAL AUGER      **R.L. Surface:** N/A  
**Date:** 21-11-11      JK300  
**Datum:**  
**Logged/Checked by:** D.S./

Groundwater Record	ESS SAMPLES	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	[Pattern]	N = 14 3,5,9	0	[Hatched]	CH	TOPSOIL: Silty clay, high plasticity, red brown, trace of fine to medium grained ironstone gravel and root fibres.	MC > PL MC > PL	H	-	GRASS COVER
			1	[Hatched]		SILTY CLAY: high plasticity, red brown, trace of fine to medium grained ironstone gravel.			450 500 > 600	
			2	[Dotted]	-	SHALE: brown and red brown.	DW	M		
			3			SHALE: dark grey.		H		
			3			END OF BOREHOLE AT 3.0m				
			4							
			5							
			6							
			7							



Borehole No.

5

1/1

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

**Client:** HANSEN YUNCKEN  
**Project:** PROPOSED INDUSTRIAL ESTATE  
**Location:** CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

**Job No.** E25371KG      **Method:** SPIRAL AUGER      **R.L. Surface:** N/A  
**Date:** 21-11-11      JK300      **Datum:**  
**Logged/Checked by:** D.S./

Groundwater Record	LES ASS LAB SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	[Sample Log]	N = 7 3,3,4	0	[Hatched Pattern]	CH	TOPSOIL: Silty clay, high plasticity, red brown, with fine to medium grained ironstone gravel, trace of root fibres. SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel.	MC > PL MC > PL	H	- 450 480 450	GRASS COVER
			1	[Hatched Pattern]						
			2	[Dotted Pattern]	-	SANDSTONE: fine grained, brown and light grey. SANDSTONE: fine grained, brown.	XW DW	EL M	-	
			3			END OF BOREHOLE AT 3.0m				
			4							
			5							
			6							
			7							



Borehole No.

**6**

1/1

# ENVIRONMENTAL LOG

*Environmental logs are not to be used for geotechnical purposes*

**Client:** HANSEN YUNCKEN  
**Project:** PROPOSED INDUSTRIAL ESTATE  
**Location:** CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

**Job No.** E25371KG      **Method:** SPIRAL AUGER      **R.L. Surface:** N/A  
**Date:** 21-11-11      JK300      **Datum:**  
**Logged/Checked by:** D.S./

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASSB									
DRY ON COMPLETION					0		CH	TOPSOIL: Silty clay, high plasticity, red brown, trace of root fibres. SILTY CLAY: high plasticity, red brown.	MC > PL MC > PL	-	-	GRASS COVER  RESIDUAL
				N = 9 3,4,5	1						370 350 350	
				N > 20 10,20/ 150mm REFUSAL	2		-	SHALE: light grey and red brown.	XW	EL		
								SHALE: red brown and dark grey.	DW	M		
					3			END OF BOREHOLE AT 3.0m				
					4							
					5							
					6							
					7							



Borehole No.

7

1/1

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

<b>Client:</b>	HANSEN YUNCKEN
<b>Project:</b>	PROPOSED INDUSTRIAL ESTATE
<b>Location:</b>	CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

<b>Job No.</b> E25371KG	<b>Method:</b> SPIRAL AUGER JK300	<b>R.L. Surface:</b> N/A
<b>Date:</b> 22-11-11		<b>Datum:</b>
<b>Logged/Checked by:</b> D.S./		

Groundwater Record	SAMPLLES	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/Weathering	Strength/Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0		CH	TOPSOIL: Silty clay, high plasticity, dark brown and grey.	MC > PL	(St)	-	GRASS COVER
		N = 16 6,6,10	1			SILTY CLAY: high plasticity, light grey mottled red brown, with fine to medium grained ironstone gravel.	MC < PL	H	> 600 > 600 > 600	RESIDUAL
		SPT 10/150mm REFUSAL	2		-	SHALE: red brown and light grey.	XW	EL	-	VERY LOW 'TC' BIT RESISTANCE
			2			SHALE: red brown and dark grey.	DW	L		LOW RESISTANCE
			3			SHALE: brown and red brown.		M-H		MODERATE RESISTANCE
			3			END OF BOREHOLE AT 3.0m				
			4							
			5							
			6							
			7							

# ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

<b>Client:</b>	HANSEN YUNCKEN
<b>Project:</b>	PROPOSED INDUSTRIAL ESTATE
<b>Location:</b>	CNR. HORSLEY DRIVE & COWPASTURE ROAD, WETHERILL PARK, NSW

<b>Job No.</b> E25371KG	<b>Method:</b> SPIRAL AUGER JK300	<b>R.L. Surface:</b> N/A
<b>Date:</b> 22-11-11		<b>Datum:</b>
<b>Logged/Checked by:</b> D.S./		

Groundwater Record	SAMPLING ASS ASB SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			TOPSOIL: Silty clay, medium plasticity, brown, trace of root fibres.				GRASS COVER
		N = 8 3,3,5	0.5		CH	SILTY CLAY: high plasticity, red brown, trace of fine to medium grained ironstone gravel.	MC > PL	F	250 220 260 270	RESIDUAL
		N = 7 3,3,4	1.5			SILTY CLAY: high plasticity, red brown mottled grey, fine to coarse grained ironstone gravel.	MC < PL	VSt	300 350	
			2		-	SHALE: light grey and red brown.	XW	EL	-	VERY LOW 'TC' BIT RESISTANCE
		SPT 11/150mm	3			as above, but with clay seams.	XW	EL		
			3			SHALE: brown, red brown and dark grey.	DW	L		LOW RESISTANCE
			4							
			5							
			6			END OF BOREHOLE LOG AT 6.0m				
			7							



## REPORT EXPLANATION NOTES

### INTRODUCTION

These notes have been provided to amplify the geotechnical report in regard to classification methods, field procedures and certain matters relating to the Comments and Recommendations section. Not all notes are necessarily relevant to all reports.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Geotechnical engineering involves gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

### DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, the SAA Site Investigation Code. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (eg sandy clay) as set out below:

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.06mm
Sand	0.06 to 2mm
Gravel	2 to 60mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	Strength not attainable – soil crumbles

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'Shale' is used to describe thinly bedded to laminated siltstone.

### SAMPLING

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

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content, minor constituents and, depending upon the degree of disturbance, some information on strength and structure. Bulk samples are similar but of greater volume required for some test procedures.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained 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.

Details of the type and method of sampling used are given on the attached logs.

### INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All except test pits, hand auger drilling and portable dynamic cone penetrometers require the use of a mechanical drilling rig which is commonly mounted on a truck chassis.



**Test Pits:** These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for an excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

**Hand Auger Drilling:** A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as hard clay, gravel or ironstone, and does not necessarily indicate rock level.

**Continuous Spiral Flight Augers:** The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

**Rock Augering:** Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock fragments. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

**Wash Boring:** The borehole is usually advanced by a rotary bit, with water 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 "feel" and rate of penetration.

**Mud Stabilised Drilling:** Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg from SPT and U50 samples) or from rock coring, etc.

**Continuous Core Drilling:** A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as CORE LOSS. The location of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end of the drill run.

**Standard Penetration Tests:** Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating density or strength 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 F3.1.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm 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 150mm of, say, 4, 6 and 7 blows, as
$$N = 13$$
$$4, 6, 7$$
- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as
$$N > 30$$
$$15, 30/40\text{mm}$$

The results of the test can be related empirically to the engineering properties of the soil.

Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as "N<sub>c</sub>" on the borehole logs, together with the number of blows per 150mm penetration.



### Static Cone Penetrometer Testing and Interpretation:

Cone penetrometer testing (sometimes referred to as a Dutch Cone) described in this report has been carried out using an Electronic Friction Cone Penetrometer (EFCP). The test is described in Australian Standard 1289, Test F5.1.

In the tests, a 35mm diameter rod with a conical tip is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the frictional resistance on a separate 134mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are electrically connected by wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20mm per second) the information is output as incremental digital records every 10mm. The results given in this report have been plotted from the digital data.

The information provided on the charts comprise:

- Cone resistance – the actual end bearing force divided by the cross sectional area of the cone – expressed in MPa.
- Sleeve friction – the frictional force on the sleeve divided by the surface area – expressed in kPa.
- Friction ratio – the ratio of sleeve friction to cone resistance, expressed as a percentage.

The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and occasionally very soft clays, rising to 4% to 10% in stiff clays and peats. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Correlations between EFCP and SPT values can be developed for both sands and clays but may be site specific.

Interpretation of EFCP values can be made to empirically derive modulus or compressibility values to allow calculation of foundation settlements.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive. The test method provides a continuous profile of engineering properties but, where precise information on soil classification is required, direct drilling and sampling may be preferable.

**Portable Dynamic Cone Penetrometers:** Portable Dynamic Cone Penetrometer (DCP) tests are carried out by driving a rod into the ground with a sliding hammer and counting the blows for successive 100mm increments of penetration.

Two relatively similar tests are used:

- Cone penetrometer (commonly known as the Scala Penetrometer) – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS1289, Test F3.2). The 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.
- Perth sand penetrometer – a 16mm diameter flat ended rod is driven with a 9kg hammer, dropping 600mm (AS1289, Test F3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.

### LOGS

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

The attached explanatory notes define the terms and symbols used in preparation of the logs.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than “straight line” variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

### GROUNDWATER

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

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it 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 and may not be the same at the time of construction.
- 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 be washed out of the hole or ‘reverted’ chemically if water observations are to be made.



If these occur, the company will be pleased to assist with investigation or advice to resolve any problems occurring.

More reliable measurements can be made by installing standpipes which are read after stabilising at intervals ranging from several days to 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 perched water tables or surface water.

#### **FILL**

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg bricks, steel etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse engineering characteristics or behaviour. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

#### **LABORATORY TESTING**

Laboratory testing is normally carried out in accordance with Australian Standard 1289 *'Methods of Testing Soil for Engineering Purposes'*. Details of the test procedure used are given on the individual report forms.

#### **ENGINEERING REPORTS**

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building) the information and interpretation may not be relevant if the design proposal is changed (eg to a twenty storey building). If this happens, the company 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 aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions – the potential for this will be partially dependent on borehole spacing and sampling frequency as well as investigation technique.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of persons or contractors responding to commercial pressures.

#### **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, the company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed that at some later stage, well after the event.

#### **REPRODUCTION OF INFORMATION FOR CONTRACTUAL PURPOSES**

Attention is drawn to the document *'Guidelines for the Provision of Geotechnical Information in Tender Documents'*, published by the Institution of Engineers, Australia. Where information obtained from this investigation 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. The company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Copyright in all documents (such as drawings, borehole or test pit logs, reports and specifications) provided by the Company shall remain the property of Jeffery and Katauskas Pty Ltd. Subject to the payment of all fees due, the Client alone shall have a licence to use the documents provided for the sole purpose of completing the project to which they relate. License to use the documents may be revoked without notice if the Client is in breach of any objection to make a payment to us.

#### **REVIEW OF DESIGN**

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/ constraints are quite complex, it is prudent to have a joint design review which involves a senior geotechnical engineer.


































#### **SITE INSPECTION**

The company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

Requirements could range from:

- i) a site visit to confirm that conditions exposed are no worse than those interpreted, to
- ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or
- iii) full time engineering presence on site.

# GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS

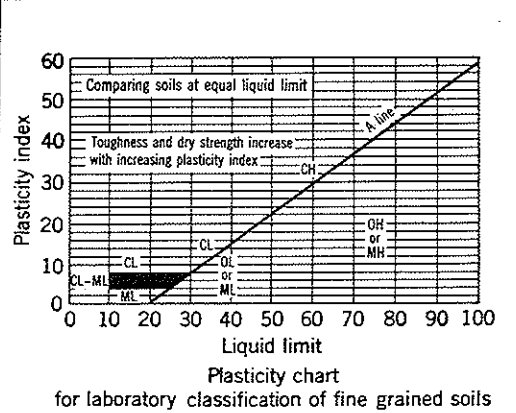
SOIL	ROCK	DEFECTS AND INCLUSIONS
 FILL	 CONGLOMERATE	 CLAY SEAM
 TOPSOIL	 SANDSTONE	 SHEARED OR CRUSHED SEAM
 CLAY (CL, CH)	 SHALE	 BRECCIATED OR SHATTERED SEAM/ZONE
 SILT (ML, MH)	 SILTSTONE, MUDSTONE, CLAYSTONE	 IRONSTONE GRAVEL
 SAND (SP, SW)	 LIMESTONE	 ORGANIC MATERIAL
 GRAVEL (GP, GW)	 PHYLLITE, SCHIST	<b>OTHER MATERIALS</b>
 SANDY CLAY (CL, CH)	 TUFF	 CONCRETE
 SILTY CLAY (CL, CH)	 GRANITE, GABBRO	 BITUMINOUS CONCRETE, COAL
 CLAYEY SAND (SC)	 DOLERITE, DIORITE	 COLLUVIUM
 SILTY SAND (SM)	 BASALT, ANDESITE	
 GRAVELLY CLAY (CL, CH)	 QUARTZITE	
 CLAYEY GRAVEL (GC)		
 SANDY SILT (ML)		
 PEAT AND ORGANIC SOILS		



# UNIFIED SOIL CLASSIFICATION TABLE

Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)				Group Symbols <sup>a</sup>	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria			
Coarse-grained soils More than half of material is larger than 75 μm sieve size  More than half of coarse fraction is larger than 4 mm sieve size	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	GW	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses  For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics  Example: <i>Silty sand, gravelly</i> ; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (SM)	$C_U = \frac{D_{60}}{D_{10}} \text{ Greater than 4}$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} \text{ Between 1 and 3}$ Not meeting all gradation requirements for GW			
			Predominantly one size or a range of sizes with some intermediate sizes missing	GP	Poorly graded gravels, gravel-sand mixtures, little or no fines					
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see ML below)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures			Atterberg limits below "A" line, or PI less than 4  Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols		
			Plastic fines (for identification procedures, see CL below)	GC	Clayey gravels, poorly graded gravel-sand-clay mixtures					
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes	SW	Well graded sands, gravelly sands, little or no fines			Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% GW, GP, SW, SP More than 5% GM, GC, SM, SC Borderline cases requiring use of dual symbols	$C_U = \frac{D_{60}}{D_{10}} \text{ Greater than 6}$ $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}} \text{ Between 1 and 3}$ Not meeting all gradation requirements for SW	
			Predominantly one size or a range of sizes with some intermediate sizes missing	SP	Poorly graded sands, gravelly sands, little or no fines					
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see ML below)	SM	Silty sands, poorly graded sand-silt mixtures					Atterberg limits below "A" line or PI less than 5  Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
			Plastic fines (for identification procedures, see CL below)	SC	Clayey sands, poorly graded sand-clay mixtures					
Fine-grained soils More than half of material is smaller than 75 μm sieve size  The 75 μm sieve size is about the smallest particle visible to naked eye	Identification Procedures on Fraction Smaller than 380 μm Sieve Size									
	Silt and clays liquid limit less than 50	Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)			Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses  For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions  Example: <i>Clayey silt, brown</i> ; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (ML)			
		None to slight	Quick to slow	None	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity				
		Medium to high	None to very slow	Medium	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays				
		Slight to medium	Slow	Slight	OL	Organic silts and organic silts-clays of low plasticity				
		Slight to medium	Slow to none	Slight to medium	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts				
		High to very high	None	High	CH	Inorganic clays of high plasticity, fat clays				
	Silt and clays liquid limit greater than 50	Medium to high	None to very slow	Slight to medium	OH	Organic clays of medium to high plasticity				
		Readily identified by colour, odour, spongy feel and frequently by fibrous texture			PI	Peat and other highly organic soils				

Use grain size curve in identifying the fractions as given under field identification



NOTE: 1) Soils possessing characteristics of two groups are designated by combinations of group symbols (e.g. GW-GC, well graded gravel-sand mixture with clay fines).

2) Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.



## LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION	
Groundwater Record		Standing water level. Time delay following completion of drilling may be shown.	
		Extent of borehole collapse shortly after drilling.	
		Groundwater seepage into borehole or excavation noted during drilling or excavation.	
Samples	ES	Soil sample taken over depth indicated, for environmental analysis.	
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.	
	DB	Bulk disturbed sample taken over depth indicated.	
	DS	Small disturbed bag sample taken over depth indicated.	
	ASB	Soil sample taken over depth indicated, for asbestos screening.	
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.	
	SAL	Soil sample taken over depth indicated, for salinity analysis.	
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'R' as noted below.	
	N <sub>c</sub> =	5	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
		7	
		3R	
VNS = 25 PID = 100	Vane shear reading in kPa of Undrained Shear Strength. Photoionisation detector reading in ppm (Soil sample headspace test).		
Moisture Condition (Cohesive Soils)  (Cohesionless Soils)	MC > PL	Moisture content estimated to be greater than plastic limit.	
	MC ≈ PL	Moisture content estimated to be approximately equal to plastic limit.	
	MC < PL	Moisture content estimated to be less than plastic limit.	
	D	DRY - runs freely through fingers.	
	M	MOIST - does not run freely but no free water visible on soil surface.	
W	WET - free water visible on soil surface.		
Strength (Consistency) Cohesive Soils	VS	VERY SOFT - Unconfined compressive strength less than 25kPa	
	S	SOFT - Unconfined compressive strength 25-50kPa	
	F	FIRM - Unconfined compressive strength 50-100kPa	
	St	STIFF - Unconfined compressive strength 100-200kPa	
	VSt	VERY STIFF - Unconfined compressive strength 200-400kPa	
	H	HARD - Unconfined compressive strength greater than 400kPa	
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other tests.	
Density Index/ Relative Density (Cohesionless Soils)	VL	<b>Density Index (I<sub>b</sub>) Range (%)</b> <b>SPT 'N' Value Range (Blows/300mm)</b> Very Loose      < 15      0-4	
	L	Loose      15-35      4-10	
	MD	Medium Dense      35-65      10-30	
	D	Dense      65-85      30-50	
	VD	Very Dense      > 85      > 50	
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other tests.	
Hand Penetrometer Readings	300	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.	
	250		
Remarks	'V' bit	Hardened steel 'V' shaped bit.	
	'TC' bit	Tungsten carbide wing bit.	
	T <sub>60</sub>	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.	

# Jeffery and Katauskas Pty Ltd

CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS  
ABN 17 003 550 801



## LOG SYMBOLS

### ROCK MATERIAL WEATHERING CLASSIFICATION

TERM	SYMBOL	DEFINITION
Residual Soil	RS	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered rock	XW	Rock is weathered to such an extent that it has "soil" properties, ie it either disintegrates or can be remoulded, in water.
Distinctly weathered rock	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Slightly weathered rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh rock	FR	Rock shows no sign of decomposition or staining.

### ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index ( $I_s$  50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining, Science and Geomechanics. Abstract Volume 22, No 2, 1985.

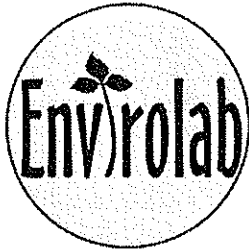
TERM	SYMBOL	$I_s$ (50) MPa	FIELD GUIDE
Extremely Low:	EL	0.03	Easily remoulded by hand to a material with soil properties.
Very Low:	VL	0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.
Low:	L	0.3	A piece of core 150mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
Medium Strength:	M	1	A piece of core 150mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
High:	H	3	A piece of core 150mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
Very High:	VH	10	A piece of core 150mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
Extremely High:	EH		A piece of core 150mm long x 50mm dia. is very difficult to break with hand-held hammer. Rings when struck with a hammer.

### ABBREVIATIONS USED IN DEFECT DESCRIPTION

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to the long core axis (ie relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Ironstained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	



**APPENDIX B**  
**(Laboratory Reports and Chain of Custody Documents)**



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

CERTIFICATE OF ANALYSIS

65486

Client:

Environmental Investigation Services  
PO Box 976  
North Ryde BC  
NSW 1670

Attention: Para Bokalawela

Sample log in details:

Your Reference: E25371KG, Wetherill Park  
No. of samples: 13 soils  
Date samples received / completed instructions received 24/11/11 / 24/11/11

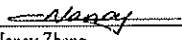
Analysis Details:

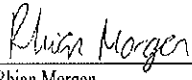
Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.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

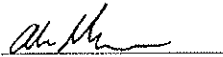
Report Details:

Date results requested by: / Issue Date: 1/12/11 / 29/11/11  
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:

  
Nancy Zhang  
Chemist

  
Rhian Morgan  
Reporting Supervisor

  
Alex MacLean  
Chemist

  
Paul Ching  
Approved Signatory

Envirolab Reference: 65486  
Revision No: R 00



vTRH & BTEX in Soil	UNITS	65486-1	65486-2	65486-3	65486-4	65486-5
Our Reference:	-----	BH1	BH2	BH3	BH4	BH5
Your Reference	-----					
Depth	-----	0.5-0.95	0.1-0.3	0.1-0.3	0.5-0.95	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
vTRHC <sub>6</sub> - C <sub>9</sub>	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
Surrogate aaa-Trifluorotoluene	%	128	128	127	122	139

vTRH & BTEX in Soil	UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Our Reference:	-----	BH6	BH7	BH8	BH9	BH10
Your Reference	-----					
Depth	-----	0.1-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
vTRHC <sub>6</sub> - C <sub>9</sub>	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
Surrogate aaa-Trifluorotoluene	%	128	123	134	70	124

vTRH & BTEX in Soil	UNITS	65486-11	65486-12	65486-13
Our Reference:	-----	BH11	BH12	QC-1
Your Reference	-----			
Depth	-----	0.5-0.95	0.1-0.3	-
Date Sampled		22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011
vTRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	126	72	109

Client Reference: E25371KG, Wetherill Park

sTRH in Soil (C10-C36)		UNITS	65486-1	65486-2	65486-3	65486-4	65486-5
Our Reference:			BH1	BH2	BH3	BH4	BH5
Your Reference	-----						
Depth	-----		0.5-0.95	0.1-0.3	0.1-0.3	0.5-0.95	0.5-0.95
Date Sampled			22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample			soil	soil	soil	soil	soil
Date extracted	-		25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-		25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg		<50	<50	<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg		<100	<100	<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg		<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%		99	99	97	100	98

sTRH in Soil (C10-C36)		UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Our Reference:			BH6	BH7	BH8	BH9	BH10
Your Reference	-----						
Depth	-----		0.1-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled			22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample			soil	soil	soil	soil	soil
Date extracted	-		25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-		25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg		<50	<50	<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg		<100	<100	<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg		<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%		98	95	98	95	92

sTRH in Soil (C10-C36)		UNITS	65486-11	65486-12	65486-13
Our Reference:			BH11	BH12	QC-1
Your Reference	-----				
Depth	-----		0.5-0.95	0.1-0.3	-
Date Sampled			22/11/2011	22/11/2011	22/11/2011
Type of sample			soil	soil	soil
Date extracted	-		25/11/2011	25/11/2011	25/11/2011
Date analysed	-		25/11/2011	25/11/2011	25/11/2011
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg		<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg		<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg		<100	<100	<100
Surrogate o-Terphenyl	%		98	97	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-1 BH1 0.5-0.95 22/11/2011 soil	65486-2 BH2 0.1-0.3 22/11/2011 soil	65486-3 BH3 0.1-0.3 22/11/2011 soil	65486-4 BH4 0.5-0.95 22/11/2011 soil	65486-5 BH5 0.5-0.95 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
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+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
Surrogate p-Terphenyl-d <sub>14</sub>	%	102	101	96	97	100

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-6 BH6 0.1-0.3 22/11/2011 soil	65486-7 BH7 0.5-0.95 22/11/2011 soil	65486-8 BH8 0.1-0.3 22/11/2011 soil	65486-9 BH9 0.1-0.3 22/11/2011 soil	65486-10 BH10 0.1-0.3 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
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+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
Surrogate p-Terphenyl-d <sub>14</sub>	%	99	100	97	98	98

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-11 BH11 0.5-0.95 22/11/2011 soil	65486-12 BH12 0.1-0.3 22/11/2011 soil	65486-13 QC-1 - 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011
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+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
Surrogate p-Terphenyl-d14	%	101	96	99

Client Reference: E25371KG, Wetherill Park

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-1 BH1 0.5-0.95 22/11/2011 soil	65486-2 BH2 0.1-0.3 22/11/2011 soil	65486-3 BH3 0.1-0.3 22/11/2011 soil	65486-4 BH4 0.5-0.95 22/11/2011 soil	65486-5 BH5 0.5-0.95 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	0.4	<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 TCLMX	%	97	99	96	98	93

Client Reference: E25371KG, Wetherill Park

Organochlorine Pesticides in soil	UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Our Reference:	-----	BH6	BH7	BH8	BH9	BH10
Your Reference	-----					
Depth	-----	01-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
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
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.1	0.5
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 TCLMX	%	99	95	97	93	93

Organochlorine Pesticides in soil		65486-11	65486-12	65486-13
Our Reference:	UNITS	BH11	BH12	QC-1
Your Reference	-----			
Depth	-----	0.5-0.95	0.1-0.3	-
Date Sampled		22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011
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 TCLMX	%	97	97	94

Client Reference: E25371KG, Wetherill Park

Organophosphorus Pesticides	UNITS	65486-1	65486-2	65486-3	65486-4	65486-5
Our Reference:	-----	BH1	BH2	BH3	BH4	BH5
Your Reference	-----					
Depth	-----	0.5-0.95	0.1-0.3	0.1-0.3	0.5-0.95	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
Diazinon	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
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	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
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	99	96	98	93

Organophosphorus Pesticides	UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Our Reference:	-----	BH6	BH7	BH8	BH9	BH10
Your Reference	-----					
Depth	-----	01-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
Diazinon	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
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	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
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	99	95	97	93	93

Client Reference: E25371KG, Wetherill Park

Organophosphorus Pesticides		65486-11	65486-12	65486-13
Our Reference:	UNITS	65486-11	65486-12	65486-13
Your Reference	-----	BH11	BH12	QC-1
Depth	-----	0.5-0.95	0.1-0.3	-
Date Sampled		22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	97	94

Client Reference: E25371KG, Wetherill Park

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-1 BH1 0.5-0.95 22/11/2011 soil	65486-2 BH2 0.1-0.3 22/11/2011 soil	65486-3 BH3 0.1-0.3 22/11/2011 soil	65486-4 BH4 0.5-0.95 22/11/2011 soil	65486-5 BH5 0.5-0.95 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221*	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	99	96	98	93

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-6 BH6 0.1-0.3 22/11/2011 soil	65486-7 BH7 0.5-0.95 22/11/2011 soil	65486-8 BH8 0.1-0.3 22/11/2011 soil	65486-9 BH9 0.1-0.3 22/11/2011 soil	65486-10 BH10 0.1-0.3 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011	26/11/2011	26/11/2011
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221*	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	99	95	97	93	93

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-11 BH11 0.5-0.95 22/11/2011 soil	65486-12 BH12 0.1-0.3 22/11/2011 soil	65486-13 QC-1 - 22/11/2011 soil
Date extracted	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	26/11/2011	26/11/2011	26/11/2011
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1
Arochlor 1221*	mg/kg	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	97	94

Client Reference: E25371KG, Wetherill Park

Acid Extractable metals in soil	UNITS	65486-1	65486-2	65486-3	65486-4	65486-5
Our Reference:	-----	BH1	BH2	BH3	BH4	BH5
Your Reference	-----					
Depth	-----	0.5-0.95	0.1-0.3	0.1-0.3	0.5-0.95	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date digested	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Arsenic	mg/kg	<4	7	8	31	8
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	9	20	16	15	15
Copper	mg/kg	38	32	28	59	12
Lead	mg/kg	13	26	18	20	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	14	14	16	3
Zinc	mg/kg	31	51	51	80	13

Acid Extractable metals in soil	UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Our Reference:	-----	BH6	BH7	BH8	BH9	BH10
Your Reference	-----					
Depth	-----	01-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date digested	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Arsenic	mg/kg	8	5	<4	11	12
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	20	18	7	23	19
Copper	mg/kg	37	45	11	36	42
Lead	mg/kg	23	30	8	22	28
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	17	13	2	12	10
Zinc	mg/kg	61	68	10	55	54

Acid Extractable metals in soil	UNITS	65486-11	65486-12	65486-13	65486-14
Our Reference:	-----	BH11	BH12	QC-1	BH1
Your Reference	-----				TRIPLICATE
Depth	-----	0.5-0.95	0.1-0.3	-	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil
Date digested	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Arsenic	mg/kg	7	10	6	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	18	24	16	15
Copper	mg/kg	24	19	23	37
Lead	mg/kg	18	26	16	95
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	9	9	9

Client Reference: E25371KG, Wetherill Park

Acid Extractable metals in soil	UNITS	65486-11	65486-12	65486-13	65486-14
Our Reference:	-----	BH11	BH12	QC-1	BH1
Your Reference:					TRIPPLICATE
Depth	-----	0.5-0.95	0.1-0.3	-	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil
Zinc	mg/kg	34	36	33	84

Client Reference: E25371KG, Wetherill Park

Moisture						
Our Reference:	UNITS	65486-1	65486-2	65486-3	65486-4	65486-5
Your Reference	-----	BH1	BH2	BH3	BH4	BH5
Depth	-----	0.5-0.95	0.1-0.3	0.1-0.3	0.5-0.95	0.5-0.95
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	28/11/2011	28/11/2011	28/11/2011	28/11/2011	28/11/2011
Moisture	%	21	18	19	18	18

Moisture						
Our Reference:	UNITS	65486-6	65486-7	65486-8	65486-9	65486-10
Your Reference	-----	BH6	BH7	BH8	BH9	BH10
Depth	-----	0.1-0.3	0.5-0.95	0.1-0.3	0.1-0.3	0.1-0.3
Date Sampled		22/11/2011	22/11/2011	22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	25/11/2011	25/11/2011	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	28/11/2011	28/11/2011	28/11/2011	28/11/2011	28/11/2011
Moisture	%	24	18	20	15	17

Moisture				
Our Reference:	UNITS	65486-11	65486-12	65486-13
Your Reference	-----	BH11	BH12	QC-1
Depth	-----	0.5-0.95	0.1-0.3	-
Date Sampled		22/11/2011	22/11/2011	22/11/2011
Type of sample		soil	soil	soil
Date prepared	-	25/11/2011	25/11/2011	25/11/2011
Date analysed	-	28/11/2011	28/11/2011	28/11/2011
Moisture	%	15	20	15

Client Reference: E25371KG, Wetherill Park

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-1 BH1 0.5-0.95 22/11/2011 soil	65486-2 BH2 0.1-0.3 22/11/2011 soil	65486-3 BH3 0.1-0.3 22/11/2011 soil	65486-4 BH4 0.5-0.95 22/11/2011 soil	65486-5 BH5 0.5-0.95 22/11/2011 soil
Date analysed	-	29/11/2011	29/11/2011	29/11/2011	29/11/2011	29/11/2011
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g	Approx 40g	Approx 40g
Sample Description	-	Brown fine-grained soil	Brown fine-grained soil	Brown fine-grained soil	Brown clayey soil	Red-brown clay
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-6 BH6 0.1-0.3 22/11/2011 soil	65486-7 BH7 0.5-0.95 22/11/2011 soil	65486-8 BH8 0.1-0.3 22/11/2011 soil	65486-9 BH9 0.1-0.3 22/11/2011 soil	65486-10 BH10 0.1-0.3 22/11/2011 soil
Date analysed	-	29/11/2011	29/11/2011	29/11/2011	29/11/2011	29/11/2011
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g	Approx 40g	Approx 30g
Sample Description	-	Brown fine-grained soil & rock	Brown fine-grained soil	Brown fine-grained soil	Brown fine-grained soil	Brown fine-grained soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	65486-11 BH11 0.5-0.95 22/11/2011 soil	65486-12 BH12 0.1-0.3 22/11/2011 soil
Date analysed	-	29/11/2011	29/11/2011
Sample mass tested	g	Approx 40g	Approx 40g
Sample Description	-	Brown fine-grained soil	Brown fine-grained soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected

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.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
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 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 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.

Client Reference: E25371KG, Wetherill Park

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH & BTEX in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			26/11/2011	65486-1	26/11/2011    26/11/2011	LCS-7	26/11/2011
vTRHC <sub>5</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	65486-1	<25    <25	LCS-7	127%
Benzene	mg/kg	0.2	Org-016	<0.2	65486-1	<0.2    <0.2	LCS-7	132%
Toluene	mg/kg	0.5	Org-016	<0.5	65486-1	<0.5    <0.5	LCS-7	114%
Ethylbenzene	mg/kg	1	Org-016	<1	65486-1	<1    <1	LCS-7	133%
m+p-xylene	mg/kg	2	Org-016	<2	65486-1	<2    <2	LCS-7	129%
o-Xylene	mg/kg	1	Org-016	<1	65486-1	<1    <1	LCS-7	129%
Surrogate aaa-Trifluorotoluene	%		Org-016	122	65486-1	128    123    RPD: 4	LCS-7	119%
sTRH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	65486-1	<50    <50	LCS-7	104%
TRHC <sub>15</sub> - C <sub>20</sub>	mg/kg	100	Org-003	<100	65486-1	<100    <100	LCS-7	95%
TRHC <sub>25</sub> - C <sub>35</sub>	mg/kg	100	Org-003	<100	65486-1	<100    <100	LCS-7	95%
Surrogate o-Terphenyl	%		Org-003	100	65486-1	99    98    RPD: 1	LCS-7	95%
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	118%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	111%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	112%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	114%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	LCS-7	121%

Client Reference: E25371KG, Wetherill Park

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base    Duplicate    %RPD		
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	65486-1	<0.2    <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	65486-1	<0.05    <0.05	LCS-7	125%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	103	65486-1	102    99    RPD: 3	LCS-7	100%
Organochlorine Pesticides in soil						Base    Duplicate    %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
HCB	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	109%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	119%
Heptachlor	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	106%
delta-BHC	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	105%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	106%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	113%
Dieldrin	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	114%
Endrin	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	110%
pp-DDD	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	122%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	LCS-7	107%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-005	97	65486-1	97    98    RPD: 1	LCS-7	97%

Client Reference: E25371KG, Wetherill Park

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides						Base II Duplicate II %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			25/11/2011	65486-1	26/11/2011    26/11/2011	LCS-7	26/11/2011
Diazinon	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	LCS-7	100%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	LCS-7	125%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	65486-1	<0.1    <0.1	LCS-7	139%
Surrogate TCLMX	%		Org-008	97	65486-1	97    98    RPD: 1	LCS-7	96%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-7	25/11/2011
Date analysed	-			25/11/2011	65486-1	26/11/2011    26/11/2011	LCS-7	26/11/2011
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Arochlor 1221*	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	LCS-7	105%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	65486-1	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	97	65486-1	97    98    RPD: 1	LCS-7	102%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-1	25/11/2011
Date analysed	-			25/11/2011	65486-1	25/11/2011    25/11/2011	LCS-1	25/11/2011
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	65486-1	<4    <4	LCS-1	104%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	65486-1	<0.5    <0.5	LCS-1	101%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	65486-1	9    14    RPD: 43	LCS-1	103%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	65486-1	38    38    RPD: 0	LCS-1	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	65486-1	13    40    RPD: 102	LCS-1	101%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	65486-1	<0.1    <0.1	LCS-1	110%

Client Reference: E25371KG, Wetherill Park

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base    Duplicate    %RPD		
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	65486-1	5    9    RPD: 57	LCS-1	104%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	65486-1	31    62    RPD: 67	LCS-1	103%
QUALITYCONTROL Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITYCONTROL Asbestos ID - soils								
Date analysed	-			[NT]				
QUALITYCONTROL vTRH & BTEX in Soil	UNITS		Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery
Date extracted	-		65486-11		25/11/2011    25/11/2011		65486-2	25/11/2011
Date analysed	-		65486-11		26/11/2011    26/11/2011		65486-2	26/11/2011
vTRHC <sub>6</sub> - C <sub>9</sub>	mg/kg		65486-11		<25    <25		65486-2	133%
Benzene	mg/kg		65486-11		<0.2    <0.2		65486-2	138%
Toluene	mg/kg		65486-11		<0.5    <0.5		65486-2	119%
Ethylbenzene	mg/kg		65486-11		<1    <1		65486-2	138%
m+p-xylene	mg/kg		65486-11		<2    <2		65486-2	135%
o-Xylene	mg/kg		65486-11		<1    <1		65486-2	134%
Surrogate aaa-Trifluorotoluene	%		65486-11		126    71    RPD: 56		65486-2	129%
QUALITYCONTROL sTRH in Soil (C10-C36)	UNITS		Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery
Date extracted	-		65486-11		25/11/2011    25/11/2011		65486-2	25/11/2011
Date analysed	-		65486-11		25/11/2011    25/11/2011		65486-2	25/11/2011
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg		65486-11		<50    <50		65486-2	103%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg		65486-11		<100    <100		65486-2	95%
TRHC <sub>28</sub> - C <sub>35</sub>	mg/kg		65486-11		<100    <100		65486-2	92%
Surrogate o-Terphenyl	%		65486-11		98    97    RPD: 1		65486-2	97%
QUALITYCONTROL PAHs in Soil	UNITS		Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery
Date extracted	-		65486-11		25/11/2011    25/11/2011		65486-2	25/11/2011
Date analysed	-		65486-11		25/11/2011    25/11/2011		65486-2	25/11/2011
Naphthalene	mg/kg		65486-11		<0.1    <0.1		65486-2	122%
Acenaphthylene	mg/kg		65486-11		<0.1    <0.1		[NR]	[NR]
Acenaphthene	mg/kg		65486-11		<0.1    <0.1		[NR]	[NR]
Fluorene	mg/kg		65486-11		<0.1    <0.1		65486-2	104%
Phenanthrene	mg/kg		65486-11		<0.1    <0.1		65486-2	105%
Anthracene	mg/kg		65486-11		<0.1    <0.1		[NR]	[NR]

Client Reference: E25371KG, Wetherill Park

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Fluoranthene	mg/kg	65486-11	<0.1    <0.1	65486-2	106%
Pyrene	mg/kg	65486-11	<0.1    <0.1	65486-2	1074%
Benzo(a)anthracene	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Chrysene	mg/kg	65486-11	<0.1    <0.1	65486-2	112%
Benzo(b+k)fluoranthene	mg/kg	65486-11	<0.2    <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	65486-11	<0.05    <0.05	65486-2	118%
Indeno(1,2,3-c,d)pyrene	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Surrogate p-Terphenyl- d14	%	65486-11	101    100    RPD: 1	65486-2	97%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
Date analysed	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
HCB	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
alpha-BHC	mg/kg	65486-11	<0.1    <0.1	65486-2	114%
gamma-BHC	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
beta-BHC	mg/kg	65486-11	<0.1    <0.1	65486-2	124%
Heptachlor	mg/kg	65486-11	<0.1    <0.1	65486-2	111%
delta-BHC	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Aldrin	mg/kg	65486-11	<0.1    <0.1	65486-2	111%
Heptachlor Epoxide	mg/kg	65486-11	<0.1    <0.1	65486-2	111%
gamma-Chlordane	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Endosulfan I	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
pp-DDE	mg/kg	65486-11	<0.1    <0.1	65486-2	118%
Dieldrin	mg/kg	65486-11	<0.1    <0.1	65486-2	120%
Endrin	mg/kg	65486-11	<0.1    <0.1	65486-2	116%
pp-DDD	mg/kg	65486-11	<0.1    <0.1	65486-2	128%
Endosulfan II	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
pp-DDT	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	65486-11	<0.1    <0.1	65486-2	114%
Methoxychlor	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%	65486-11	97    99    RPD: 2	65486-2	96%

**Client Reference: E25371KG, Wetherill Park**

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
Date analysed	-	65486-11	26/11/2011    26/11/2011	65486-2	26/11/2011
Diazinon	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Dimethoate	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Chlorpyrifos-methyl	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Ronnel	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	65486-11	<0.1    <0.1	65486-2	93%
Fenitrothion	mg/kg	65486-11	<0.1    <0.1	65486-2	117%
Bromophos-ethyl	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Ethion	mg/kg	65486-11	<0.1    <0.1	65486-2	134%
Surrogate TCLMX	%	65486-11	97    99    RPD: 2	65486-2	95%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
Date analysed	-	65486-11	26/11/2011    26/11/2011	65486-2	26/11/2011
Arochlor 1016	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Arochlor 1221*	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	65486-11	<0.1    <0.1	65486-2	100%
Arochlor 1260	mg/kg	65486-11	<0.1    <0.1	[NR]	[NR]
Surrogate TCLMX	%	65486-11	97    99    RPD: 2	65486-2	100%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
Date analysed	-	65486-11	25/11/2011    25/11/2011	65486-2	25/11/2011
Arsenic	mg/kg	65486-11	7    7    RPD: 0	65486-2	91%
Cadmium	mg/kg	65486-11	<0.5    <0.5	65486-2	88%
Chromium	mg/kg	65486-11	18    16    RPD: 12	65486-2	88%
Copper	mg/kg	65486-11	24    24    RPD: 0	65486-2	99%
Lead	mg/kg	65486-11	18    17    RPD: 6	65486-2	80%
Mercury	mg/kg	65486-11	<0.1    <0.1	65486-2	120%
Nickel	mg/kg	65486-11	9    9    RPD: 0	65486-2	88%
Zinc	mg/kg	65486-11	34    35    RPD: 3	65486-2	76%

**Report Comments:**

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 65486-1 for Nickel, Lead and Zinc. Therefore a triplicate result has been issued as laboratory sample number 65486-14.

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

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	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.

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

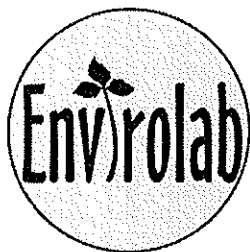
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

**SAMPLE AND CHAIN OF CUSTODY FORM**

<b>IQ:</b> EnviroLab Services Pty Ltd 12 Ashley Street Chatswood NSW 2067 Phone: (02) 99106200 Fax: (02) 99106201 Attention: Alleen	EIS Job Number: E25371KG Date Results Required: 5 days Sheet 1 of 1	<b>ERQM:</b> Environmental Investigation Services Rear 115 Wicks Road Macquarie Park NSW 2113 Phone: (02) 9888 5000 Fax: (02) 9888 5004 Contact: Para Bokalawela Sample Preservation: In esky on ice																																																																																																																																																																																																																									
Project: Preliminary ESA Location: Wetherill Park Sampler: David S		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Tests Required</th> <th colspan="3">Salinity</th> </tr> <tr> <th>Date Sampled</th> <th>Lab Ref.</th> <th>Borehole/Sample Number</th> <th>Depth (m)</th> <th>Sample Container</th> <th>PID</th> <th>Sample Description</th> <th>Combo 1</th> <th>Combo 2</th> <th>Combo 3</th> <th>pH</th> <th>EC</th> <th>Ece</th> <th>CEC</th> <th>Sulfate / Chloride</th> </tr> </thead> <tbody> <tr><td>22/11/2011</td><td>1</td><td>BH1</td><td>0.5-0.95</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Natural</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>2</td><td>BH2</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>3</td><td>BH3</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>4</td><td>BH4</td><td>0.5-0.95</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Natural</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>5</td><td>BH5</td><td>0.5-0.95</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Natural</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>6</td><td>BH6</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>7</td><td>BH7</td><td>0.5-0.95</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Natural</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>8</td><td>BH8</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>9</td><td>BH9</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>10</td><td>BH10</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>11</td><td>BH11</td><td>0.5-0.95</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Natural</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>12</td><td>BH12</td><td>0.1-0.3</td><td>glass jar &amp; plastic bag</td><td>0</td><td>Topsoil</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>22/11/2011</td><td>13</td><td>QC-1</td><td>-</td><td>glass jar &amp; plastic bag</td><td>0</td><td>-</td><td></td><td></td><td>X</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	Tests Required				Salinity			Date Sampled	Lab Ref.	Borehole/Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 1	Combo 2	Combo 3	pH	EC	Ece	CEC	Sulfate / Chloride	22/11/2011	1	BH1	0.5-0.95	glass jar & plastic bag	0	Natural			X						22/11/2011	2	BH2	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	3	BH3	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	4	BH4	0.5-0.95	glass jar & plastic bag	0	Natural			X						22/11/2011	5	BH5	0.5-0.95	glass jar & plastic bag	0	Natural			X						22/11/2011	6	BH6	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	7	BH7	0.5-0.95	glass jar & plastic bag	0	Natural			X						22/11/2011	8	BH8	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	9	BH9	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	10	BH10	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	11	BH11	0.5-0.95	glass jar & plastic bag	0	Natural			X						22/11/2011	12	BH12	0.1-0.3	glass jar & plastic bag	0	Topsoil			X						22/11/2011	13	QC-1	-	glass jar & plastic bag	0	-			X					
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EnviroLab Services  
 12 Ashley St  
 Chatswood NSW 2067  
 Ph: (02) 9910 6200  
 JOB NO: 65486  
 Date Received: 24-11-11  
 Time Received: 16:45  
 Received by: Jia Gu  
 Temp: 23.0 Ambient  
 Coolant: Ice  
 Security: Intact/ Broken/ None

Relinquished By: Para Bokalawela  
 Date / Time: 24 Nov 2011 11.15 am  
 Received By: Jia Gu



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

## SAMPLE RECEIPT ADVICE

**Client:**

Environmental Investigation Services  
PO Box 976  
North Ryde BC NSW 1670

ph: 02 9888 5000  
Fax: 02 9888 5001

Attention: Para Bokalawela

**Sample log in details:**

Your reference:  
Envirolab Reference:  
Date received:  
Date results expected to be reported:

**E25371KG, Wetherill Park**  
**65486**  
**24/11/11**  
**1/12/11**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	13 soils
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice Pack

**Comments:**

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

**Contact details:**

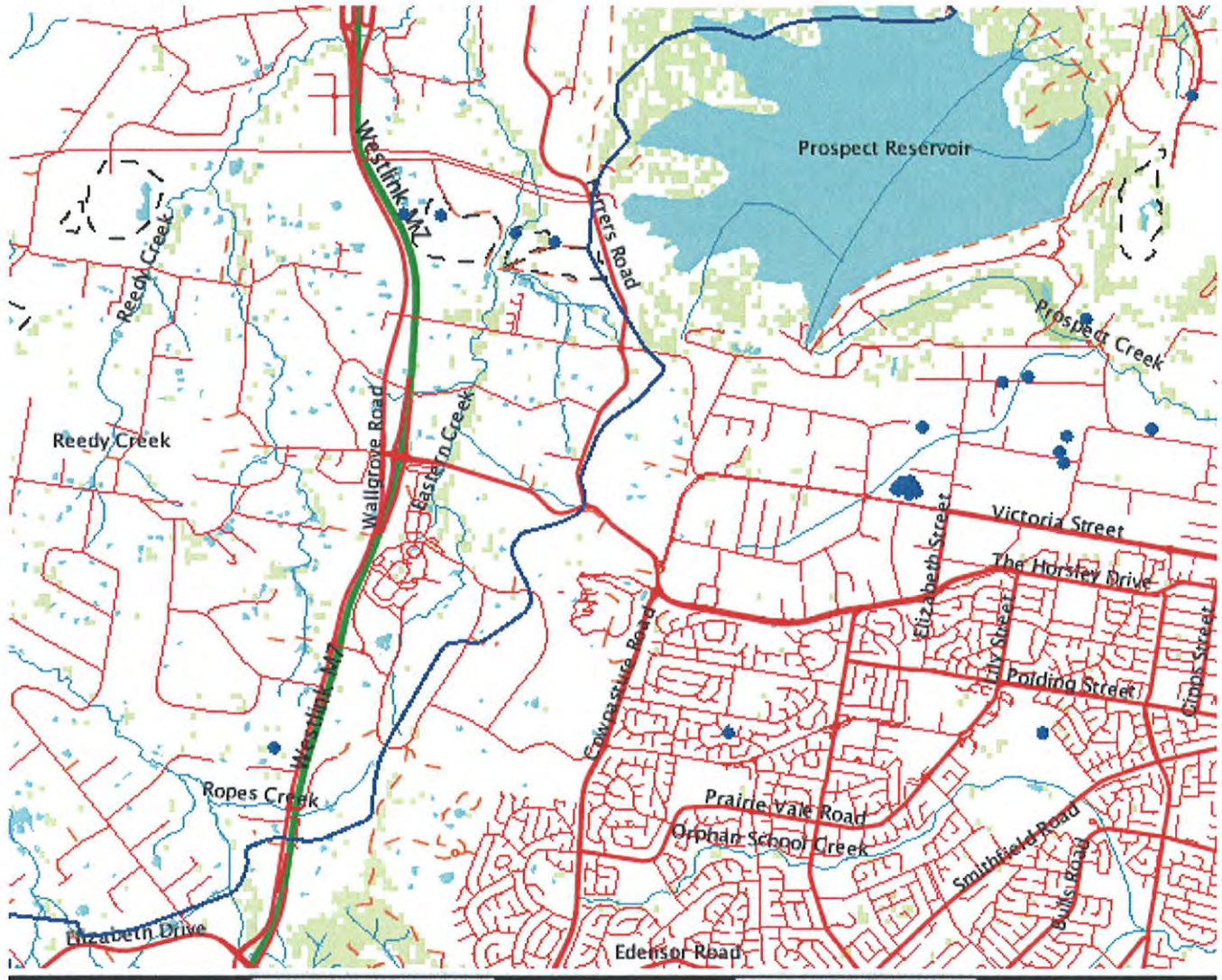
Please direct any queries to Aileen Hie or Jacinta Hurst  
ph: 02 9910 6200 fax: 02 9910 6201  
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



**APPENDIX C**  
**(Site History Documents – Groundwater Bore Records)**

# Wetherill Park







Map created with NSW Natural Resource Atlas - <http://www.nratlas.nsw.gov.au>  
 Wednesday, December 07, 2011



0 8 Km

## Legend

Symbol	Layer	Custodian
	Cities and large towns	renderImage: Cannot build image from features
	Populated places	renderImage: Cannot build image from features
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	

-  Primary/arterial road
-  Motorway/freeway
-  Railway
-  Runway
-  Contour
-  Background

## Topographic base map

Copyright © 2011 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.



You are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

## Search results

Your search for: Name (site, occupier, owner, recipient):  
Western Sydney Parkland Trust  
LGA: Fairfield City Council  
Notice Type: Declaration of Significantly  
Contaminated Land

[Search Again](#)

[Refine Search](#)

did not find any records in our database.  
If a site does not appear on the record it may still be affected by  
contamination. For example:

Contamination may be present but the site has not been  
regulated by the EPA under the Contaminated Land  
Management Act 1997 or the Environmentally Hazardous  
Chemicals Act 1985.

The EPA may be regulating contamination at the site through a  
licence or notice under the Protection of the Environment  
Operations Act 1997 (POEO Act).

Contamination at the site may be being managed under the  
[planning process](#).

More information about particular sites may be available from:

The [POEO public register](#)

The appropriate planning authority: for example, on a planning certificate issued by  
the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

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

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

### Search TIP

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

... [more search tips](#)

8 December 2011



You are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

## Search results

Your search for: Name (site, occupier, owner, recipient):  
Western Sydney Parkland Trust  
LGA: Fairfield City Council  
Notice Type: Ongoing Maintenance Order

[Search Again](#)

[Refine Search](#)

did not find any records in our database.

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

Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.

The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).

Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

The [POEO public register](#)

The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

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

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

**Search TIP**  
To search for a specific site, search by LGA (local government area) and carefully review all sites listed.  
... [more search tips](#)

8 December 2011



You are here: [Home](#) > [Contaminated land](#) > [Record of notices](#)

## Search results

Your search for: Name (site, occupier, owner, recipient):  
Western Sydney Parkland Trust  
LGA: Fairfield City Council  
Notice Type: Site Audit Statement

[Search Again](#)

[Refine Search](#)

did not find any records in our database.

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

Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.

The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).

Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

The [POEO public register](#)

The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

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

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

### Search TIP

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

... [more search tips](#)

8 December 2011



**(Site History Documents – Historical Land Title Records)**

PB

28 NOV 2011

**ADVANCE LEGAL SEARCHERS PTY LTD**

(ACN 147 943 842)  
ABN 82 147 943 842

P.O. Box 149  
Yagoona NSW 2199

Telephone: +612 9754 1590  
Mobile: 0412 169 809  
Facsimile: +612 9754 1364  
Email: [alsearch@optusnet.com.au](mailto:alsearch@optusnet.com.au)

25<sup>th</sup> November, 2011

**ENVIRONMENTAL INVESTIGATION SERVICES**  
PO BOX 976,  
**NORTH RYDE BC NSW 1670**

**Attention: Para Bokalawela,**

**RE: The Horsley Drive and Cowpasture Road,  
Wetherill Park  
Job No. E25371KG**

<b>Note 1:</b>	<b>Lot 25</b>	<b>DP 13961</b>	(page 1)
<b>Note 2:</b>	<b>Lot 32</b>	<b>DP 13961</b>	(page 3)
<b>Note 3:</b>	<b>Lot 32A</b>	<b>DP 13961</b>	(page 5)
<b>Note 4:</b>	<b>Lots 30, 30A &amp; 30B</b>	<b>DP 13961</b>	(page 7)
<b>Note 5:</b>	<b>Lot 28B</b>	<b>DP 13961</b>	(page 9)
<b>Note 6:</b>	<b>Lots 1 &amp; 2</b>	<b>DP 1098128</b>	(page 11)
<b>Note 7:</b>	<b>Lot 3</b>	<b>DP 1098128</b>	(page 13)
<b>Note 8:</b>	<b>Lot 4</b>	<b>DP 1098128</b>	(page 15)
<b>Note 9:</b>	<b>Lot 5</b>	<b>DP 1098128</b>	(page 17)
<b>Note 10:</b>	<b>Lot C</b>	<b>DP 103755</b>	(page 20)
<b>Note 11:</b>	<b>Lot 100</b>	<b>DP 879680</b>	(page 22)
<b>Note 12:</b>	<b>Lot 1</b>	<b>DP 1036933</b>	(page 24)

**Note 1:**

**Current Search**

Folio Identifier 25/13961 (title attached)  
DP 13961 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

## Title Tree Lot 25 DP 13961

Folio Identifier 25/13961

Certificate of Title Volume 5330 Folio 201

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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### Summary of proprietor(s) Lot 25 DP 13961

Year	Proprietor
	<b>(Lot 25 DP 13961)</b>
2008 – todate	Western Sydney Parklands Trust
1988 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot 25 DP 13961 – Area 9 Acres 1 Rood 7 ¾ Perches – CTVol 5330 Fol 201)</b>
1987 – 1988	Minister Administering the Environmental Planning and Assessment Act, 1979
1959 – 1987	Tarsillo Crestani, farmer
1955 – 1959	Livio Crestani, farmer Tarsillo Crestani, farmer
1949 – 1955	Jean Isabel Lymbery, married woman
1942 – 1949	Vaclav Svatos, market gardner
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1942	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 2:**

**Current Search**

Folio Identifier 32/13961 (title attached)  
DP 13961 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree  
Lot 32 DP 13961**

Folio Identifier 32/13961

Certificate of Title Volume 9879 Folio 15

Certificate of Title Volume 6020 Folio 156

Certificate of Title Volume 4338 Folio 167

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 32 DP 13961**

Year	Proprietor
	<b>(Lot 32 DP 13961)</b>
2008 – todote	Western Sydney Parklands Trust
1999 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1993 – 1999	Franco Morassut Deloras Elizabeth Morassut
1988 – 1993	Luciano Morassut, transport worker Franco Morassut, boilermaker
	<b>(Lot 32 DP 13961 – CTVol 9879 Fol 15)</b>
1964 – 1988	Luciano Morassut, transport worker Franco Morassut, boilermaker
	<b>(Lots 32 &amp; 32A DP 13961 – Area 6 Acres 3 Roods 5 ¼ Perches – CTVol 6020 Fol 156)</b>
1960 – 1964	Elido Bortolazzo, market gardener
1949 – 1960	Antonette Bortolazzo, wife of market gardener
1949 – 1949	Francesco Ragonesi, market gardener
	<b>(Lot 32 DP 13961 – Area 5 Acres 1 Rood 30 ¼ perches – CTVol 4338 Fol 167)</b>
1930 – 1949	Arthur Rickard & Co Limited
1929 – 1930	Mary Jane Turner, wife of civil servant
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1929	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 3:**

**Current Search**

Folio Identifier 32A/13961 (title attached)  
DP 13961 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 32A DP 13961**

Folio Identifier 32A/13961

Certificate of Title Volume 9879 Folio 16

Certificate of Title Volume 6020 Folio 156

Certificate of Title Volume 4338 Folio 167

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 32A DP 13961**

Year	Proprietor
	<b>(Lot 32A DP 13961)</b>
2008 – todate	Western Sydney Parklands Trust
1999 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1993 – 1999	Deloras Elizabeth Morassut
1991 – 1993	Luciano Morassut, transport worker
	<b>(Lot 32A DP 13961 – CTVol 9879 Fol 16)</b>
1964 – 1991	Luciano Morassut, transport worker
	<b>(Lots 32 &amp; 32A DP 13961 – Area 6 Acres 3 Roods 5 ¼ Perches – CTVol 6020 Fol 156)</b>
1960 – 1964	Elido Bortolazzo, market gardener
1949 – 1960	Antonette Bortolazzo, wife of market gardener
1949 – 1949	Francesco Ragonesi, market gardener
	<b>(Lot 32 DP 13961 – Area 5 Acres 1 Rood 30 ¼ perches – CTVol 4338 Fol 167)</b>
1930 – 1949	Arthur Rickard & Co Limited
1929 – 1930	Mary Jane Turner, wife of civil servant
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1929	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 4:**

**Current Search**

Folio Identifier Auto Consol 7943-58 (title attached)

Lots 30, 30A & 30B DP 13961 (plan attached)

Dated 21<sup>st</sup> November, 2011

Registered Proprietor:

**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**

**Lots 30, 30A & 30B DP 13961**

Folio Identifier Auto Consol 7943-58

Certificate of Title Volume 7943 Folio 58

Certificate of Title Volume 5749 Folio 36

Certificate of Title Volume 4858 Folio's 19 & 20

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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## Summary of proprietor(s) Lots 30, 30A & 30B DP 13961

Year	Proprietor
	<b>(Lots 30, 30A &amp; 30B DP 13961 – A/C 7943-58)</b>
2008 – todate	Western Sydney Parklands Trust
2005 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1992 – 2005	Gabriele Menolotto, carrier Giannino Menolotto, carrier Mario Nivino Menolotto, carrier
	<b>(Lots 30, 30A &amp; 30B DP 13961 – Area 5 Acres 1 Rood 13 ¼ Perches – CTVol 7943 Fol 58)</b>
1966 – 1992	Gabriele Menolotto, carrier Giannino Menolotto, carrier Mario Nivino Menolotto, carrier
1960 – 1966	Giacomo Battaglin, bricklayer
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)</b>
1947 – 1960	Guerino Maronese, farmer
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 &amp; 20)</b>
1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1937	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 5:**

**Current Search**

Folio Identifier 28B/13961 (title attached)

DP 13961 (plan attached)

Dated 21<sup>st</sup> November, 2011

Registered Proprietor:

**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**

**Lot 28B DP 13961**

Folio Identifier 28B/13961

Certificate of Title Volume 15498 Folio 176

Certificate of Title Volume 4949 Folio 193

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 28B DP 13961**

Year	Proprietor
	<b>(Lot 28B DP 13961)</b>
2010 – todate	Western Sydney Parklands Trust
2006 – 2010	Minister Administering the Environmental Planning and Assessment Act, 1979
1989 – 2006	Leslie Gordon Lindsay Hall, butcher
	<b>(Lot 28B DP 13961 – CTVol 15498 Fol 176)</b>
1987 – 1989	Leslie Gordon Lindsay Hall, butcher
	<b>(Lot 28B DP 13961 – Area 2 Roods 39 Perches – CTVol 4949 Fol 193)</b>
1953 – 1987	Leslie Gordon Lindsay Hall, butcher
1938 – 1953	John Lindsay Hall, butcher
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1938	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 6:**

**Current Search**

Folio Identifier Auto Consol 4370-247 (title attached)

Lots 1 & 2 DP 1098128 (plan attached)

Dated 21<sup>st</sup> November, 2011

Registered Proprietor:

**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**

**Lots 1 & 2 DP 1098128**

Folio Identifier Auto Consol 4370-247

Certificate of Title Volume 4370 Folio 247

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lots 1 & 2 DP 1098128**

Year	Proprietor
	<b>(Lots 1 &amp; 2 DP 1098128 – A/C 4370-247)</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lots 29 &amp; 29A DP 13961 – A/C 4370-247)</b>
1995 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
1993 – 1995	New South Wales Planning and Environment Commission
	<b>(Lots 29 &amp; 29A DP 13961 – Area 4 Acres 2 Roods 15 ½ Perches – CTVol 4370 Fol 247)</b>
1977 – 1993	New South Wales Planning and Environment Commission
1974 – 1977	Maria Morosin, widow
1954 – 1974	Angelo Morosin, miner Maria Morosin
1948 – 1954	Esmee Muriel Gifford Attard, wife of merchantile mariner
1930 – 1948	Mary Jane Turner, wife of civil servant
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1938	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 7:**

**Current Search**

Folio Identifier 3/1098128 (title attached)  
DP 1098128 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 3 DP 1098128**

Folio Identifier 3/1098128

Folio Identifier 29B/13961

Certificate of Title Volume 5911 Folio 213

Certificate of Title Volume 5400 Folio 220

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 3 DP 1098128**

Year	Proprietor
	<b>(Lot 3 DP 1098128)</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot 29B DP 13961)</b>
1989 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot 29B DP 13961 – Area 2 Roods 0 Roods 38 Perches – CTVol 5911 Fol 213)</b>
1984 – 1989	Minister Administering the Environmental Planning and Assessment Act, 1979
1981 – 1984	David William Blain Diana Mary Blain
1951 – 1981	Albert Fittler, kiln burner
1948 – 1951	Samuel Foster Money (jnr), garage proprietor
	<b>(Lot 29B DP 13961 and other lands – Area 1103 Acres 0 Roods 11 ¾ Perches – CTVol 5400 Fol 220)</b>
1943 – 1948	Arthur Rickard & Co Limited
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1943	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 8:**

**Current Search**

Folio Identifier 4/1098128 (title attached)  
DP 1098128 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 4 DP 1098128**

Folio Identifier 4/1098128

Folio Identifier 28A/13961

Certificate of Title Volume 4376 Folio 72

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 4 DP 1098128**

Year	Proprietor
	<b>(Lot 4 DP 1098128)</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot 28A DP 13961)</b>
1995 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
1990 – 1995	The Cumberland County Council
	<b>(Lot 28A DP 13961 – Area 2 Roods 39 ¼ Perches – CTVol 4376 Fol 72)</b>
1953 – 1990	The Cumberland County Council
1951 – 1953	Edmond Brian Johnson, welder
1948 – 1951	Gladys Lillian Tucker, widow
1930 – 1948	Annie Maud Ackerman, widow
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1930	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 9:**

**Current Search**

Folio Identifier 5/1098128 (title attached)  
DP 1098128 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 5 DP 1098128**

Folio Identifier 5/1098128

Folio Identifier 101/879680

Folio Identifier 1/516627

Certificate of Title Volume 10145 Folio 211

Certificate of Title Volume 9982 Folio 210

Certificate of Title Volume 7250 Folio's 69 & 70

Certificate of Title Volume 5082 Folio 191

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot 5 DP 1098128**

Year	Proprietor
	<b>(Lot 5 DP 1098128)</b>
2008 – todate	Western Sydney Parklands Trust
2007 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot 101 DP 879680)</b>
2002 – 2007	Minister Administering the Environmental Planning and Assessment Act, 1979
1998 – 2002	Santina Piccinin Aurelia Cincotta
	<b>(Lot 1 DP 516627)</b>
1993 – 1998	Santina Piccinin Aurelia Cincotta
1988 – 1993	Attilio Crosariol, retired
	<b>(Lot 1 DP 516627 – CTVol 10145 Fol 211)</b>
1969 – 1988	Attilio Crosariol, retired
1965 – 1969	Giuseppe Cipressi, labourer
	<b>(Lot 28C DP 13961 – CTVol 9982 Fol 210)</b>
1965 – 1965	Giuseppe Cipressi, labourer
	<b>(Lots 28 &amp; 28C DP 13961 – Area 3 Acres 2 Roods 6 ¼ Perches – CTVol 7250 Fol's 69 &amp; 70)</b>
1957 – 1965	Giuseppe Cipressi, labourer Teodoro Cipressi, labourer
	<b>(Lot 28C DP13961 – Area 2 Roods 29 ¼ Perches – CTVol 5082 Fol 191)</b>
1945 – 1957	Otto Gustav Karl Harting, poultry farmer
1945 – 1945	Margaret Florence Walker, wife of retired farmer
1939 – 1945	Leo Austin O'Loughlin, farmer Annie Eleanor O'Loughlin
1939 – 1939	Elijah Sisson, storekeeper
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1939	Arthur Richard & Co Limited

Cont.

Cont.

	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

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**Note 10:**

**Current Search**

Folio Identifier C/103755 (title attached)  
DP 103755 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree  
Lot C DP 103755**

Folio Identifier C/103755

Certificate of Title Volume 10045 Folio 33

Certificate of Title Volume 5749 Folio 36

Certificate of Title Volume 4858 Folio's 19 & 20

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

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**Summary of proprietor(s)  
Lot C DP 103755**

Year	Proprietor
	<b>(Lot C DP 103755)</b>
2008 – todate	Western Sydney Parklands Trust
1995 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1989 – 1995	New South Wales Planning and Environment Commission
	<b>(Lot C DP 103755 – CTVol 10045 Fol 33)</b>
1979 – 1989	New South Wales Planning and Environment Commission
1965 – 1979	Romeo Morosin, motor mechanic
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)</b>
1947 – 1965	Guerino Maronese, farmer
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 &amp; 20)</b>
1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1937	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

\*\*\*\*

**Note 11:**

**Current Search**

Folio Identifier 100/879680 (title attached)  
DP 879680 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 100 DP 879680**

Folio Identifier 100/879680

Folio Identifier 28/13961

Certificate of Title Volume 9982 Folio 209

Certificate of Title Volume 7250 Folio's 69 & 70

Certificate of Title Volume 4868 Folio 188

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

\*\*\*\*\*

## Summary of proprietor(s) Lot 100 DP 879680

Year	Proprietor
	<b>(Lot 100 DP 879680)</b>
2008 – todote	Western Sydney Parklands Trust
2002 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
1998 – 2002	Santina Piccinin Aurelia Cincotta
	<b>(Lot 28 DP 13961)</b>
1993 – 1998	Santina Piccinin Aurelia Cincotta
1988 – 1993	Attilio Crosariol, retired
	<b>(Lot 28 DP 13961 – CTVol 9982 Fol 209)</b>
1969 – 1988	Attilio Crosariol, retired
1965 – 1969	Giuseppe Cipressi, labourer
	<b>(Lots 28 &amp; 28C DP 13961 – CTVol 7250 Fol's 69 &amp; 70)</b>
1957 – 1965	Giuseppe Cipressi, labourer Teodoro Cipressi, labourer
	<b>Lot 28 DP 13961 – Area 2 Acres 3 Roods 17 Perches – CTVol 4868 Fol 188)</b>
1945 – 1957	Otto Gustave Karl Harting, poultry farmer
1945 – 1945	Margaret Florence Walker, wife of retired farmer
1939 – 1945	Leo Austin O'Loughlin, farmer Annie Eleanor O'Loughlin
1939 – 1939	Elijah Sisson, storekeeper
1937 – 1939	Rosetta Marion Collier, married woman
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1937	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

**Note 12:**

**Current Search**

Folio Identifier 1/1036933 (title attached)  
DP 1036933 (plan attached)  
Dated 21<sup>st</sup> November, 2011  
Registered Proprietor:  
**WESTERN SYDNEY PARKLANDS TRUST**

**Title Tree**  
**Lot 1 DP 1036933**

Folio Identifier 1/1036933

Folio Identifier A/103755

Certificate of Title Volume 15529 Folio 165

Certificate of Title Volume 7691 Folio 216

Certificate of Title Volume 5749 Folio 36

Certificate of Title Volume 4858 Folio's 19 & 20

Certificate of Title Volume 4187 Folio 146

Certificate of Title Volume 2116 Folio 79

\*\*\*\*

**Summary of proprietor(s)  
Lot 1 DP 1036933**

Year	Proprietor
	<b>(Lot 1 DP 1036933)</b>
2008 – todate	Western Sydney Parklands Trust
2002 – 2008	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot A DP 103755)</b>
1989 – 2002	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lot A DP 103755 – CTVol 15529 Fol 165)</b>
1988 – 1989	Minister Administering the Environmental Planning and Assessment Act, 1979
	<b>(Lots A &amp; B DP 103755 – Area 11 Acres 3 Roods 33 ¼ Perches – CTVol 7691 Fol 216)</b>
1959 – 1988	Lino Menolotto, farmer
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 5749 Fol 36)</b>
1947 – 1959	Guerino Maronese, farmer
	<b>(Lots 26, 27, 30, 30A, 30B, 31, 31A &amp; 31B DP 13961 – Area 22 Acres 2 Roods 34 ¼ Perches – CTVol 4858 Fol's 19 &amp; 20)</b>
1937 – 1947	Guerino Maronese, farmer Emilio Maronese, farmer
	<b>(Lots 1 to 28, 28A, 28B, 28C, 29, 29A, 29B, 30, 30A, 30B, 31, 31A, 31B, 32, 32A, Lots 33 to 36, 36A, 36B, 37, 38, 38A, Lots 39 to 71, 71A, 71B, Lots 72 to 83, 83A &amp; 83B, Lots 84 to 91 DP 13961 and other lands – Area 2286 Acres 0 Roods 33 perches – CTVol 4187 Fol 146)</b>
1928 – 1937	Arthur Richard & Co Limited
	<b>(Part Portion 2 Parish Melville – Area 171 Acres 0 Roods 31 ½ Perches – CTVol 2116 Fol 79)</b>
1924 – 1928	Sydney Gordon Vicars, woolen manufacturer
1923 – 1924	Julia Campbell Perry, widow John Weston Perry, agent Walter Montrose Dixon, station agent
<i>(1912 – 1924)</i>	<i>(lease to Stanley Ross Antib, farmer)</i>
1911 – 1923	John Weston Perry, stock and station agent

\*\*\*\*

**Cadastral Records Enquiry Report**

Ref : EIS - Wetherill Park

Requested Parcel : Lot 30 DP 13961

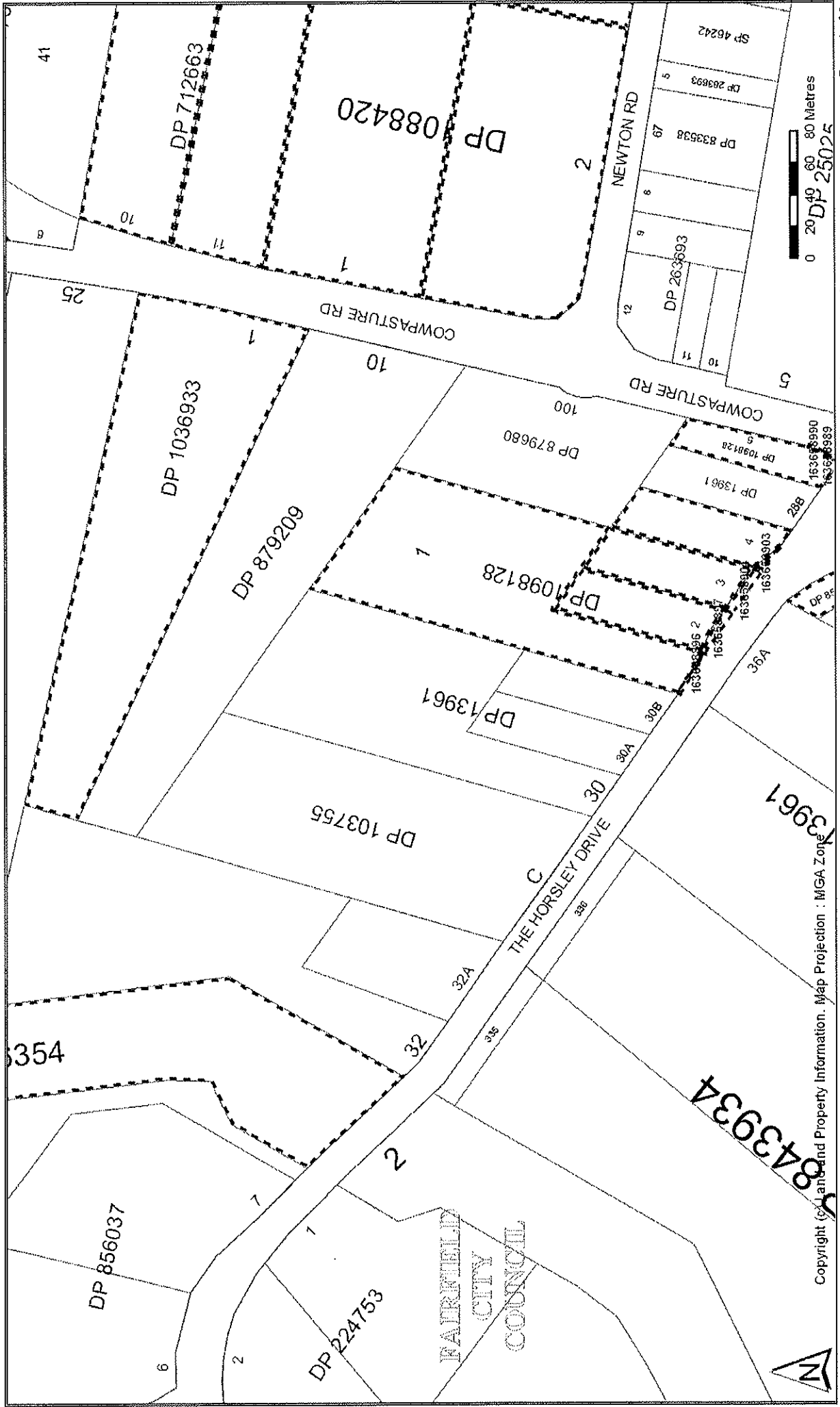
Identified Parcel : Lot 30 DP 13961

Locality : WETHERILL PARK

LGA : FAIRFIELD

Parish : MELVILLE

County : CUMBERLAND



Copyright © Land and Property Information. Map Projection : MGA Zone 56



Advance Legal Searchers  
Pty Ltd Phone: 02 9754 1590

LPI On-Line

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
-----

FOLIO: 25/13961  
-----

SEARCH DATE -----	TIME -----	EDITION NO -----	DATE -----
21/11/2011	9:02 AM	2	29/5/2008

LAND  
-----

LOT 25 IN DEPOSITED PLAN 13961  
LOCAL GOVERNMENT AREA FAIRFIELD  
PARISH OF MELVILLE COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP13961

FIRST SCHEDULE  
-----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

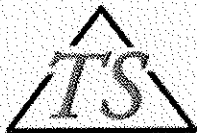
SECOND SCHEDULE (2 NOTIFICATIONS)  
-----

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 LAND EXCLUDES MINERALS BY THE CROWN GRANT OF 21 ACRES 2 ROODS 10 PERCHES

NOTATIONS  
-----

UNREGISTERED DEALINGS: NIL

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



Advance Legal Searchers Pty Ltd Phone: 02 9754 1590



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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:12AM

FOLIO: 25/13961

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 5330 FOL 201

Table with 4 columns: Recorded, Number, Type of Instrument, C.T. Issue. Rows include dates like 18/12/1988, 4/7/1989, 26/10/1995, 29/5/2008 and descriptions like TITLE AUTOMATION PROJECT, CONVERTED TO COMPUTER FOLIO, CHANGE OF NAME, APPLICATION.

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

Handwritten notes: 2, 2116-79, 2635-152, 3083-241, 3600-144



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 32/13961  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:02 AM	3	29/5/2008

LAND  
 -----

LOT 32 IN DEPOSITED PLAN 13961  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP13961

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

SECOND SCHEDULE (3 NOTIFICATIONS)  
 -----

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)  
 2 B887559 COVENANT  
 3 C543545 EASEMENT FOR DRAINAGE AFFECTING THE LAND 2 FEET AND  
 10 FEET WIDE SHOWN IN THE PLAN WITH C543545

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

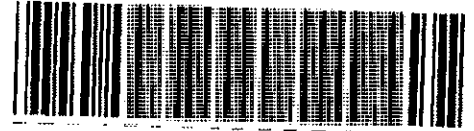
\*\*\* END OF SEARCH \*\*\*

# TRANSFER

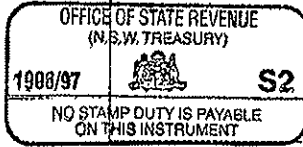
New South Wales

Real Property Act 1900

## 5979546N



Office of State Revenue use only



CROWN

(A) **LAND TRANSFERRED**  
If appropriate, specify the share or part transferred.

32/13961

(B) **LODGED BY**

LTO Box 864L	Name, Address or DX and Telephone TRESS COCKS & MADDOX Solicitors DX 123 SYDNEY Tel: (02) 9221 2744  REFERENCE (optional): RAL/ROM 99 1708
-----------------	---

(C) **TRANSFEROR**

**FRANCO MORASSUT and DELORAS ELIZABETH MORASSUT**

(D) acknowledges receipt of the consideration of \$792,220.00  
and as regards the land specified above transfers to the transferee an estate in fee simple.

(E) Eneumbrances (if applicable) 1. 2. 3.

(F) **TRANSFEEE**

T TS (s713 LGA) TW (Sheriff)	<b>THE MINISTER ADMINISTERING THE ENVIRONMENTAL PLANNING &amp; ASSESSMENT ACT, 1979</b>  <b>TENANCY:</b>
---	--

(G)

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. DATE 2 July 1999

Signed in my presence by the transferor who is personally known to me.

*Morassut*

Signature of Witness

Rosanna Morassut

Name of Witness (BLOCK LETTERS)

41 Hunter St, Parramatta

Address of Witness

*D. Morassut*

*F. Morassut*

Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

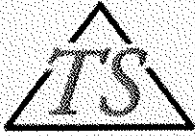
Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

*Richard Lissenden*

Signature of Transferee's Solicitor - RICHARD LISSENDEN



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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Information provided through Tri-Search an approved LPINSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

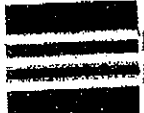
21/11/2011 9:13AM

FOLIO: 32/13961

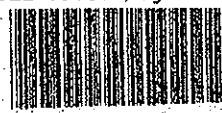
First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 9879 FOL 15

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
24/11/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/10/1993	I690043	TRANSMISSION APPLICATION	EDITION 1
13/7/1999	5979546	TRANSFER	EDITION 2
29/5/2008	AD766661	APPLICATION	EDITION 3

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



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



NEW SOUTH WALES  
Appln. No.15500  
Prior Title Vol.6020 Fol.156.

Vol. **9879** Fol. **15**

1st Edition Issued 25-11-1964.

EN. J779692.



R

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

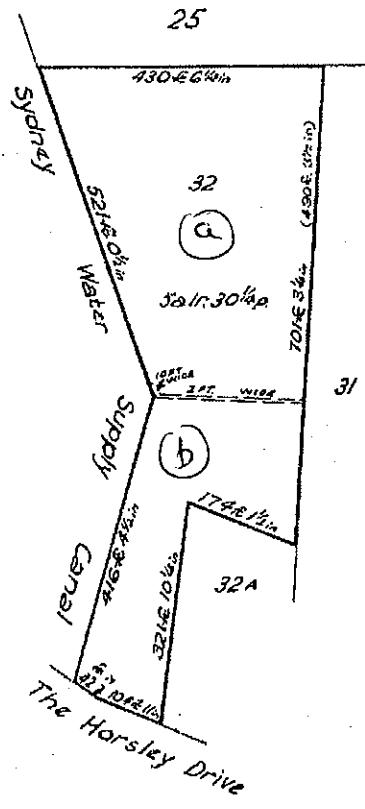
**CANCELLED**

Registrar General.



PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



4338 - 167  
5400 - 270

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

9879 Fol. 15  
(Page 1) Vol.

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

J779692 R S

Scale: 200 feet to one inch.  
ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 32 in Deposited Plan 13961 in the Municipality of Fairfield Parish of Melville and County of Cumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805.

FIRST SCHEDULE (Continued overleaf)

LUCIANO MORASSUT, Transport Worker, and FRANCO MORASSUT, Boilermaker, both of Smithfield as Tenants in Common.

Registrar General.

GRY

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Covenant created by Transfer No. B887559.
3. Easement for drainage created by Transfer No. C543545 affecting the pieces of land 2 feet and 10 feet wide shown in the plan hereon.

Registrar General.

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





Advance Legal Searchers  
Pty Ltd Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 32A/13961

SEARCH DATE	TIME	EDITION NO	DATE
21/11/2011	9:03 AM	3	29/5/2008

LAND

LOT 32A IN DEPOSITED PLAN 13961  
LOCAL GOVERNMENT AREA FAIRFIELD  
PARISH OF MELVILLE COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP13961

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

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

Ref:EIS - Wetherill Park /Src:T

Form: 97-01T

Licence: LAW/0526/98

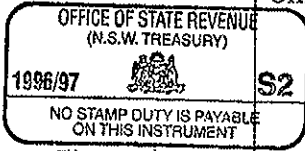
# TRANSFER

## 5979547L

① New South Wales  
Real Property Act 1900



Office of State Revenue use only



(A) **LAND TRANSFERRED**  
If appropriate, specify the share or part transferred.

32A/13961

(B) **LODGED BY**

LTO Box 864L	Name, Address or DX and Telephone TRESS COCKS & MADDOX Solicitors DX 123 SYDNEY Tel: (02) 9221 2744
REFERENCE (optional): RAL/ROM 99 1708	

(C) **TRANSFEROR** **DELORAS ELIZABETH MORASSUT**

(D) acknowledges receipt of the consideration of \$307,780.00  
and as regards the land specified above transfers to the transferee an estate in fee simple.

(E) Encumbrances (if applicable) 1. 2. 3.

(F) **TRANSFEEE**

T TS (s713 LGA) TW (Sheriff)	<b>THE MINISTER ADMINISTERING THE ENVIRONMENTAL PLANNING &amp; ASSESSMENT ACT, 1979</b>
<b>TENANCY:</b>	

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. DATE 2 July 1999

Signed in my presence by the transferor who is personally known to me.

Emorassut  
Signature of Witness

Rosanna Morassut  
Name of Witness (BLOCK LETTERS)

41 Hunter st, Parramatta  
Address of Witness

D. Morassut  
Signature of Transferor

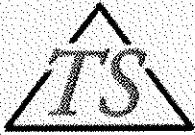
Signed in my presence by the transferee who is personally known to me.

.....  
Signature of Witness

.....  
Name of Witness (BLOCK LETTERS)

.....  
Address of Witness

Richard Lissenden  
Signature of Transferor's Solicitor - RICHARD LISSENDEN



Advance Legal Searchers  
Pty Ltd Phone: 02 9754 1590

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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:13AM

FOLIO: 32A/13961

First Title(s): SEE PRIOR TITLE(S)  
Prior Title(s): VOL 9879 FOL 16

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
8/1/1991		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/10/1993	I690043	TRANSMISSION APPLICATION	EDITION 1
13/7/1999	5979547	TRANSFER	EDITION 2
29/5/2008	AD766661	APPLICATION	EDITION 3

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

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

NEW SOUTH WALES  
Appln. No.15500  
Prior Title Vol.6020 Fol.156.

Vol. **9879** Fol. **16**

1st Edition issued 25-11-1964.

EM. J779693.



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]*

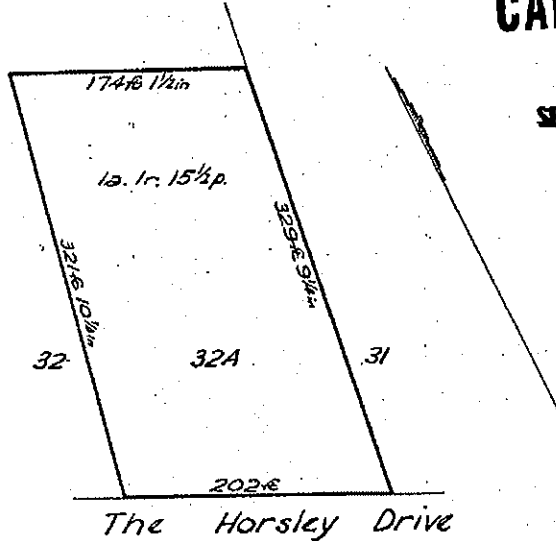
*[Signature]*  
Registrar General.



PLAN SHOWING LOCATION OF LAND

**CANCELLED**

SEE AUTO FOLIO



Scale: 100 feet to one inch.

ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 32A in Deposited Plan 13961 in the Municipality of Fairfield Parish of Melville and County of Cumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805.

*[Signature]*  
Registrar General.

FIRST SCHEDULE (Continued overleaf)

LUCIANO MORASSUT, of Smithfield, Transport Driver.

*[Signature]*  
Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

*[Signature]*  
Registrar General.

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

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





Advance Legal Searchers  
Pty Ltd Phone: 02 9754 1590

LPI On-Line

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 7943-58

SEARCH DATE	TIME	EDITION NO	DATE
21/11/2011	9:03 AM	2	29/5/2008

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS  
LOCAL GOVERNMENT AREA FAIRFIELD  
PARISH OF MELVILLE COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP13961

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)  
2 H504480 COVENANT

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS

LOT 30 IN DP13961  
LOT 30A IN DP13961  
LOT 30B IN DP13961.

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

Form: 011  
Licence: 01-08-067  
Licensee: Midware Systems  
Champion Legal

**TRANSFER**  
New South Wales  
Real Property Act 190



21

PRIVACY NOTE: this information is legally required and w

**AB760064D**

**STAMP DUTY**

Office of State Revenue, use only Director of State Revenue NSW Treasury Client No: 96655692 1942 <b>VENDOR DUTY ENDORSED</b> Trans No: 2917245	NEW SOUTH WALES DUTY 12-08-2005 0002880908-001 SECTION 308-TRANSFER NO DUTY PAYABLE
--	--

(A) **TORRENS TITLE**

Certificate of Title VOL 7943 FOL 58

(B) **LODGED BY**

Delivery Box 256L 446T	Name, Address or DX and Telephone 123167X <b>LLPN: 123309E</b> Reference (optional): <del>JOHN M. STOTT</del> emp/528	CITY AGENTS DX 1293 9232 2077	CODE <b>T TW</b> (Sheriff)
------------------------------	--	-------------------------------------	--------------------------------------

(C) **TRANSFEROR**

**GIANNINO MENOLOTTO**

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of \$ 3,200,000.00 and as regards  
(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple.

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEEE**

**MINISTER ADMINISTERING THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**  
**TENANCY:**

(J) **DATE**

5 / 9 / 05

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.

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

Signature of witness:

Signature of transferor:

Name of witness: ANTONIETTA ZACCAGNINI

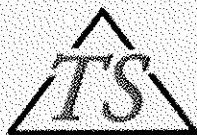
Address of witness: LA, 79 George Street  
Parramatta NSW 2150

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: JOHN COTTER  
Signatory's capacity: Solicitor for the transferee

**CT SIGHTED  
CANC. & RET.**



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:14AM

FOLIO: AUTO CONSOL 7943-58

Recorded	Number	Type of Instrument	C.T. Issue
29/10/1992		CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 7943-58	

PARCELS IN CONSOL ARE:  
 30/13961, 30A/13961, 30B/13961.

12/9/2005	AB760064	TRANSFER	EDITION 1
29/5/2008	AD766661	APPLICATION	EDITION 2

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



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**Pty Ltd** Phone: 02 9754 1590

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 Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 28B/13961  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:04 AM	2	23/3/2010

LAND  
 -----

LOT 28B IN DEPOSITED PLAN 13961  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP13961

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (TZ AF361105)

SECOND SCHEDULE (2 NOTIFICATIONS)  
 -----

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)  
 2 C661867 COVENANT

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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

①

Form: 01T  
Licence: 05-11-638  
Licence: Softdocs  
Champion Legal

**TRANSFER**  
New South Wales  
Real Property Act 1900



**AC659593P**

**PRIVACY NOTE:** Section 31B of the Real Property Act 1900 (RP Act) authorises the Regis-  
trar by this form for the establishment and maintenance of the Real Property Act Register. See  
made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Office of State Revenue use only	NEW SOUTH WALES DUTY 06-10-2006 0003783146-001 SECTION OTHR LEGN-TRANSFER NO DUTY PAYABLE
----------------------------------	--

(A) TORRENS TITLE

FOLIO IDENTIFIER 28B/13961
----------------------------

(B) LODGED BY

Document Collection Box <b>440T</b>	Name, Address or DX and Telephone <b>LLPN: 123309E</b> Reference (optional): JJC:MH:52025 <i>CMP/1260</i>	CHAMPION LEGAL DX 8220 PARRAMATTA Tel: (02) 9635 8266	CODE <b>T</b> <b>TW</b> (Sheriff)
--	---	---	--

(C) TRANSFEROR

<b>LESLIE GORDON LINDSAY HALL</b>
-----------------------------------

(D) CONSIDERATION The transferor acknowledges receipt of the consideration of \$ 733,000.00 and as regards

(E) ESTATE the land specified above transfers to the transferee an estate in fee simple.

(F) SHARE TRANSFERRED

(G) Encumbrances (if applicable):

(H) TRANSFEREE

<b>THE MINISTER ADMINISTERING THE ENVIRONMENTAL PLANNING &amp; ASSESSMENT ACT 1979</b>
TENANCY:

(I)

DATE

*03/10/06*

(J) 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.

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

Signature of witness:

*D. Hall*

Name of witness:

*DAVID HALL*

Address of witness:

*10 FRASER  
CLOSE KEMPSEY  
N.S.W 2440*

Signature of transferor:

*L G Hall.*

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

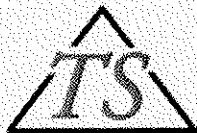
*[Signature]*

Signatory's name: JOHN COTTER

Signatory's capacity: Solicitor for the transferee

**CT SIGHTED**  
**CANC & RET.**  
*Reg 11/07*  
*11/10/06*

②



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**Pty Ltd** Phone: 02 9754 1590

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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:15AM

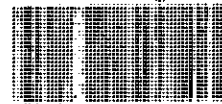
FOLIO: 28B/13961

First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 15498 FOL 176

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
16/10/2006	AC659593	TRANSFER	EDITION 1
23/3/2010	AF361105	TRANSFER WITHOUT MONETARY CONSIDERATION	EDITION 2

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

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900



15498/76

NEW SOUTH WALES

Vol. 15498 Fol. 176

First Title Old System

Prior Title Vol. 4949 Fol. 193



SEARCHED 23 6 1987

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

*Appelgren*  
Registrar General



CANCELLED

LAND REFERRED TO

SEE AUTO FOLIO

Lot 28B in DP13961 at Horsley Park in the City of Fairfield Parish of Melville County of Cumberland.

Title Diagram: DP13961.

FIRST SCHEDULE

LESLIE GORDON LINDSAY HALL.

SECOND SCHEDULE

GRY

- 1. Reservations and conditions in the Crown grant.
- CV 2. C661867 Covenant.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON  
(Page 1) Vol. 15498 Fol. 176

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



FIRST SCHEDULE (continued)	
REGISTERED PROPRIETOR	Registrar General
<p><b>CANCELLED</b></p> <p>SEE AUTO FILING</p>	

SECOND SCHEDULE (continued)		
PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS		

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



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 4370-247

SEARCH DATE	TIME	EDITION NO	DATE
21/11/2011	9:04 AM	3	29/5/2008

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP1098128

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 B927651 COVENANT

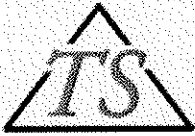
NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS

LOTS 1-2 IN DP1098128.

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



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:15AM

FOLIO: AUTO CONSOL 4370-247

Recorded	Number	Type of Instrument	C.T. Issue
4/8/1993		CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 4370-247	
		PARCELS IN CONSOL ARE: 29/13961, 29A/13961.	
24/10/1995	O610938	CHANGE OF NAME	EDITION 1
15/6/2006	DP1098128	DEPOSITED PLAN	
3/7/2007	AD245398	PARCELS EXCISED. CONSOL BROKEN UP	
3/7/2007	AD245711	AUTO CONSOL RESTORED	CT NOT ISSUED
		PARCELS IN CONSOL ARE: 1-2/1098128.	
3/7/2007	AD245716	DEPARTMENTAL DEALING	EDITION 2
29/5/2008	AD766661	APPLICATION	
29/5/2008	AD985946	DEPARTMENTAL DEALING	EDITION 3

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



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**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 3/1098128  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:05 AM	2	29/5/2008

LAND  
 -----

LOT 3 IN DEPOSITED PLAN 1098128  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP1098128

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

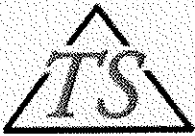
SECOND SCHEDULE (2 NOTIFICATIONS)  
 -----

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)  
 2 D896514 COVENANT

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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



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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

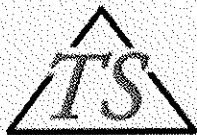
21/11/2011 9:15AM

FOLIO: 3/1098128

First Title(s): OLD SYSTEM  
 Prior Title(s): 29B/13961

Recorded	Number	Type of Instrument	C.T. Issue
15/6/2006	DP1098128	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
3/7/2007	AD188947	TRANSFER	FOLIO CREATED EDITION 1
29/5/2008	AD766661	APPLICATION	
29/5/2008	AD985946	DEPARTMENTAL DEALING	EDITION 2

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:16AM

FOLIO: 29B/13961

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 5911 FOL 213

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
25/10/1995	O610938	CHANGE OF NAME	EDITION 1
15/6/2006	DF1098128	DEPOSITED PLAN	
3/7/2007	AD188947	TRANSFER	FOLIO CANCELLED

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 4/1098128  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:05 AM	2	29/5/2008

LAND  
 -----

LOT 4 IN DEPOSITED PLAN 1098128  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP1098128

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

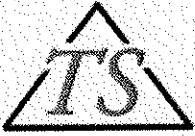
SECOND SCHEDULE (2 NOTIFICATIONS)  
 -----

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)  
 2 B932040 COVENANT

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:16AM

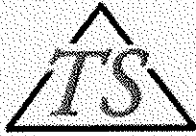
FOLIO: 4/1098128

First Title(s): OLD SYSTEM

Prior Title(s): 28A/13961

Recorded	Number	Type of Instrument	C.T. Issue
15/6/2006	DP1098128	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
3/7/2007	AD188947	TRANSFER	FOLIO CREATED EDITION 1
29/5/2008	AD766661	APPLICATION	
29/5/2008	AD985946	DEPARTMENTAL DEALING	EDITION 2

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:17AM

FOLIO: 28A/13961

First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 4376 FOL 72

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
19/2/1990		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
3/5/1995	O172313	REQUEST	
1/8/1995	O421664	DEPARTMENTAL DEALING	EDITION 1
30/8/1999	6143592	DEPARTMENTAL DEALING	
15/6/2006	DP1098128	DEPOSITED PLAN	
3/7/2007	AD188947	TRANSFER	FOLIO CANCELLED

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 5/1098128  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:05 AM	2	29/5/2008

LAND  
 -----

LOT 5 IN DEPOSITED PLAN 1098128  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP1098128

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

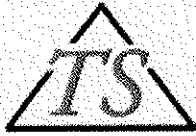
SECOND SCHEDULE (3 NOTIFICATIONS)  
 -----

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 LAND EXCLUDES MINERALS RESERVED BY CROWN GRANT OF 8.726 HA
- 3 DP879680 EASEMENT FOR BATTER VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:17AM

FOLIO: 5/1098128

First Title(s): OLD SYSTEM

Prior Title(s): 101/879680

Recorded	Number	Type of Instrument	C.T. Issue
15/6/2006	DP1098128	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
3/7/2007	AD188947	TRANSFER	FOLIO CREATED EDITION 1
29/5/2008	AD766661	APPLICATION	
29/5/2008	AD985946	DEPARTMENTAL DEALING	EDITION 2

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

Release: 2.1  
www.lpi.nsw.gov.au

**TRANSFER**  
New South Wales  
Real Property Act 1900



8804771L

PRIVACY NOTE: this information is legally required and will

STAMP DUTY

Office of State Revenue use only	18-07-2002	0001050693-001
	SECTION OTHR LEGN-TRANSFER	
	NO DUTY PAYABLE	

(A) TORRENS TITLE

100/879680 and 101/879680
---------------------------

(B) LODGED BY

Delivery Box 867E	Name, Address or DX and Telephone ROMAN HOYLE Reference: CINCOTTA	CODES T TW (Sheriff)
----------------------	---	-------------------------------

(C) TRANSFEROR

SANTINA PICCININ AND AURELIA CINCOTTA
---------------------------------------

(D) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$ 1,400,000.00 and as regards

(E) ESTATE

the land specified above transfers to the transferee an estate in fee simple

(F) SHARE TRANSFERRED

WHOLE

(G)

Encumbrances (if applicable):

(H) TRANSFEREE

MINISTER ADMINISTERING THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979
<del>TENANCY:</del>

(I)

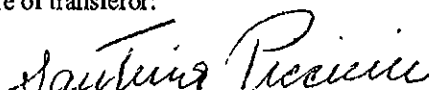
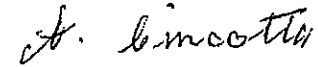
(J) DATE

28 June, 2002

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.

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

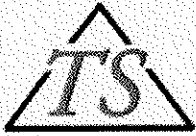
Signature of witness: D. Cincotta  
 Name of witness: DIANA CINCOTTA  
 Address of witness: 57 MOJERY ROAD  
KINGSFORD NSW 2032

Signature of transferor:  
  


Certified for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature: 

Signatory's name: Sandra Chitty  
Signatory's capacity: transferee's licensed conveyancer



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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Information provided through Tri-Search an approved LPINSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:18AM

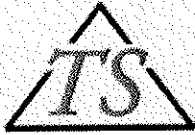
FOLIO: 101/879680

First Title(s): OLD SYSTEM

Prior Title(s): 1/516627

Recorded	Number	Type of Instrument	C.T. Issue
28/8/1998	DP879680	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/7/2002	8804771	TRANSFER	EDITION 2
15/6/2006	DP1098128	DEPOSITED PLAN	
3/7/2007	AD188947	TRANSFER	FOLIO CANCELLED

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



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

**LPI On-Line**

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Information provided through Tri-Search an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

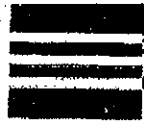
21/11/2011 9:19AM

FOLIO: 1/516627

First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 10145 FOL 211

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
25/2/1993	I145795	TRANSMISSION APPLICATION	EDITION 1
22/11/1993		AMENDMENT: LOCAL GOVT AREA	
10/7/1998	5117834	APPLN FOR REPLACEMENT CT	EDITION 2
28/8/1998	DP879680	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

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



CERTIFICATE OF TITLE  
PROPERTY ACT, 1900, as amended.



10145211

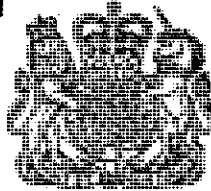
NEW SOUTH WALES

Application No.15500 (part)

Prior Title Vol.9982 Fol.210

Vol. 10145 Fol. 211

MA 1st Edition issued 21-10-1965



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*

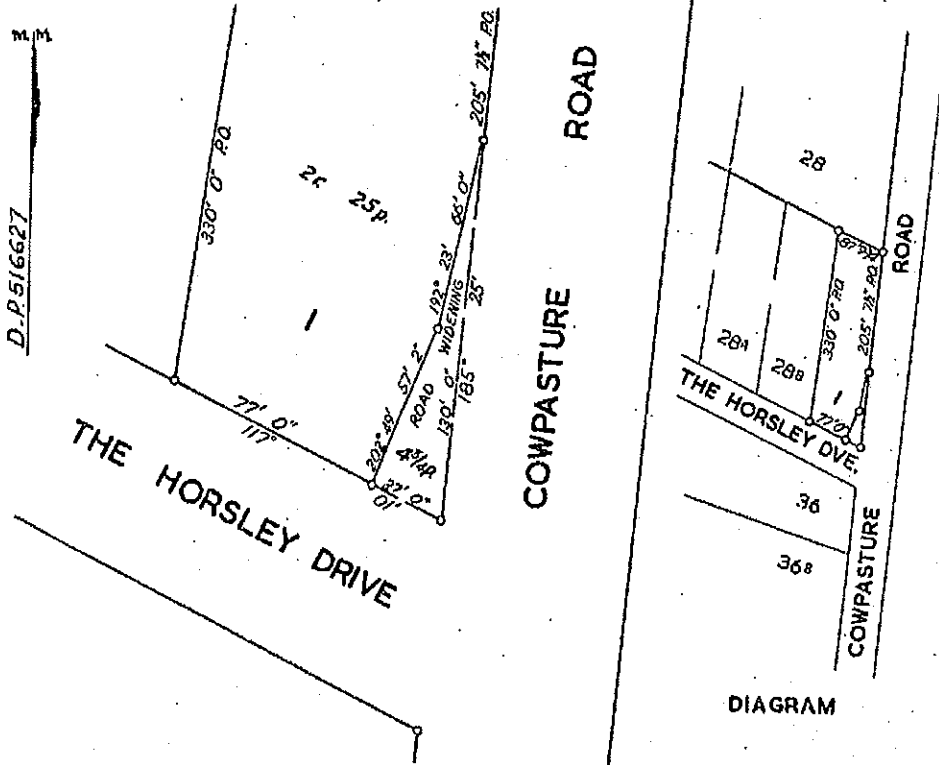
**CANCELLED**  
*Janatson*

Registrar General.



PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 516627 at Horsley Park in the Municipality of Fairfield Parish of Melville and County of Cumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805 and part of 21 acres 2 roods 10 perches granted on 31-7-1917 by Crown Grant Volume 2777 Folio 43 excepting thereout the minerals reserved by the Crown Grant of 21 acres 2 roods 10 perches.

FIRST SCHEDULE (continued overleaf)

~~GIUSEPPE CIPRECCI, of Horsley Park, Labourer.~~

*Janatson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

- 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
- 2. ~~Mortgage No. J928509 to Rural Bank of New South Wales. Entered 20-6-1965. Discharged 178 P93~~

*Janatson*  
Registrar General.

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

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





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



0998210

NEW SOUTH WALES

Appln. No. 15500 (part)  
Prior Titles Vol. 7250 Fols. 66

69 and 70



Vol. 9982 Fol. 210

1st Edition issued 21-4-1965

IT J928508

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.

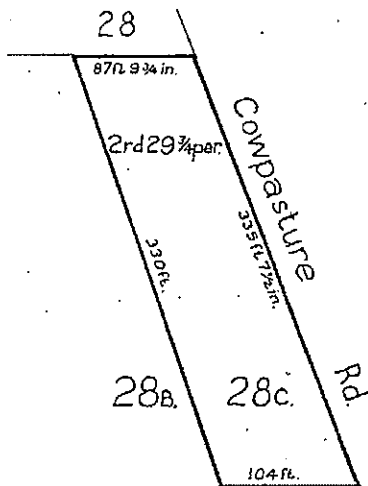
Witness *S Maclean*

*Jawatson*  
Registrar General.



**PLAN SHOWING LOCATION OF LAND**

**CANCELLED**



5082-1a  
4860-188

The Horsley Drive

J928508 RP

Scale: 100 feet to one inch.

**ESTATE AND LAND REFERRED TO**

Estate in Fee Simple in Lot 28c in Deposited Plan 13961 in the Municipality of Fairfield Parish of Melville and County of Cumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805 and part of 21 acres 2 roods 10 perches granted on 31-7-1917 by Crown Grant Volume 2777 Folio 43. Excepting thereout the minerals reserved by the Crown Grant of 21 acres 2 roods 10 perches.

*Jawatson*

Registrar General.

**FIRST SCHEDULE (continued overleaf)**

GIUSEPPE CIPRESSI of Horsley Park, Labourer.:

*Jawatson*

Registrar General.

**SECOND SCHEDULE (continued overleaf)**

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

*Jawatson*

Registrar General.

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(Page 1) Vol. 9982 Fol. 210





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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: C/103755

SEARCH DATE	TIME	EDITION NO	DATE
21/11/2011	9:06 AM	2	29/5/2008

LAND

LOT C IN DEPOSITED PLAN 103755  
LOCAL GOVERNMENT AREA FAIRFIELD  
PARISH OF MELVILLE COUNTY OF CUMBERLAND  
TITLE DIAGRAM DP103755

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

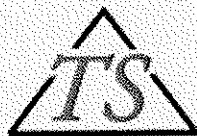
SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 C543545 EASEMENT APPURTENANT TO THE PART OF THE LAND ABOVE DESCRIBED FORMERLY IN LOT 31 DP13961 AFFECTING THE LAND SHOWN SO BURDENED IN PLAN WITH C543545

NOTATIONS

UNREGISTERED DEALINGS: NIL

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



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**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:20AM

FOLIO: C/103755

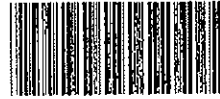
First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 10045 FOL 33

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
18/8/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
24/10/1995	0610938	CHANGE OF NAME	EDITION 1
29/5/2008	AD766661	APPLICATION	EDITION 2

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

NEW SOUTH WALES

CERTIFICATE OF TITLE  
PROPERTY ACT, 1900, as amended.



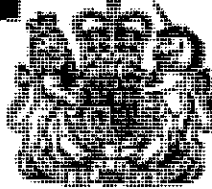
10045

Appln. No. 15500  
Prior Title Vol. 5749 Fol. 36

Vol. 10045 Fol. 33

1st Edition issued 1-7-1965

IT J907255



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.

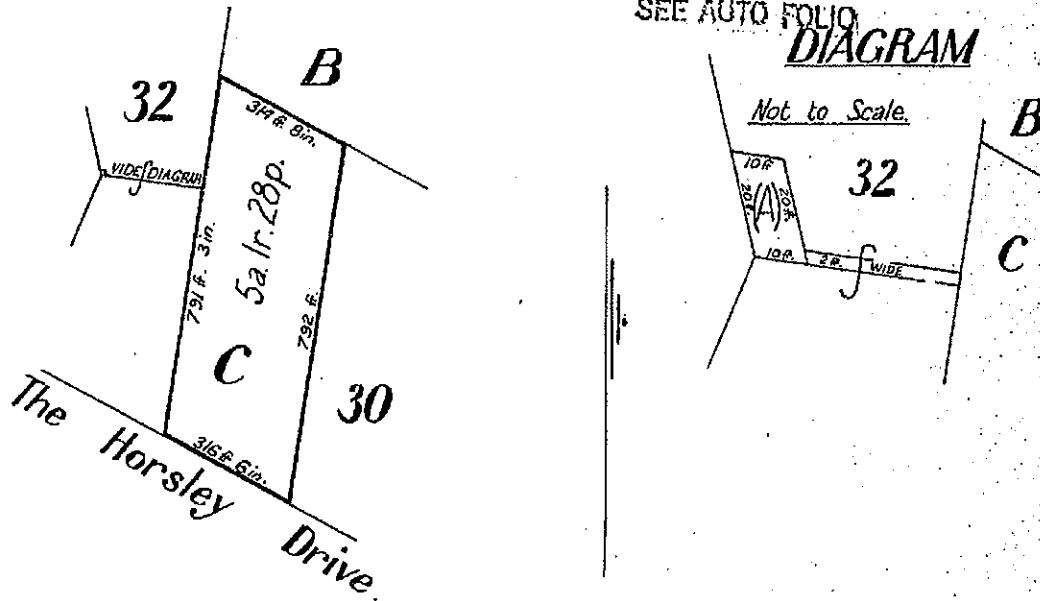
Witness *R.B. Latta*

*Jawatson*  
Registrar General.



PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO  
DIAGRAM



Scale: 300 feet to one inch.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot C in Deposited Plan 103755 in the Municipality of Fairfield Parish of Melville and County of Cumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805.

*Jawatson*  
Registrar General.

FIRST SCHEDULE (continued overleaf)

~~ROMEO MOROSIN of Horsley Park, Motor-Mechanic.~~

*Jawatson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

- GRY  
EA
- Reservations and conditions, if any, contained in the Crown Grant above referred to.
  - Basement created by Transfer No. C543545 appurtenant to the part of the land above described formerly comprised in Lot 31 in Deposited Plan 13961 affecting the pieces of land 2 feet wide and designated (A) in the plan hereon. SHOWN SO BURDENED IN PLAN WITH C543545

*Jawatson*  
Registrar General.

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

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**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 100/879680  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:06 AM	3	29/5/2008

LAND  
 -----

LOT 100 IN DEPOSITED PLAN 879680  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP879680

FIRST SCHEDULE  
 -----

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

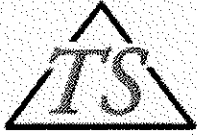
SECOND SCHEDULE (3 NOTIFICATIONS)  
 -----

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 LAND EXCLUDES MINERALS RESERVED BY CROWN GRANT OF 8.726 HA
- 3 DP879680 EASEMENT FOR BATTER VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:21AM

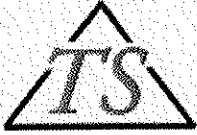
FOLIO: 100/879680

First Title(s): OLD SYSTEM

Prior Title(s): 28/13961

Recorded	Number	Type of Instrument	C.T. Issue
28/8/1998	DP879680	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/7/2002	8804771	TRANSFER	EDITION 2
29/5/2008	AD766661	APPLICATION	EDITION 3

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

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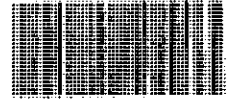
FOLIO: 28/13961

First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 9982 FOL 209

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/11/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
25/2/1993	I145794	TRANSMISSION APPLICATION	EDITION 1
10/7/1998	5117834	APPLN FOR REPLACEMENT CT	EDITION 2
28/8/1998	DP879680	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

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

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



09982209

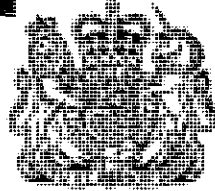
NEW SOUTH WALES

Appln. No. 15500 (part)  
Prior Titles Vol. 7250 Fols. 69 and 70

Vol. 9982 Fol. 209

1st Edition issued 21-4-1965

IT J928508



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.

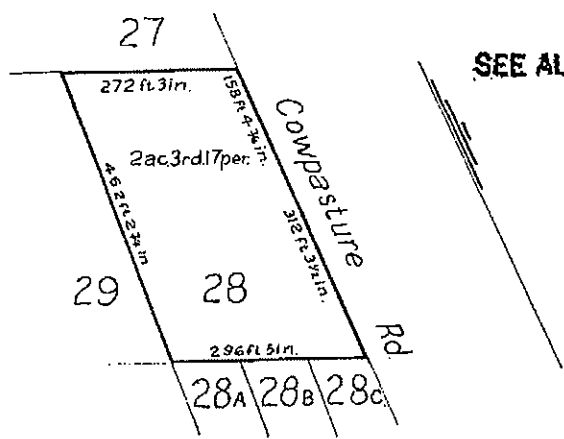
Witness *S MacLennan*

*Johnston*  
Registrar General.



PLAN SHOWING LOCATION OF LAND

**CANCELLED**



SEE AUTO FOLIO

J928508 R.P.  
B

Scale: 200 feet to one inch.

*S* ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 28 in Deposited Plan 13961 in the Municipality of Fairfield Parish of Melville and County of Gumberland being part of Portion 2 granted to Major George Johnston on 18-12-1805 and part of 21 acres 2 roods 10 perches granted on 31-7-1917 by Crown Grant Volume 2777 Folio 43. Excepting thereout the minerals reserved by the Crown Grant of 21 acres 2 roods 10 perches.

*Johnston*  
Registrar General.

FIRST SCHEDULE (continued overleaf)

~~GIUSEPPE CIPRESSI of Kereley Park, Labourer.~~

*Johnston*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

*ARY.* Reservations and conditions, if any, contained in the Crown Grants above referred to.

*Johnston*  
Registrar General.

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OF 1608 V. C. N. PLIKKE GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	NATURE	INSTRUMENT NUMBER	DATE	ENTERED	Signature of Registrar General
<i>Atkins Associates of Guilford, Retired</i>	<i>Transfer</i>	<i>2377160</i>	<i>20-3-1989</i>	<i>2-4-1989</i>	<i>[Signature]</i>

SECOND SCHEDULE (continued)

REGISTERED PROPRIETOR	NATURE	INSTRUMENT NUMBER	DATE	ENTERED	PARTICULARS	Signature of Registrar General	ENTERED	CANCELLATION
<i>Chenggo</i>	<i>Transfer</i>	<i>10-9-1988</i>	<i>10-9-1988</i>	<i>10-6-1988</i>	<i>Transfer of shares to Atkins Associates</i>	<i>[Signature]</i>	<i>178893</i>	<i>Discharged</i>
<p><b>CANCELLED</b></p> <p>SEE AUTO FOLIO</p>								

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

FORM No. 62



**Advance Legal Searchers**  
**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH  
 -----

FOLIO: 10/879209  
 -----

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
21/11/2011	9:07 AM	3	25/2/2010

LAND  
 -----

LOT 10 IN DEPOSITED PLAN 879209  
 AT HORSLEY PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP879209

FIRST SCHEDULE  
 -----

MARIO NEVINO MENOLOTTO  
 IN 1/2 SHARE  
 GABRIELE MENOLOTTO  
 VIOLET ROSA MARIA MENOLOTTO  
 AS JOINT TENANTS IN 1/2 SHARE  
 AS TENANTS IN COMMON (T 7249824)

SECOND SCHEDULE (3 NOTIFICATIONS)  
 -----

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 DP879209 EASEMENT FOR BATTER VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
- 3 AF337974 MORTGAGE TO DONATO LOSURDO & MARIA LOSURDO

NOTATIONS  
 -----

UNREGISTERED DEALINGS: NIL

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

Form: 97-011  
Licence: MID/0734/97

# TRANSFER

## 7249824J

New South Wales  
Real Property Act 1900



Office of State Revenue use only

01-06-2000 0000321538-001  
SECTION 1.6(2)  
DUTY \$ \*\*\*\*\*2.00

(A) **LAND TRANSFERRED**

If appropriate, specify the share or part transferred.

FOLIO IDENTIFIER 10/879209

(B) **LODGED BY**

LTO Box  476V	Name, Address or DX and Telephone  D La Rosa  Reference (15 character max): LILA: 255
---------------------	---

(C) **TRANSFEROR**

**GABRIELE MENOLOTTO IN AN UNDIVIDED ONE HALF SHARE**

(D) acknowledges receipt of the consideration of \$225,000.00 and as regards the land specified above transfers to the transferee an estate in fee simple.

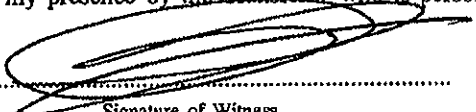
(E) Encumbrances (if applicable):


(F) **TRANSFeree**

T TS (s713 LGA) TW (Sheriff)	<b>GABRIELE MENOLOTTO AND VIOLET ROSA MARIA MENOLOTTO</b>  <b>TENANCY: JOINT TENANTS</b>
--	--

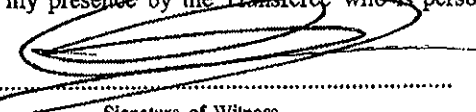
(H) We certify this dealing correct for the purposes of the Real Property Act 1900. DATE 28/11/00


Signed in my presence by the Transferor who is personally known to me.

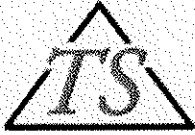
  
Signature of Witness  
DOMINIC A. IZZO  
Name of Witness (BLOCK LETTERS)  
122 Carreray St Sydney  
Address of Witness

  
Signature of Transferor

Signed in my presence by the Transferee who is personally known to me.

  
Signature of Witness  
DOMINIC A. IZZO  
Name of Witness (BLOCK LETTERS)  
122 Carreray St Sydney  
Address of Witness

  
Signature of Transferee  
G. Menolotto



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**Pty Ltd** Phone: 02 9754 1590

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

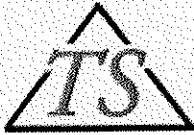
21/11/2011 9:22AM

FOLIO: 10/879209

First Title(s): OLD SYSTEM VOL 2777 FOL 43  
 Prior Title(s): B/103755

Recorded	Number	Type of Instrument	C.T. Issue
3/8/1998	DP879209	DEPOSITED PLAN	FOLIO CREATED EDITION 1
28/11/2000	7249824	TRANSFER	EDITION 2
25/2/2010	AF337974	MORTGAGE	EDITION 3

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



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**Pty Ltd** Phone: 02 9754 1590



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH  
 -----

SEARCH DATE  
 -----

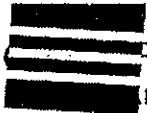
21/11/2011 9:22AM

FOLIO: B/103755  
 -----

First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 15529 FOL 166

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
5/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
20/5/1992	E467510	DISCHARGE OF MORTGAGE	EDITION 1
3/8/1998	DP879209	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

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



CERTIFICATE OF TITLE  
REAL PROPERTY ACT, 1900



15529166

NEW SOUTH WALES

First Title Vol. 2777 Fol. 43  
Old System

Prior Title Vol. 7691 Fol. 216



**CANCELLED**

Vol. 15529 Fol. 166

SEE AUTO FILED  
ISSUED

8 9 1988

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

*[Signature]*

Registrar General.



S  
GRM

LAND REFERRED TO

Lot B in DP103755 at Horsley Park in the City of Fairfield Parish of Melville County of Cumberland.

Title Diagram: DP103755.

FIRST SCHEDULE

GABRIELE MENOLOTTO and MARIO NEVINO MENOLOTTO, as Tenants in Common in Equal Shares. L968657

SECOND SCHEDULE

1. Land excludes minerals and is subject to reservations and conditions in favour of the Crown - see Crown grant.
2. V947372 Mortgage to Commonwealth Bank of Australia.

ME

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

15529 Fol. 166  
(Page 1) Vol.

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





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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/1036933

SEARCH DATE	TIME	EDITION NO	DATE
21/11/2011	9:07 AM	2	29/5/2008

LAND

LOT 1 IN DEPOSITED PLAN 1036933  
 AT WETHERILL PARK  
 LOCAL GOVERNMENT AREA FAIRFIELD  
 PARISH OF MELVILLE COUNTY OF CUMBERLAND  
 TITLE DIAGRAM DP1036933

FIRST SCHEDULE

WESTERN SYDNEY PARKLANDS TRUST (AP AD766661)

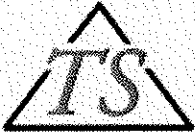
SECOND SCHEDULE (1 NOTIFICATION)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND  
 CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

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



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH  
 -----

SEARCH DATE  
 -----

21/11/2011 9:23AM

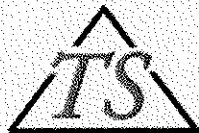
FOLIO: 1/1036933  
 -----

First Title(s): OLD SYSTEM

Prior Title(s): A/103755

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
31/1/2002	DP1036933	DEPOSITED PLAN	FOLIO CREATED EDITION 1
29/5/2008	AD766661	APPLICATION	EDITION 2

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



**Advance Legal Searchers**  
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Information provided through Tri-Search an approved LPINSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/11/2011 9:23AM

FOLIO: A/103755

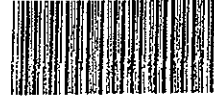
First Title(s): SEE PRIOR TITLE(S)  
 Prior Title(s): VOL 15529 FOL 165

Recorded	Number	Type of Instrument	C.T. Issue
29/7/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
5/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
26/10/1995	0610938	CHANGE OF NAME	EDITION 1
31/1/2002	DP1036933	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS

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



# CIFICATE OF TITLE



15529165

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

First Title Vol. 2777 Fol. 43  
Old System

Prior Title Vol. 7691 Fol. 216



**CANCELLED**

15529 Fol. 165

EDITION 8 9 1988

SEE AUTO FOLIO

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

*[Signature]*

Registrar General.



S  
GRM

LAND REFERRED TO

Lot A in DP103755 at Horsley Park in the City of Fairfield Parish of Melville County of Cumberland.

Title Diagram: OP103755.

FIRST SCHEDULE

MINISTER ADMINISTERING THE ENVIROMENTAL PLANNING AND ASSESSMENT ACT, 1979. X769668

SECOND SCHEDULE

1. Land excludes minerals and is subject to reservations and conditions in favour of the Crown - see Crown grant.

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

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

15529 Fol. 165

(Page 1) Vol. ....



LO. 55

FIRST SCHEDULE (continued)  
REGISTERED PROPRIETOR

Registrar General

**CANCELLED**

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

PARTICULARS

Registrar General

CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

97-11R



# REQUEST

Real Property Act 1900



0610938F

38 F

(A) **STAMP DUTY**  
If applicable.

Office of State Revenue use only

(B) **TITLE**  
Show no more than 20.

SEE ANNEXURES A TO NNN	
------------------------	--

(C) **REGISTERED DEALING**  
If applicable.

--

(D) **LODGED BY**

L.T.O. Box 691R	Name, Address or DX and Telephone <i>667111</i> DEPARTMENT OF URBAN AFFAIRS AND PLANNING	Dealing Code
	REFERENCE (max 15 characters): <i>LEON MITCHELL</i>	

(E) **APPLICANT**

MINISTER ADMINISTERING THE ENVIRONMENTAL  
PLANNING AND ASSESSMENT ACT 1979

(F) **REQUEST**

The Applicant requests the Registrar General to issue Folio identifiers in place of the Certificates of Title listed on the attached annexures and also to show the registered proprietor on all Folio Identifiers as the Minister administering the Environmental Planning and Assessment Act 1979 in place of any previous name (i.e., Cumberland County Council, State Planning Authority of New South Wales and New South Wales Planning and Environment Commission

CHECKED BY (office use only)

*38*

(G)

STANDARD EXECUTION

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

DATE 13th October, 1995

Signed in my presence by the Applicant who is personally known to me.

*[Handwritten Signature]*  
.....  
Signature of Witness

ANAN GRILLITH  
.....  
Name of Witness (BLOCK LETTERS)

177 NORTH ROAD, EASTWOOD NSW  
.....  
Address of Witness

SIGNED by me PENELOPE LOUISE HILL as delegate of the Minister  
administering the Environmental Planning and Assessment Act,  
1979, and I hereby certify that I have no notice of the  
revocation of such delegation.

*[Handwritten Signature]*  
.....

Signature of Applicant

EXECUTION INCLUDING STATUTORY DECLARATION

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900, and I certify this  
Application correct for the purposes of the Real Property Act 1900. Made and subscribed at SYDNEY  
in the State of NEW SOUTH WALES on 13th October 19 95 in the presence of

*[Handwritten Signature]*  
.....  
Signature of Witness

ANAN GRILLITH  
.....  
Name of Witness (BLOCK LETTERS)

177 NORTH ROAD, EASTWOOD NSW  
.....  
Address and Qualification of Witness  
Justice of the Peace.

SIGNED by me PENELOPE LOUISE HILL as delegate of the Minister  
administering the Environmental Planning and Assessment Act,  
1979, and I hereby certify that I have no notice of the  
revocation of such delegation.

*[Handwritten Signature]*  
.....

Signature of Applicant

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

*[Signature]*  
 SIGNED by me VINCENT FERNANDEZ RAMOS as delegate of the Minister administering the Environmental Planning and Assessment Act, 1979, and I hereby certify that I have no notice of the revocation of such delegation.

Crown Lands Office Approval

PLAN APPROVED: *[Signature]*  
 Paper No. ....  
 Land District: ...  
 Field Book: ...

Council's Certificate

I hereby certify that:  
 (a) the requirements of the Local Government Act, 1979 (other than the requirements for the registration of plans), and  
 (b) the requirements of Part 3 (Division 2 of the Public Works Act (Consolidation) Act 1971),  
 have been complied with by the applicant in relation to the proposed ROAD WIDENING (insert "road", "subdivision" or "consolidation") set out herein.  
 Submission No. 283  
 Date: 29-11-98  
*[Signature]*  
 (Signature) ..  
 Council File No. 5118 3735  
 This certificate is to be obtained where the application is only for consolidation or the opening of a new road or where the land to be consolidated is wholly or partly within the area of operations of the State Road and the Public Works Act 1971.  
 Tables 1 & 2 respectively.

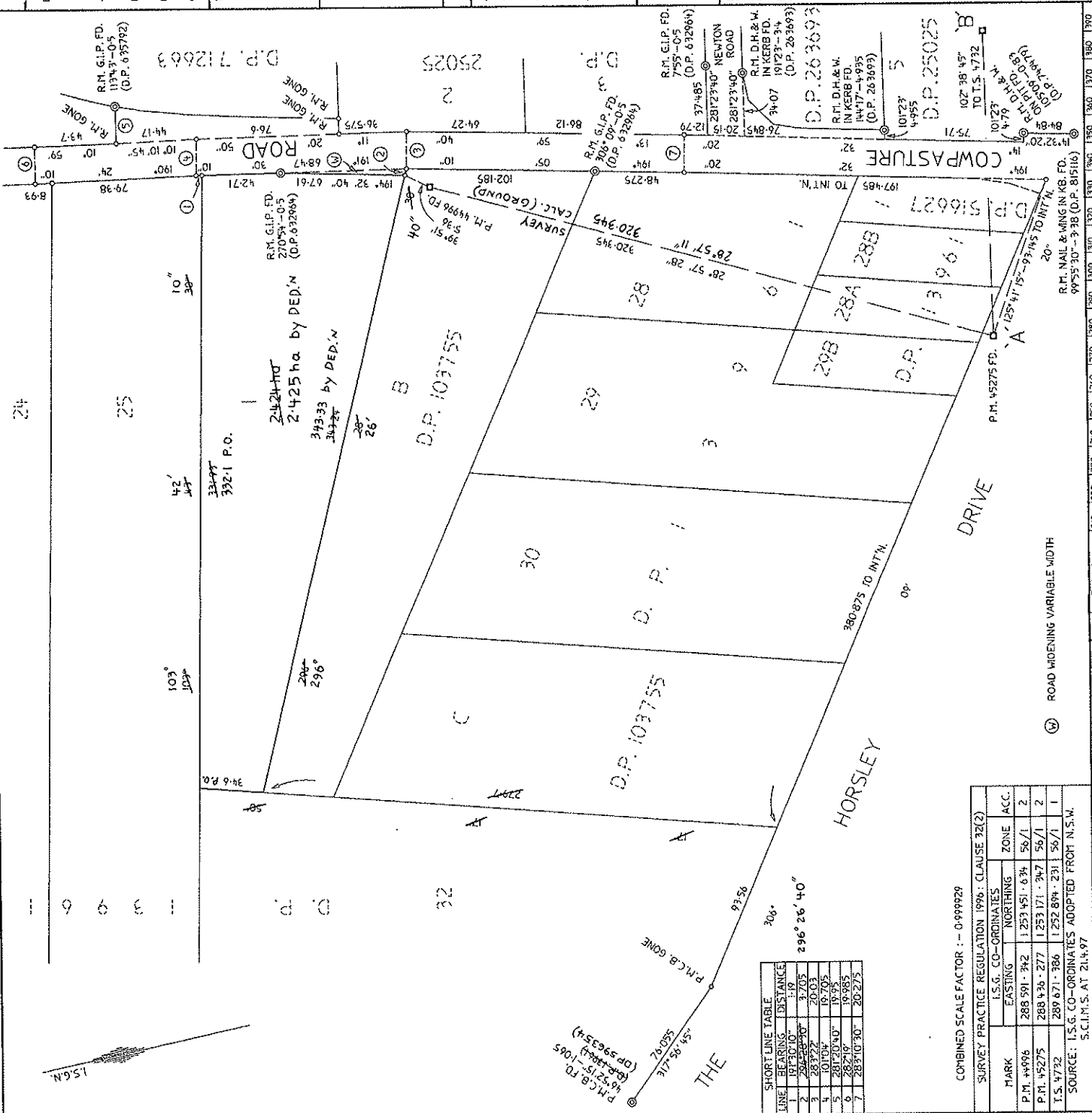
SHORT LINE TABLE

LINE	BEARING	DISTANCE
1	197°30'00"	1.19
2	205°30'00"	3.705
3	287°22'	20.03
4	101°04'00"	19.072
5	287°10'00"	19.995
6	287°10'00"	20.275

COMBINED SCALE FACTOR :- 0.999929

MARK	I.S.G. CO-ORDINATES		ZONE	ACC.
	EASTING	NORTHING		
P.M. 44986	288 591.342	1 253 451.634	56/1	2
P.M. 45275	288 476.277	1 253 171.247	56/1	2
T.S. 4732	289 671.386	1 252 894.231	56/1	1

SOURCE: I.S.G. CO-ORDINATES ADOPTED FROM N.S.M. S.C.I.M.S. AT 21.4.97



Registered: 31-1-2002  
 CA: SEE CERTIFICATE  
 Title System: TORRENS  
 Purpose: SUBDIVISION  
 Ref. Map: U 8252-9  
 Last Plan: DP 103755

PLAN OF ROAD WIDENING WITHIN LOT A IN DP 103755

Lengths are in metres. Reduction Ratio 1:1500

LGA: FAIRFIELD  
 Locality/Suburb: WETHERILL PARK  
 Parish: ST. LUKE  
 County: CUMBERLAND

This is sheet 1 of my plan in (delete if inapplicable) Sheets.

J. JAMES ARTHUR DONALD PELOSA  
 of PO BOX 21 FAIRFIELD 2165

A summary registered under the Survey Act 1976, New South Wales, of the survey represented by this plan is available, and been made in accordance with the Survey (Practical Regulation) Act 1976 and was completed on 26.11.97  
 The survey related to THE ROAD WIDENING ONLY

Zone: Southern Hemisphere  
 (Signature) *[Signature]*  
 Surveyor registered under the Survey Act 1976 as a Surveyor in Charge

Plans used in preparation of survey/compilation

D.P. No.	Area	Area
1361	516627	712663
25025	629844	719479
103755	632782	815116
263693	637120	

PANEL FOR USE ONLY for adjustment of public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.  
 IT IS INTENDED TO DEDICATE THE ROAD WIDENING AS PUBLIC ROAD.



OFFICE USE ONLY

DP 879680  
 Registered 26.6.1998  
 CA: NO. 75(B) OF 29.1.1998  
 The System: TORRENS  
 Purpose: SUBDIVISION  
 Ref. Map: U8252-9  
 Last Plan: D.P. 13961 DP516627

**PLAN OF ROAD WIDENING AND EASEMENT FOR BATTER WITHIN LOT 28 D.P. 13961 AND LOT 1 D.P. 516627.**

Lengths are in metres. Reduction Ratio: 1:1000

LGA: FAIRFIELD  
 Locality/Suburb: HORSLEY PARK  
 Parish: MELVILLE  
 County: CUMBERLAND

This is sheet 1 of my plan (to be read in conjunction with sheet 2).

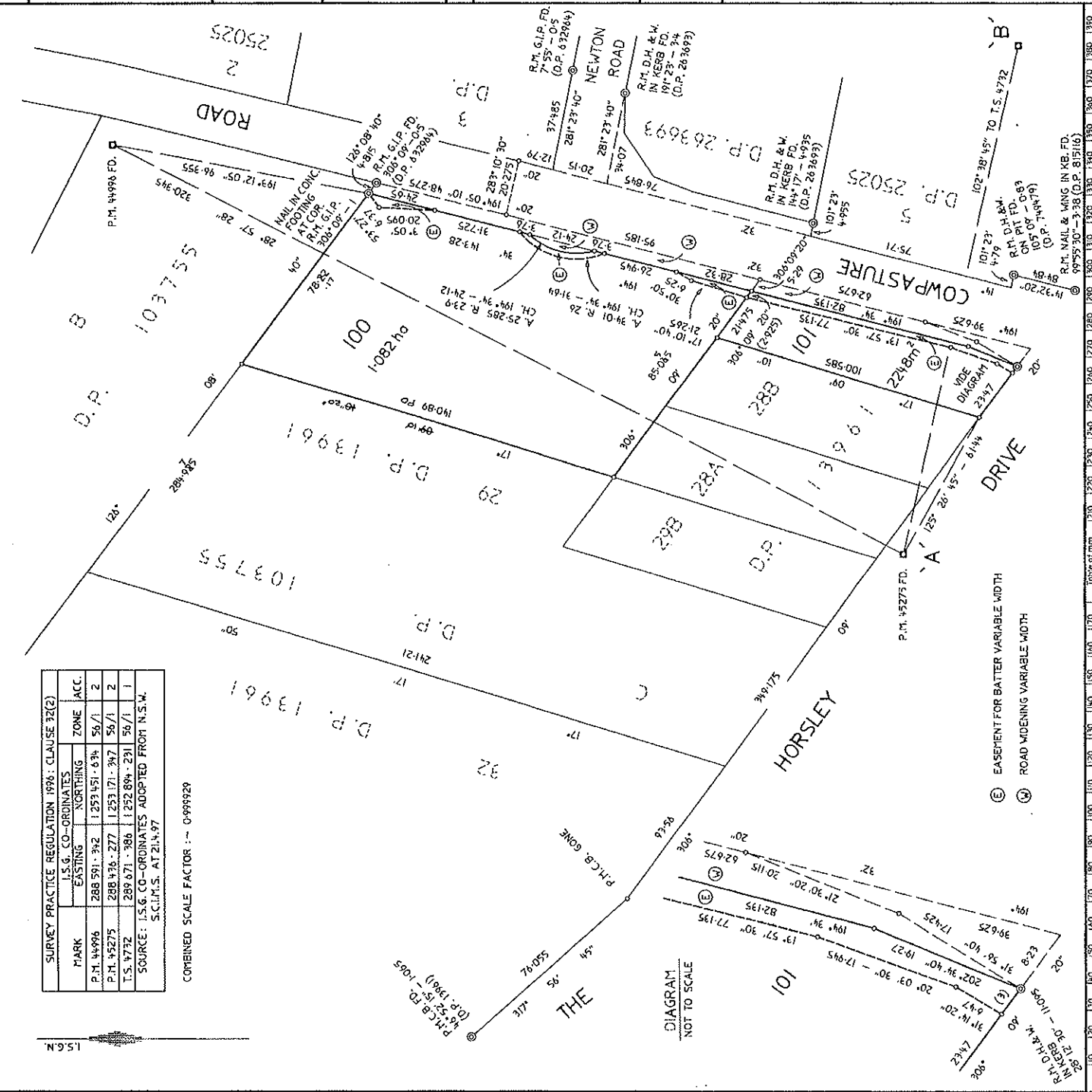
JAMES ARTHUR DONALD PELOSA  
 of D.P. 25025, FAIRFIELD  
 a surveyor registered under the Surveyors Act 1925, hereby certify that this survey represents in this plan of subdivision, the land and easements as shown on the plan of subdivision. The survey was made on 25.11.97. The survey was made in accordance with the provisions of the Surveyors Act 1925 and the Surveyors Regulations 1925. The survey was made in accordance with the provisions of the Surveyors Act 1925 and the Surveyors Regulations 1925. The survey was made in accordance with the provisions of the Surveyors Act 1925 and the Surveyors Regulations 1925.

Surveyor registered under the Surveyors Act 1925  
 Datum: L.A. of Australia, "A" - "B" of the Surveyors Act 1925

Plans used in preparation of survey/compulsions:  
 D.P. 5: 283693 637120  
 1961: 25025 749179  
 25025: 632604 815116  
 103755

PANEL FOR USE ONLY for statements of public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.  
 IT IS INTENDED TO DEDICATE THE ROAD WIDENING AS PUBLIC ROAD.  
 PURSUANT TO SEC. 88B OF THE CONVEYANCING ACT AS AMENDED IT IS INTENDED TO CREATE:  
 1. EASEMENT FOR BATTER VARIABLE WIDTH.

Plan Drawing only to appear in this space



MARK I.S.G. CO-ORDINATES ZONE ACC.

MARK	EASTING	NORTHING	ZONE	ACC.
P.M. 44996	288 591.342	1 253 451.634	56/1	2
P.M. 45275	288 476.277	1 253 171.347	56/1	2
T.S. 4732	289 671.386	1 252 894.221	56/1	1

SOURCE: I.S.G. CO-ORDINATES ADOPTED FROM N.S.W. S.C.I.M.S. AT 21.4.97

COMBINED SCALE FACTOR: ~ 0.999929

PLAN APPROVED: *Nathan Reisin*  
 Crown Lands Office Approval  
 (Long District) Authorised Officer  
 File No. \_\_\_\_\_  
 File Book \_\_\_\_\_ pages \_\_\_\_\_

Council's Certificate  
 I hereby certify that -  
 (a) the requirements of the Local Government Act, 1995 (other than the requirements for the registration of plans), and  
 (b) the requirements of the Local Government Act, 1995 (other than the requirements for the registration of plans) have been complied with by the applicant in relation to the proposed ROAD WIDENING  
 (Street "New Road", "Newton Road" or "Compasture Drive") at our parish Subdivision No. 581  
 Date \_\_\_\_\_  
 Council File No. \_\_\_\_\_  
 The part of certificate to be checked in the application is only for a Subdivision No. 581. The rest of the certificate is for the use of the applicant and the Minister's Corporation Ltd.  
 I declare I am a qualified Surveyor.  
 10/11/97

SURVEYOR'S REFERENCE: 06596(179.2)

PLAN FORM 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION PLAN AMENDED IN L.T.O. ON SURVEYOR'S ADVICE 27.8.1998





PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.

DP1098128

Registered:



15-6-2006

Surveying Regulation 2001

I, GUY McDONALD

of ROADS AND TRAFFIC AUTHORITY, NSW

a surveyor registered under the Surveying Act 2002, certify that the

survey represented in this plan is accurate, has been made in

accordance with the Surveying Regulation 2001 and was completed

on: 31-3-2006

The survey relates to LOTS 6 TO 10 INCLUSIVE & CONNECTIONS

(specify the land actually surveyed or specify any land shown in the

plan that is not the subject of the survey)

Signature

Dated: 22/5/06

Surveyor registered under the Surveying Act 2002

Datum Line: "X" - "Y"

Type: Urban

Department of Lands Approval

I, in approving this plan certify

(Authorised Officer)

that all necessary approvals in regard to the allocation of the land

shown hereon have been given

Signature:

Date:

File Number:

Office:

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning

and Assessment Act 1979 have been satisfied in relation to:

the proposed..... set out herein

\* Authorised Person/General Manager/Accredited Certifier

Consent Authority:

Date of Endorsement:

Accreditation no.:

Subdivision Certificate no.:

File no.:

Note:

When the plan is to be lodged electronically in Land and Property Information, it should include a signature in an electronic or digital format approved by the Registrar-General.

\* Details which ever is applicable.

CERTIFICATES, SIGNATURES AND SEALS

Sheet 1 of 1 sheet

THIS PLAN IS EXEMPT FROM SUBDIVISION CERTIFICATION PURSUANT TO A DECISION BETWEEN DUAP, RTA & LPI NSW - SEE 1997 M6 (item 2). LAND IN THIS PLAN COMPRISES ONLY ROAD OR ROAD AND RESIDUE.

AUTHORISED OFFICER  
ROADS AND TRAFFIC AUTHORITY, NSW

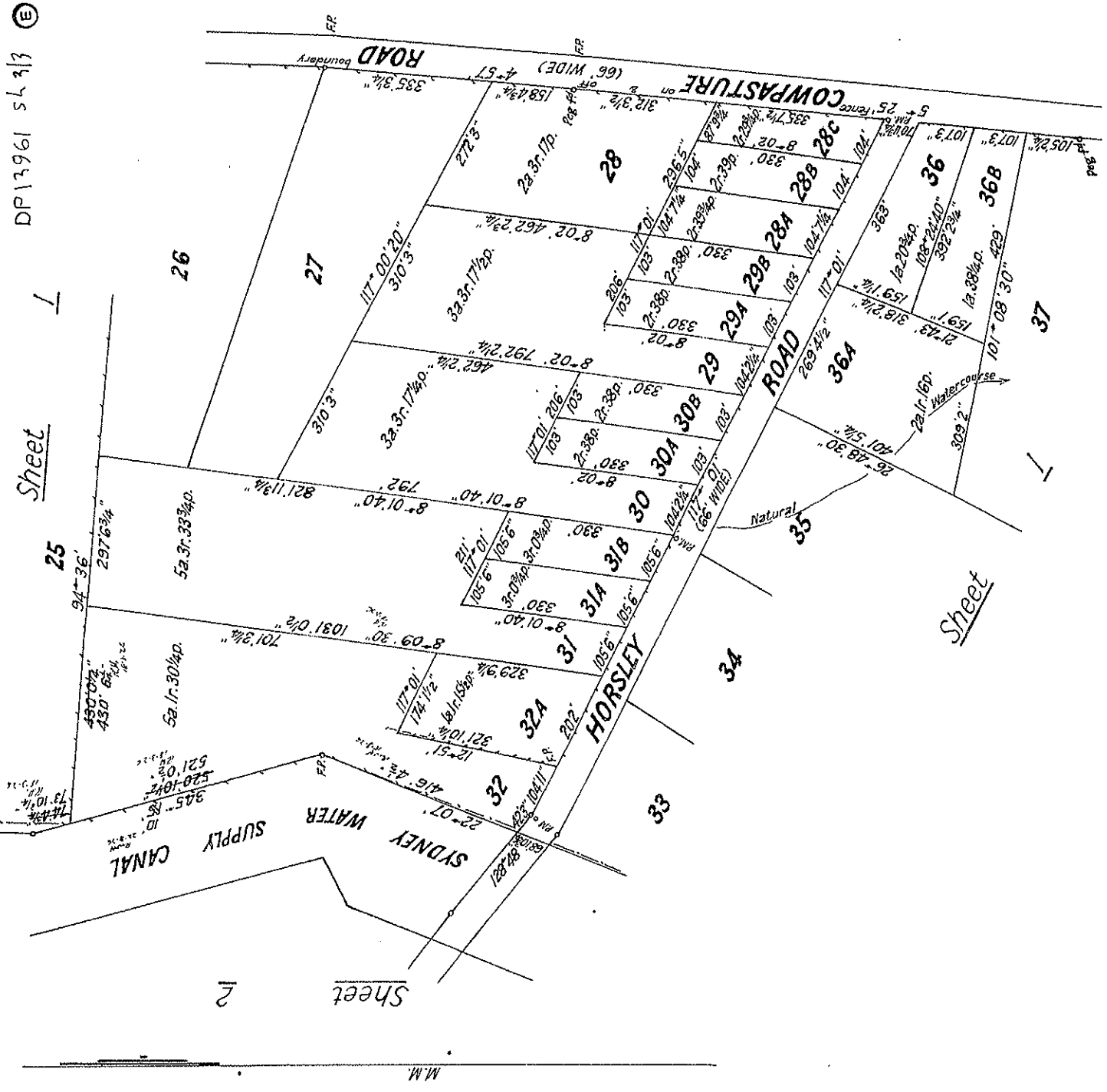
APPROVED  
23/4/06

MANAGER, SURVEY SERVICES  
OPERATIONS AND SERVICES  
ROADS AND TRAFFIC AUTHORITY, NSW

APPROVED  
23/4/06

Use PLAN FORM 6A for additional certificates, signatures and seals

Section 5, Township 18 North, Range 10 West, County of DeWitt, New York, 1935  
 5, Section 5, Township 18 North, Range 10 West, County of DeWitt, New York, 1935  
 5, Section 5, Township 18 North, Range 10 West, County of DeWitt, New York, 1935



Sheet 1  
 DP13961 5433 (E)

Sheet

Sheet 2

Municipality of Fairfield

B306793(3SH<sup>2</sup>s) 14.1.26

M.P.S.(OS) 1063

PLAN

of part of

HORSLEY ESTATE

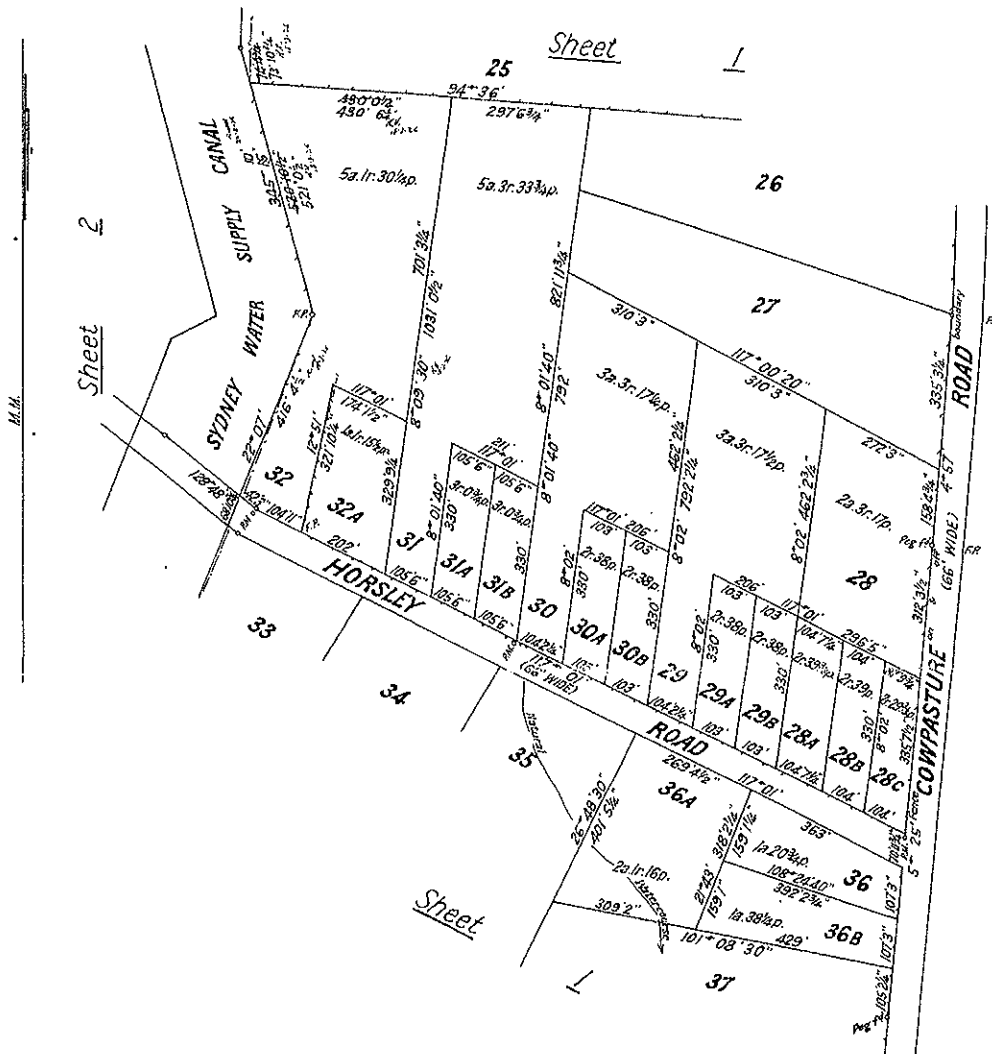
DP 13961 (E)

Sheet 3 of 3

Scale 200 feet to an inch.

P<sup>H</sup> OF MELVILLE

C<sup>O</sup> OF CUMBERLAND



I, Adolphe Lemay, Notaire being duly sworn in Notary B. 54145  
 do hereby consent to this plan.  
 Dated this 14th day of September, 1925.  
 Adolphe Lemay, Notaire

The Seal of the Council of the Municipality of Fairfield was hereto affixed this 14<sup>th</sup> day of September 1925, in pursuance of a resolution to that effect passed by the said Council on the 4<sup>th</sup> August 1925, and covered by Town Clerks certificate N<sup>o</sup> 104, of 14<sup>th</sup> August 1925.

NOTES -

Restrictive covenants (if any) will be embodied in Transfers.  
 Permanent Marks are Concrete Blocks.

*[Signatures]*  
 Robert W. Hofer, Licensed Surveyor.  
 Town Clerk



**(Site History Documents – Council Records)**



## **SOIL AND GROUNDWATER SAMPLING PROTOCOLS**

These protocols specify the basic procedures to be used when sampling soils or groundwater for environmental site assessments undertaken by EIS. The purpose of these protocols is to provide standard methods for: sampling, decontamination procedures for sampling equipment, sample preservation, sample storage and sample handling. Deviations from these procedures must be recorded.

### ***Soil Sampling***

- a) Prepare a test pit/borehole log.
- b) Layout sampling equipment on clean plastic sheeting to prevent direct contact with ground surface. The work area should be at a distance from the drill/rig excavator such that the drill rig/excavator can operate in a safe manner.
- c) Ensure all sampling equipment has been decontaminated prior to use.
- d) Remove any surface debris from the immediate area of the sampling location.
- e) Collect samples and place in glass jar with a Teflon seal. This should be undertaken as quickly as possible to prevent the loss of volatiles. If possible, fill the glass jars completely.
- f) Collect samples for asbestos analysis and place in a zip-lock plastic bag.
- g) Label the jar and/or bag with the EIS job number, sample location (eg. BH1), sampling depth interval and date. If more than one sample container is used, this should also be indicated (eg. 2 = Sample jar 1 of 2 jars).
- h) Photoionisation detector (PID) screening of volatile organic compounds (VOCs) should be undertaken on samples using the soil sample headspace method. Headspace measurements are taken following equilibration of the headspace gasses in partly filled zip-lock plastic bags. PID headspace data is recorded on the borehole/test pit log and the chain of custody forms.
- i) Record the lithology of the sample and sample depth on the borehole/test pit log in accordance with AS1726-1993<sup>18</sup>.
- j) Store the sample in a sample container cooled with ice or chill packs. On completion of the sampling the sample container should be delivered to the lab immediately or stored in the refrigerator prior to delivery to the lab. All samples are preserved in accordance with AS 4482.1:2005, AS 4482.2:1999 and AS/NZS 5667.1:1998.
- k) Check for the presence of groundwater after completion of each borehole using an electronic dip metre or water whistle. Boreholes should be left open until the end of fieldwork. All groundwater levels in the boreholes should be rechecked on the completion of the fieldwork.

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<sup>18</sup> *Geotechnical Site Investigations*, Standards Australia 1993 (AS1726-1993)



- l) Backfill the boreholes/test pits with the excavation cuttings or clean sand prior to leaving the site.

***Decontamination Procedures for Soil Sampling Equipment***

- a) All of the equipment associated with the soil sampling procedure should be decontaminated between every sampling location.
- b) The following equipment and materials are required for the decontamination procedure:
  - Phosphate free detergent (Decon 90)
  - Potable water
  - Stiff brushes
  - Plastic sheets
- c) Ensure the decontamination materials are clean prior to proceeding with the decontamination.
- d) Fill both buckets with clean potable water and add phosphate free detergent to one bucket.
- e) In the bucket containing the detergent scrub the sampling equipment until all the material attached to the equipment has been removed.
- f) Rinse sampling equipment in the bucket containing potable water.
- g) Place cleaned equipment on clean plastic sheets.

If all materials are not removed by this procedure, high-pressure water cleaning is recommended. If any equipment is not completely decontaminated by both these processes that equipment should not be used until it has been thoroughly cleaned.

***Groundwater Sampling***

Groundwater samples are more sensitive to contamination than soil samples and therefore adherence to this protocol is particularly important to obtain reliable, reproducible results. The recommendations detailed in AS/NZS 5667.1:1998 are considered to form a minimum standard.

The basis of this protocol is to maintain the security of the borehole and obtain accurate and representative groundwater samples. The following procedure should be used for collection of groundwater samples from previously installed groundwater monitoring wells.

- a) After monitoring well installation, at least three bore volumes should be pumped from the monitoring wells (well development) to remove any water introduced during the drilling process and/or the water that is disturbed during installation of the monitoring well. This should be completed prior to purging and sampling.
- b) Groundwater monitoring wells should then be left to recharge for at least three days before purging and sampling. Prior to purging or sampling the condition of each



well should be observed and any anomalies recorded on the field data sheets. The following information should be noted: the condition of the well, noting any signs of damage, tampering or complete destruction; the condition and operation of the well lock; the condition of the protective casing and the cement footing (raised or cracked); and, the presence of water between protective casing and well.

- c) Take the groundwater level from the collar of the piezometer/monitoring well using an electronic dip meter. The collar level should be taken (if required) during the site visit using a dumpy level and staff.
- d) Purging and sampling of piezometers/monitoring wells is done on the same site visit when using micro-purge (or low flow) techniques. Layout and organize all equipment associated with groundwater sampling in a location where they will not interfere with the sampling procedure and will not pose a risk of contaminating samples. Equipment generally required includes:
  - Micropore filtration system or Stericup single-use filters (for heavy metals samples).
  - Filter paper for Micropore filtration system.
  - Bucket with volume increments.
  - Sample containers: teflon bottles with 1 ml nitric acid, 75mL glass vials with 1 mL hydrochloric acid, 1 L amber glass bottles.
  - Bucket with volume increments.
  - Flow cell.
  - pH/EC/Eh/T meters.
  - Plastic drums used for transportation of purged water.
  - Esky and ice.
  - Nitrile gloves.
  - Distilled water (for cleaning).
  - Electronic dip meter.
  - Micro-purge pump pack and pump head.
  - Air and water tubing for Micro-purge.
  - Groundwater sampling forms.
- e) If single-use stericup filtration is not being used, clean the Micropore filtration system thoroughly with distilled water prior to use and between each sample. Filter paper should be changed between samples. 0.45um filter paper should be placed below the glass fibre filter paper in the filtration system.
- f) Ensure all non-disposable sampling equipment is decontaminated or that new disposable equipment is available prior to any work commencing at a new location. The procedure for decontamination of groundwater equipment is outlined at the end of this section.
- g) Disposable gloves should be used whenever samples are taken to protect the sampler and to assist in avoidance of contamination.



- h) Groundwater samples are obtained from the monitoring wells using low flow/micro-purge sampling equipment to reduce the disturbance of the water column and loss of volatiles.
- i) During pumping to purge the well, the pH, temperature, conductivity, dissolved oxygen, redox potential and groundwater levels are monitored (where possible) using calibrated field instruments to assess the development of steady state conditions. Steady state conditions are generally considered to have been achieved when the difference in the pH measurements was less than 0.2 units and the difference in conductivity was less than 10%.
- j) All measurements are recorded on specific data sheets.
- k) Once steady state conditions are considered to have been achieved, groundwater samples are obtained directly from the pump tubing and placed in appropriate glass bottles, BTEX vials or plastic bottles.
- l) All samples are preserved in accordance with water sampling requirements detailed in the NEPM 1999 and placed in an insulated container with ice. Groundwater samples are preserved by immediate storage in an insulated sample container with ice in accordance with AS/NZS 5667.1:1998.
- m) Record the sample on the appropriate log in accordance with AS1726:1993. At the end of each water sampling complete a chain of custody form.

***Decontamination Procedures for Groundwater Sampling Equipment***

- a) All of the equipment associated with the groundwater sampling procedure (other than single-use items) should be decontaminated between every sampling location.
- b) The following equipment and materials are required for the decontamination procedure:
  - Phosphate free detergent.
  - Potable water.
  - Distilled water
  - Plastic Sheets or bulk bags (plastic bags)
- c) Fill one bucket with clean potable water and phosphate free detergent, and one bucket with distilled water.
- d) Flush potable water and detergent through pump head. Wash sampling equipment and pump head using brushes in the bucket containing detergent until all materials attached to the equipment are removed.
- e) Flush pump head with distilled water.
- f) Change water and detergent solution after each sampling location.
- g) Rinse sampling equipment in the bucket containing distilled water.
- h) Place cleaned equipment on clean plastic sheets.
- i) If all materials are not removed by this procedure that equipment should not be used until it has been thoroughly cleaned



## **QA/QC DEFINITIONS**

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994<sup>19</sup>) methods and those described in *Environmental Sampling and Analysis, A Practical Guide*, (H. Keith 1991<sup>20</sup>).

### ***Practical Quantitation Limit (PQL), Limit of Reporting (LOR) and Estimated Quantitation Limit (EQL)***

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection limit (MDL) for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations. *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit"* Keith 1991.

### ***Precision***

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD). Acceptable targets for precision in this report will be less than 50% RPD for concentrations greater than ten times the PQL, less than 75% RPD for concentrations between five and ten times the PQL and less than 100% RPD for concentrations that are less than five times the PQL.

### ***Accuracy***

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured. The assessment of accuracy for an

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<sup>19</sup> SW-846: *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, US EPA, 1994 (US EPA SW-846)

<sup>20</sup> *Environmental Sampling and Analysis, A Practical Guide*, Keith, H, 1991 (Keith 1991)



analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes.

The proximity of an averaged result to the true value, where all random errors have been statistically removed. Accuracy is measured by percent recovery. Acceptable limits for accuracy generally lie between 70% to 130% recoveries. Certain laboratory methods may allow for values that lie outside these limits.

### ***Representativeness***

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols and use of proper chain-of-custody and documentation procedures.

### ***Completeness***

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;
- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

### ***Comparability***

Comparability is the evaluation of the similarity of conditions (eg. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel;
- Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and



- Spatial and temporal changes (due to environmental dynamics).

### ***Blanks***

The purpose of laboratory and field blanks is to check for artifacts and interferences that may arise during sampling and analysis.

### ***Matrix Spikes***

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula;

$$\frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Concentration of Spike Added}} \times 100$$

Acceptable recovery limits are 70% to 130%.

### ***Surrogate Spikes***

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

### ***Duplicates***

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2)}{\{(D1 + D2)/2\}} \times 100$$