ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

KMT CONSTRUCTIONS PTY LTD

ON

PRELIMINARY STAGE 1 ENVIRONMENTAL SITE ASSESSMENT

FOR

PROPOSED RESIDENTIAL DEVELOPMENT

AT

5 RYNAN AVENUE, EDMONDSON PARK, NSW 2174

8 July 2014 **Ref: E27532KGrpt**

Postal Address: PO Box 976, North Ryde BC NSW 1670
Tel: 02 9888 5000 • Fax: 9888 5004
EIS is a division of Jeffery and Katauskas Pty Ltd • ABN 17 003 550 801

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Report prepared by:

Para Bokalawela
Senior Environmental Engineer

Report reviewed by:

Adrian Kingswell
Principal

EXECUTIVE SUMMARY

Joshua Farkash & Associates Pty Ltd on behalf of KMT Constructions Pty Ltd ('the client') commissioned Environmental Investigation Services (EIS)[1] to undertake a preliminary Stage 1 Environmental Site Assessment (Stage 1 ESA) for the proposed residential development at 5 Rynan Avenue, Edmondson Park ('the site').

The site is identified as Lot 1 in DP77470. The site location is shown on Figure 1 and the Stage 1 ESA was confined to the site boundaries as shown on Figure 2. The proposed development area is referred to as 'the site' in this report.

The ESA was undertaken generally in accordance with an EIS proposal (Ref: EP8025K) of 21 May 2014 and written acceptance from the client of 17 June 2014.

EIS understand that the proposed development include construction of residential apartments. Details of the proposed development were not available to EIS at the time of the preparation of this report.

The objectives of the Stage 1 ESA are to identify the areas of environmental concern (AEC), prepare a preliminary conceptual site model (PCSM), establish whether an intrusive (Stage 2) investigation is required, and comment on the suitability of the site for the proposed landuse.

The scope of work included:

- Preparation of site specific Data Quality Objectives (DQOs);
- A review of site information and site history documents;
- A site inspection to identify AEC;
- Preparation of a Preliminary Conceptual Site Model (CSM) to outline the AEC, Potential Contaminants of Concern (PCC) and potential receptors; and
- Preparation of a report presenting the results of the assessment.

The site is located in a predominantly residential area of Edmondson Park. The site is bounded by Rynan Avenue to the east and Camden Valley Way to the north. The Cabramatta Creek flows through the site from south to north direction. The site is located in slightly undulating topography that generally falls towards Cabramatta Creek (which runs through the middle of the site) from east and from west. The overall topography of the site is generally flat. A walkover inspection of the site and immediate surrounds was undertaken on 2 July 2014. The inspection was limited to accessible areas of the site and did not include an internal inspection of buildings. Selected site photographs obtained during the inspection are attached in the appendices.

At the time of the inspection, the site was occupied by a rural residential property. A large two storey brick residential building with a swimming pool was located at the southeast corner of the site. A fibrocement cottage was located at the north east corner of the site. A number of small sheds were located near the fibrocement cottage. Relatively new large shed was located at the middle of the site, near the Cabramatta Creek. Construction material including scaffolding was stored inside and around the large shed. The site at the western side of the Cabramatta Creek was generally vacant, grass covered and used for sheep farming. A groundwater monitoring well (marked as BH2) was located at the western section of the site near the Cabramatta Creek.

The aerial photographs and land title records indicate that the site has been used for agricultural purposes prior to 1961 and NSW EPA records did not indicate any notices for the site.

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[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

Based on the scope of work undertaken, EIS provide the following conclusions:

- EIS consider that the AEC identified at the site pose a potential contamination risk. Based on the limited information, EIS assess the risk to be relatively moderate to high; and
- The potential risk to the site receptors cannot be ruled out without undertaking an intrusive (preliminary Stage 2) investigation.

EIS consider the site can be made suitable for the residential development provided the following additional work is undertaken to better assess the risks:

- Undertake a Stage 2 ESA to meet the sampling density outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995[2]); and
- Undertake a waste classification assessment for the off-site disposal of material excavated for the proposed development.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of the report.

[2] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines*. (Referred to as EPA Sampling Design Guidelines 1995)

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1 INTRODUCTION

Joshua Farkash & Associates Pty Ltd on behalf of KMT Constructions Pty Ltd ('the client') commissioned Environmental Investigation Services (EIS)[3] to undertake a preliminary Stage 1 Environmental Site Assessment (Stage 1 ESA) for the proposed residential development at 5 Rynan Avenue, Edmondson Park ('the site').

The site is identified as Lot 1 in DP77470. The site location is shown on Figure 1 and the Stage 1 ESA was confined to the site boundaries as shown on Figure 2. The proposed development area is referred to as 'the site' in this report.

The ESA was undertaken generally in accordance with an EIS proposal (Ref: EP8025K) of 21 May 2014 and written acceptance from the client of 17 June 2014.

1.1 Proposed Development Details

EIS understand that the proposed development include construction of residential apartments. Details of the proposed development were not available to EIS at the time of the preparation of this report.

1.2 Objectives

The objectives of the Stage 1 ESA are to:

- Identify the areas of environmental concern (AEC);
- Prepare a preliminary conceptual site model (PCSM);
- Establish whether an intrusive (Stage 2) investigation is required; and
- Comment on the suitability of the site for the proposed landuse.

1.3 Scope of Work

The scope of work included:

- Preparation of site specific Data Quality Objectives (DQOs);
- A review of site information and site history documents;
- A site inspection to identify AEC;
- Preparation of a Preliminary Conceptual Site Model (CSM) to outline the AEC, Potential Contaminants of Concern (PCC) and potential receptors; and
- Preparation of a report presenting the results of the assessment.

The report was prepared with reference to regulations/guidelines outlined in the table below. Individual guidelines are also referenced within the text of the report.

[3] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

Table 1-1: Guidelines

Guidelines/Regulations/Documents
Contaminated Land Management Amendment Act (2008[4])
State Environmental Planning Policy No.55 – Remediation of Land (1998[5])
Guidelines for Consultants Reporting on Contaminated Sites (2011[6])
Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006[7])
National Environmental Protection (Assessment of Site Contamination) Amendment Measure (2013[8])

2 BACKGROUND

EIS are unaware of any previous investigations undertaken for the site.

3 DATA QUALITY OBJECTIVES

The DQOs provide a systematic approach for undertaking the assessment and outlines the criteria against which the data can be assessed.

A methodology for establishing the DQOs is presented in the document *Data Quality Objectives Process for Hazardous Waste Site Investigations* (2000[9]). This methodology has been adopted in the NEPM 2013, AS4482.1-2005[10] and the Site Auditor Guidelines 2006. The main steps involved in preparing the DQOs are summarised in the table below:

Table 3-1: DQOs

Step	Input
State the Problem	The presence of contamination may pose a risk to human health and the environment. A Stage 1 ESA is required to identify and assess potential risks and to establish whether an intrusive (Stage 2) assessment is required.
Identify the	The assessment aims to address the objectives outlined in **Section 1.2.**

[4] NSW Government Legislation, (2008), *Contaminated Land Management Amendment Act.* (referred to as CLM Amendment Act 2008)

[5] NSW Government, (1998), *State Environmental Planning Policy No. 55 – Remediation of Land.* (referred to as SEPP55)

[6] NSW Office of Environment and Heritage (OEH), (2011), *Guidelines for Consultants Reporting on Contaminated Sites.* (referred to as Reporting Guidelines 2011)

[7] NSW DEC, (2006), *Guidelines for the NSW Site Auditor Scheme, 2nd ed.* (referred to as Site Auditor Guidelines 2006)

[8] National Environment Protection Council (NEPC), (2013), *National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1).* (referred to as NEPM 2013)

[9] US EPA, (2000), *Data Quality Objectives Process for Hazardous Waste Site Investigations.* (referred to as US EPA 2000)

[10] Standards Australia, (2005), *Guide to the Investigation and Sampling of sites with Potentially Contaminated Soil.* (referred to as AS 2005)

Step	Input
Decisions	
Identify Inputs into the Decision	The following inputs will be used to address the decisions: • Review of background information (see **Section 2**); • Review of site information including regional geology, topography, setting, acid sulfate soil (ASS) potential, hydrogeology, surface water flow, review of major services and meteorological information (see **Section 4**); • Review of site history information (see **Section 5);** • Undertake a site inspection to identify the AEC (see **Section 4**); and • Prepare a PCSM (see **Section 6)**.
Study Boundary	The Stage 1 ESA was confined to the site boundaries as shown in Figure 2.
Develop a Decision Rule	The presence of AEC and PCC at the site will result in a recommendation for intrusive works. The nature and extent of the investigation required will be dependent on the PCSM/PCC, the AEC and the nature of the proposed land use/development.
Specific Limits on Decision Errors	Decision errors are false positive (i.e. stating the site is free of contamination when it is not) or false negative (i.e. stating that the site is contaminated when it is not). The more significant error is the false positive which may result in potential risks to human health and the environment. To account for this, the assessment has assumed that AEC and PCC are present at the site unless demonstrated otherwise.
Optimise the Design for Obtaining Data	The Site Auditor Guidelines 2006 recommend evaluating the data set as a whole to determine any limitations within the data set. The overall data set will be optimised by reviewing the data as the project proceeds.

4 SITE INFORMATION AND PHYSICAL SETTING

4.1 Site Identification

Table 4-1: Site Identification Information

Site Owner:	Michael Taouk Amal Taouk
Site Address:	5 Rynan Avenue, Edmondson Park, NSW
Lot & Deposited Plan:	Lot 1 in DP774700
Current Land Use:	Rural Residential
Proposed Land Use:	Residential
Local Government Authority:	Liverpool
Site Area (approx.):	2ha
RL (AHD in m) (approx.):	45
Geographical Location (MGA) (approx.):	N: 33^0 57′ 07 E: 150^0 50′ 57
Site Location Plan:	Figure 1
Site Survey Plan:	Figure 2

4.2 Site Location and Setting

The site is located in a predominantly residential area of Edmondson Park. The site is bounded by Rynan Avenue to the east and Camden Valley Way to the north. The Cabramatta Creek flows through the site from south to north direction.

4.3 Topography

The site is located in slightly undulating topography that generally falls towards Cabramatta Creek (which runs through the middle of the site) from east and from west. The overall topography of the site is generally flat.

4.4 Site Inspection

A walkover inspection of the site and immediate surrounds was undertaken on 2 July 2014. The inspection was limited to accessible areas of the site and did not include an internal inspection of buildings. Selected site photographs obtained during the inspection are attached in the appendices.

At the time of the inspection, the site was occupied by a rural residential property. A large two storey brick residential building with a swimming pool was located at the southeast corner of the site. A fibrocement cottage was located at the north east corner of the site. A number of small sheds were located near the fibrocement cottage. Relatively new large shed was located at the middle of the site, near the Cabramatta Creek. Construction material including scaffolding was stored inside and around the

large shed. The site at the western side of the Cabramatta Creek was generally vacant, grass covered and used for sheep farming.

A groundwater monitoring well (marked as BH2) was located at the western section of the site near the Cabramatta Creek.

The immediate surrounds included the following landuses:

- North – Residential properties and a school beyond the Camden Valley Way;
- South – Rural residential properties;
- East – Rural residential properties and new residential subdivisions beyond the Rynan Avenue; and
- West – New residential subdivisions.

4.5 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the assessment. A brief summary of relevant information is present below:

Table 4-2: Summary of Services

Service	Location	Contaminant Migratory Pathway
Sewer	The "Sydney Water" plan indicates that a sewer extends through the west section of the site in north to approximately south direction.	The backfill around the sewer could act as a potential migratory pathway.
Electrical	The "WestLink M7" plans indicate that an electrical cable extends through the middle section of the site in north to approximately south direction.	The backfill around the cable-conduits could act as a potential migratory pathway.

4.6 Regional Geology

A review of the regional geological map of Penrith (1991[11]) indicates that the site is underlain by Hawkesbury Sandstone, which typically consists of medium to coarse grained quartz sandstone with minor shale and laminite lenses.

4.7 Hydrogeology

A review of groundwater bores registered with the NSW Office of Water[12] (NOW) was undertaken by EIS. The search was limited to registered bores located within approximately 1km of the site. The search did not reveal any registered bores within this radius. A copy of the NOW map is attached in the appendices.

[11] Department of Mineral Resources, (1991), *1:100,000 Geological Map of Penrith (Series 9030).*

[12] http://www.waterinfo.nsw.gov.au/gw/, visited on 7 July 2014

During the site inspection EIS noticed a relatively new groundwater monitoring well (marked as BH2) at the western section of the site near the Cabramatta Creek. The approximate location of the well is shown on Figure 2.

4.8 Surface Water Flows

Based on the site and surrounding topography, surface water flows would be expected to enter the Cabramatta Creek flowing through the middle of the site.

5 SITE HISTORY ASSESSMENT

5.1 Aerial Photographs

Historical aerial photographs of the site and immediate surrounds were reviewed for the assessment. The majority of the photographs were obtained from the NSW Department of Lands. Copies of selected photos are attached in the appendices. A summary of the relevant information is presented in the following table:

Table 5-1: Summary of Historical Aerial Photos

Year	Details
1947	The quality of the aerial photo was poor. The eastern portion of the site appeared to be occupied by market-garden activities. The western portion of the site appeared to be vacant and grassed. The site appeared to be surrounded by vacant lands with some scattered trees. Camden Valley Way was located to the north of the site.
1961	The market-garden activities appeared to have ceased in the site. A structure, similar to the existing fibrocement cottage, had been constructed in the northeast section of the site. Market-garden activities had been increased in the surrounding properties and new roads had been constructed in the area.
1970	The site and immediate surrounds generally appeared to be similar to the 1961 photograph.
1978	The site generally appeared to be similar to the 1970 photograph. The density of the market-gardens in the in the surrounding areas had been increased.
1986	The site and immediate surrounds generally appeared to be similar to the 1978 photograph except a structure, similar to a small cottage, had been constructed in the southeast section of the site.
1994	The site and immediate surrounds generally appeared to be similar to the 1986 photograph.
2005	A number of new buildings had been constructed on the eastern portion of the site. A large number of residential developments had been constructed in the north of the site. The density of buildings associated with market gardens in the

Year	Details
	surrounding areas, except for the north, had been significantly increased.
2011[13] (SIX Maps)	The site and immediate surrounds generally appeared to be similar to the 2005 photograph except residential developments had been constructed to the west of the site.

5.2 Land Title Search

Land title records were reviewed for the assessment. The record search was performed by Advance Legal Searchers Pty Ltd. Copies of the title records are attached in the appendices. A summary of the relevant information is presented in the following table:

Table 5-2: Summary of Land Title Information

Date	Proprietor
	(Lot 1 DP 774700)
2012 – to date	Michael Taouk Amal Taouk
2001 – 2012	Michael Taouk
1989 – 2001	Michael Taouk Marie Taouk
1988 – 1989	Michael Taouk Jackie Taouk
	Note (a)
	(Lot 1A DP 29317 – CTVol 8112 Fol 102)
1988 – 1988	Michael Taouk Jackie Taouk
1961 – 1988	Stanislaw Galka, hospital attaendent
	(Lot 1A DP 29317 – and other lands – CTVol 8048 Fol 205)
1960 – 1961	East Australia Construction Company Pty Limited
	(Lot B DP 402317 – Area 105 Acres – CTVol 7422 Fol 140)
1958 – 1960	East Australia Construction Company Pty Limited
1956 – 1958	Norman Rutherford Lenehan, clerk
	(Lots 2C & 2E DP 367789 – Area 167 Acres 2 Roods – CTVol 6190 Fol 37)
1950 – 1956	A.A. Tegel Pty Limited
	(Lot 2B DP 365586 – Area 170 Acres – CTVol 6087 Fol 174)
1950 – 1950	A.A. Tegel Pty Limited
1950 – 1950	William Allan Wells, contractor
	(Lot C DP 959792 – Area 192 Acres 3 Rood – CTVol 2858 Fol 120)
1947 – 1950	William Allan Wells, contractor
1927 – 1947	Joseph William Edmondson, farmer
1918 – 1927	Alexander Keith Edmondson, clerk
	(Part Portions 63 & 64 Parish Minto and other lands – Area 564 Acres 1 Rood

[13] https://six.maps.nsw.gov.au/wps/portal/SIXViewer, visited on 7 July 2014

Date	Proprietor
	26 Perches – CTVol 1833 Fol 74)
1907 – 1918	Joseph Edmondson, hotel proprietor
	Note (b)
	(Lot 1 DP 29317 – CTVol 13373 Fol 58)
1988 – 1988	Michael Taouk Jackie Taouk
1977 – 1988	Stanislaw Galka, hospital attendant
	(Part of the Land in DP 161342 being part of the Claremont Estate – Area 2 Acres 3 Roods 4 ¾ Perches – Conv Bk 2545 No 929)
1960 – 1977	Stanislaw Galka, hospital attendant
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 2425 No 667)
1957 – 1960	East Australian Construction Company Pty Limited
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 2417 No 498)
1956 – 1957	Norman Rutherford Lenehan, investor
	(Part Portion 63 Parish Minto – Area 264 Acres 3 Roods 12 ¾ Perches – Conv Bk 2266 No 160)
1953 – 1956	Vincent Fazzari, dairyman Ralph Nicholas Fazzari, dairyman John Joseph Fazzari, dairyman Julius Carmel Fazzari, dairyman
	(Part Portion 63 Parish Minto – Conv Bk 1969 No 998)
1945 – 1953	Harold Alfred Swane, market gardener
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 1801 No 581)
1937 – 1945	Annie Shepherd, wife of farmer
1937 – 1937	Charles Henry Throsby, grazier
1854 – 1937	Charles Henry Throsby, grazier / executor Francis Henry Throsby, grazier / trustee Margaret Elizabeth Ahern, married woman / trustee Charles Throsby, estate

5.3 Council Records

5.3.1 Development Applications (DA), Building Approvals (BA) and Property Files

Review of Council DA, BA and property files was not scoped in this assessment.

5.3.2 Section 149 Planning Certificate

Review of Council Section 149 Planning Certificate was not scoped in this assessment.

5.4 WorkCover Records

A review of WorkCover records for the site is currently underway and the results will be forwarded when received.

5.5 NSW EPA Records

The NSW EPA records available online were reviewed for the assessment. Copies of relevant documents are attached in the appendices. A summary of the relevant information is provided in the following table:

Table 5-3: Summary of NSW EPA Online Records

Source	Details
CLM Act 1997[14]	No notices for the site under Section 58 of the Act.
NSW EPA List of Contaminated Sites[15]	The site is not listed on the NSW EPA register.
POEO Register[16]	No notices for the site on the POEO register.

5.6 Summary of Site History

A summary of the site history information is presented below:

- The aerial photographs and land title records indicate that the site has been used for agricultural purposes prior to 1961; and
- NSW EPA records did not indicate any notices for the site.

5.7 Integrity of Site History Information

The majority of the site history information has been obtained from government organisations as outlined above. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the age of the development; gap between aerial photographs; and lack of detailed information prior to the 1900's.

[14] http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx, visited on 7 July 2014
[15] http://www.epa.nsw.gov.au/clm/publiclist.htm, visited on 7 July 2014
[16] http://www.epa.nsw.gov.au/prpoeoapp/, visited on 7 July 2014

6 PRELIMINARY CONCEPTUAL SITE MODEL (PCSM)

6.1 Areas of Environmental Concern (AEC) & Potential Contaminants of Concern (PCC)

The AEC identified in the table below are based on a review of the background information, site history information and site inspection. The AEC are sections of the site that have potentially been impacted by activities, site conditions and/or specific features that could present an environmental concern with regards to potential contamination.

Table 6-1: AEC and PCC

AEC	PCC
Fill Material: Fill material on site may have been historically imported from various sources and can contain elevated concentrations of contaminants.	HM, TPH, BTEX, VOCs, PAHs, OCPs, OPPs, PCBs and asbestos
Agricultural Activity: The site was used as a market garden prior to 1961. The use of chemicals such as pesticides for agricultural purposes is common and could have resulted in potential contamination.	HM, OCPs and OPPs
Hazardous Building Materials: The use of hazardous building material (e.g. asbestos) in the former buildings could have resulted in potential contamination.	Asbestos, lead and PCBs

Note:
HM – Heavy metals including arsenic, cadmium, chromium, copper, lead, mercury, nickel & zinc
TPH – Total petroleum hydrocarbons including light, mid and heavy fractions
BTEX – Monocyclic aromatic hydrocarbons
VOCs - Volatile organic compounds includes BTEX compounds
PAHs - Polycyclic aromatic hydrocarbons
OCPs - Organochlorine pesticides
OPPs - Organophosphorus pesticides
PCBs - Polychlorinated Biphenyls

6.2 Contamination Fate and Transport

The fate and transport of PCC identified at the site is summarised in the following table:

Table 6-2: Fate and Transport of PCC

PCC	Fate and Transport
Non-volatile contaminants including: metals, heavy fraction PAHs, OCPs, OPPs, PCBs and asbestos	With the exception of asbestos, non-volatile contaminants are predominantly confined to the soil and groundwater medium. The mobility of these contaminants varies depending on: the nature and type of contaminant present (e.g. leachability, viscosity etc.); soil type/porosity; surface water infiltration; groundwater levels; and the rate of groundwater movement. ***Presence of Ash and Slag:*** Non-volatile contaminants associated with ash and slag waste (some heavy metals, heavy fraction PAHs, and sometimes heavy fraction TPHs) are bound within a relatively insoluble matrix. Slag and ash is usually formed as a by-product of combustion at high temperatures which 'locks in' the contaminants within the matrix. ***Presence of Asbestos:*** The potential transport of asbestos fibres is associated with the disturbance of asbestos contaminated soils and release of fibres into the atmosphere. This is likely to occur during excavation works. A number of studies have found that soils effectively filter out asbestos fibres and retain them within the soil matrix. The studies concluded that there is no significant migration of asbestos fibres, either through soil or groundwater. ***Site Conditions:*** Surface water has the potential to infiltrate into the subsurface at the subject site via garden beds, grassed areas, unlined water retention facilities etc. Surface water infiltration could increase the migration potential of certain contaminants. Excess surface water has the potential to run-off into Cabramatta Creek located within the site.
Volatile contaminants including: TPH, BTEX, VOCs and light fraction PAHs	Volatile contaminants are usually more mobile when compared to the non-volatile compounds. The potential for migration of volatile contaminants such as light fraction PAHs and TPH is relatively high in sandy soil with a high water table. These contaminants break down rapidly as a result of microbial activity and availability of nutrients including nitrogen, oxygen etc.

PCC	Fate and Transport
	The mobile contaminants would be expected to move down to the rock surface or groundwater table and migrate down gradient from the source. The mobility would depend on a range of factors such as: soil type/porosity; surface water infiltration; groundwater levels; confining layers within the aquifer; solubility in groundwater etc. ***Site Conditions:*** The potential for migration of volatile contaminants at the subject site is considered to be relatively high due to the Cabramatta Creek flows through the site;

6.3 Sensitive Receptors and Exposure Pathways

The potential receptors and exposure pathways identified at the site are presented in the following table:

Table 6-3: Potential Receptors and Exposure Pathways

Receptor	Pathway
Human Receptors: • Site occupants; • Site visitors; • Contractors and workers; • Future site occupants; and • Off-site occupants.	• Dermal contact, ingestion and inhalation; • Inhalation of airborne asbestos fibres; and • Abstraction and use of contaminated groundwater.
Environmental Receptors: • Cabramatta Creek flow through the site;	• Exposure by direct contact with plants and animals; and • Extraction and use of contaminated water for agriculture and/or landscaping.

7 CONCLUSION

7.1 Potential for Site Contamination

EIS consider that the report objectives (see **Sections 1.2**) have been addressed. Based on the scope of work undertaken, EIS provide the following conclusions:

- EIS consider that the AEC identified at the site (see **Section 6**) pose a potential contamination risk. Based on the limited information, EIS assess the risk to be relatively moderate to high; and
- The potential risk to the site receptors cannot be ruled out without undertaking an intrusive (preliminary Stage 2) investigation.

7.2 Recommendations

EIS consider the site can be made suitable for the residential development provided the following additional work is undertaken to better assess the risks:

- Undertake a Stage 2 ESA to meet the sampling density outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995[17]); and
- Undertake a waste classification assessment for the off-site disposal of material excavated for the proposed development.

7.3 Regulatory Requirement

The regulatory requirements applicable for the site are outlined in the following table:

Table 7-1: Regulatory Requirement

Guideline	Applicability
Duty to Report Contamination 2008[18]	The requirement to report to the NSW EPA under should be assessed following the intrusive investigation.
POEO Act 1997	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.

[17] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines*. (Referred to as EPA Sampling Design Guidelines 1995)

[18] NSW Government Legislation, (2008), *Guidelines on the Duty to Report Contamination.* (referred to as Duty to Report Contamination 2008)

8 LIMITATIONS

The report limitations are outlined below:

- EIS accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- 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;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the EIS proposal; and terms of contract between EIS and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- The 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 in the report;
- Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- 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;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. EIS should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- 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.

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Table 5-2: Summary of Land Title Information **7**
Table 5-3: Summary of NSW EPA Online Records **9**
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Table 6-2: Fate and Transport of PCC **11**
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IMPORTANT INFORMATION ABOUT THIS REPORT

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

The 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 or landscaped areas 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 (e.g. 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 Report 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.

Assessment Limitations

Although information provided by a 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 Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an 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 Assessment Report

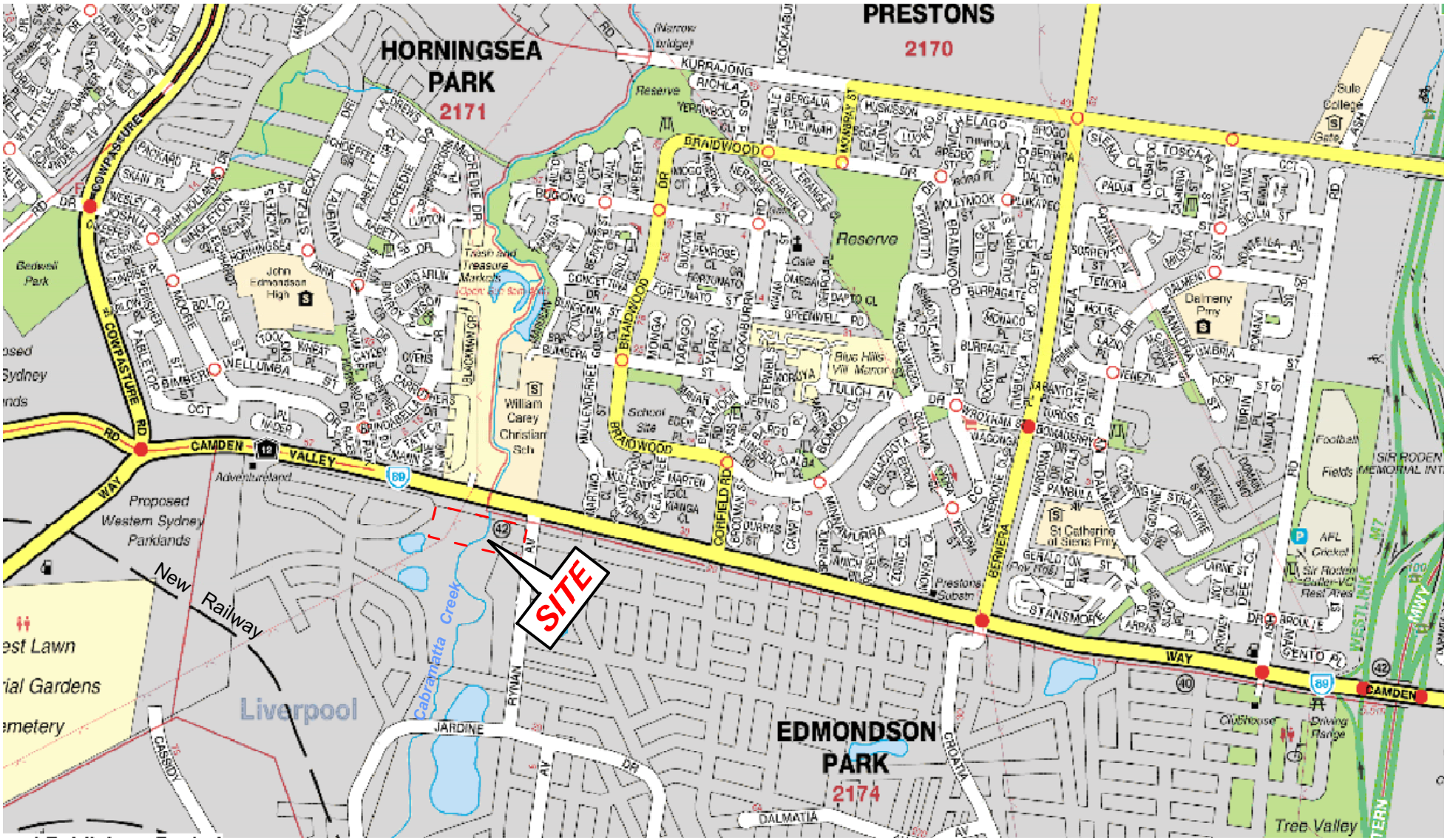
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other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

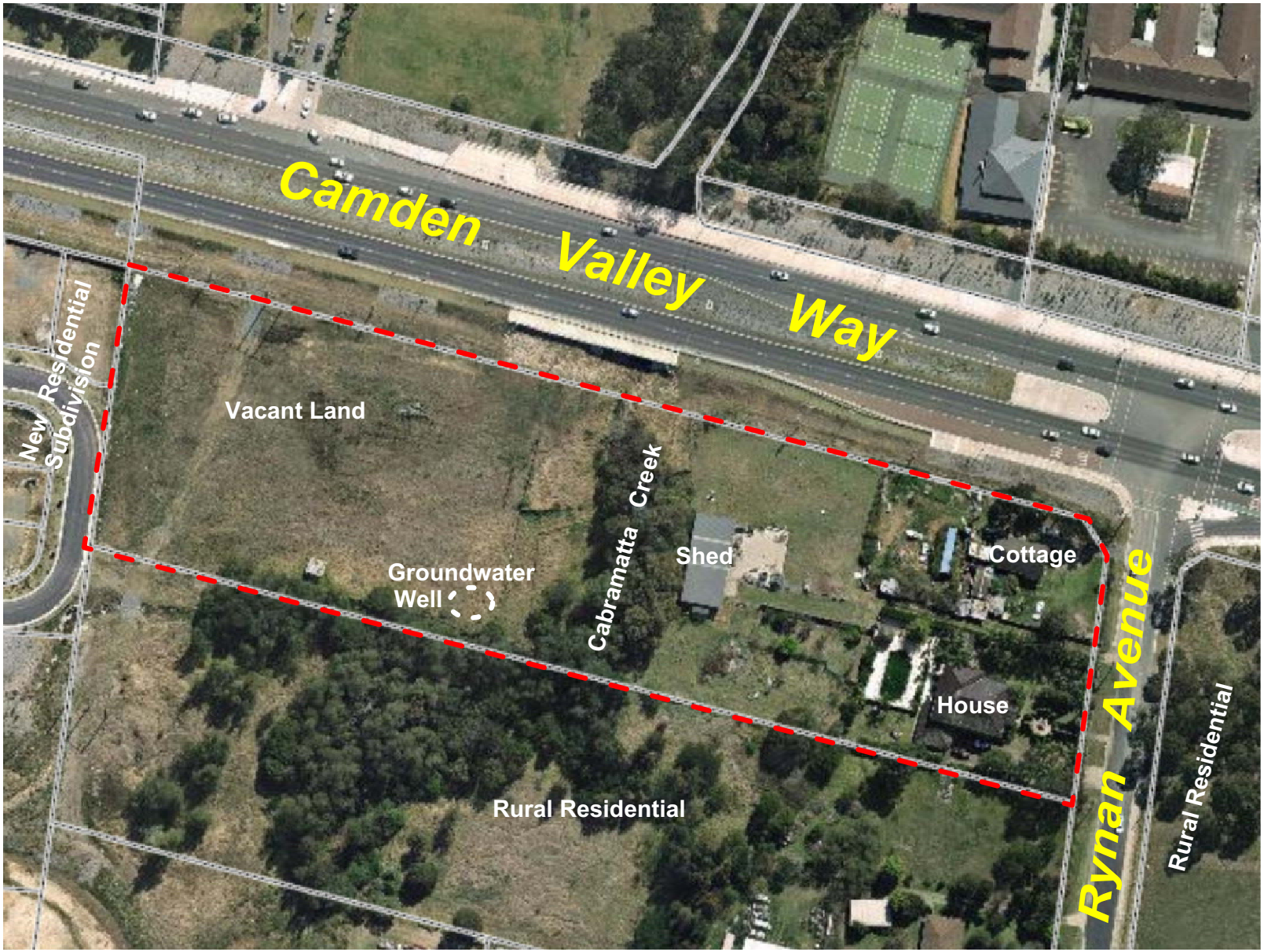
REPORT FIGURES



NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

Reference should be made to the report text for a full understanding of this plan.

ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: **E27532KG**	Title: **Site Location Plan**
	Figure: **1**	Address: **5 Rynan Avenue Edmondson Park, NSW**



N

LEGEND:

Approximate site boundary

NOTES:
Figure 2 has been recreated from SixMaps

The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.

Reference should be made to the report text for a full understanding of this plan.

Approximate Scale (m): 0 3 6 9 12 15	ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E27532KG	Title: Site Features Plan
		Figure: 2	Address: 5 Rynan Avenue Edmondson Park, NSW

Appendix A: Site Photos Obtained on 2 July 2014

The large two storey brick residential building with a swimming pool

The fibrocement cottage

The large shed near the Cabramatta Creek

Construction material including scaffoldings

Driveway to the large-shed

Cabramatta Creek

The vacant portion of the site used for sheep farming.

Groundwater monitoring well at the western portion of the site.

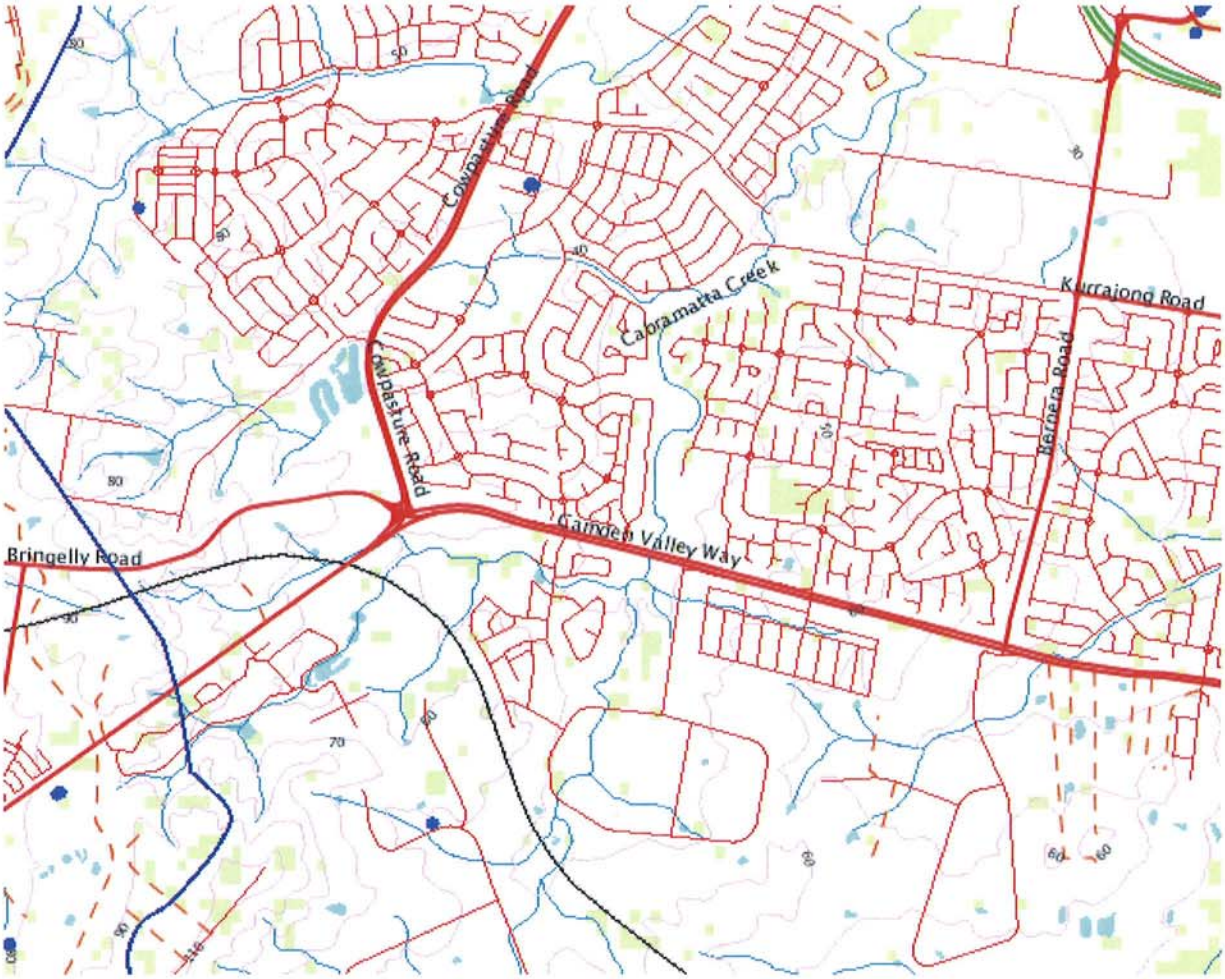
Appendix B: Site Information and Site History Documents

Appendix B1: Groundwater Bore Records

Edmondson Park

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

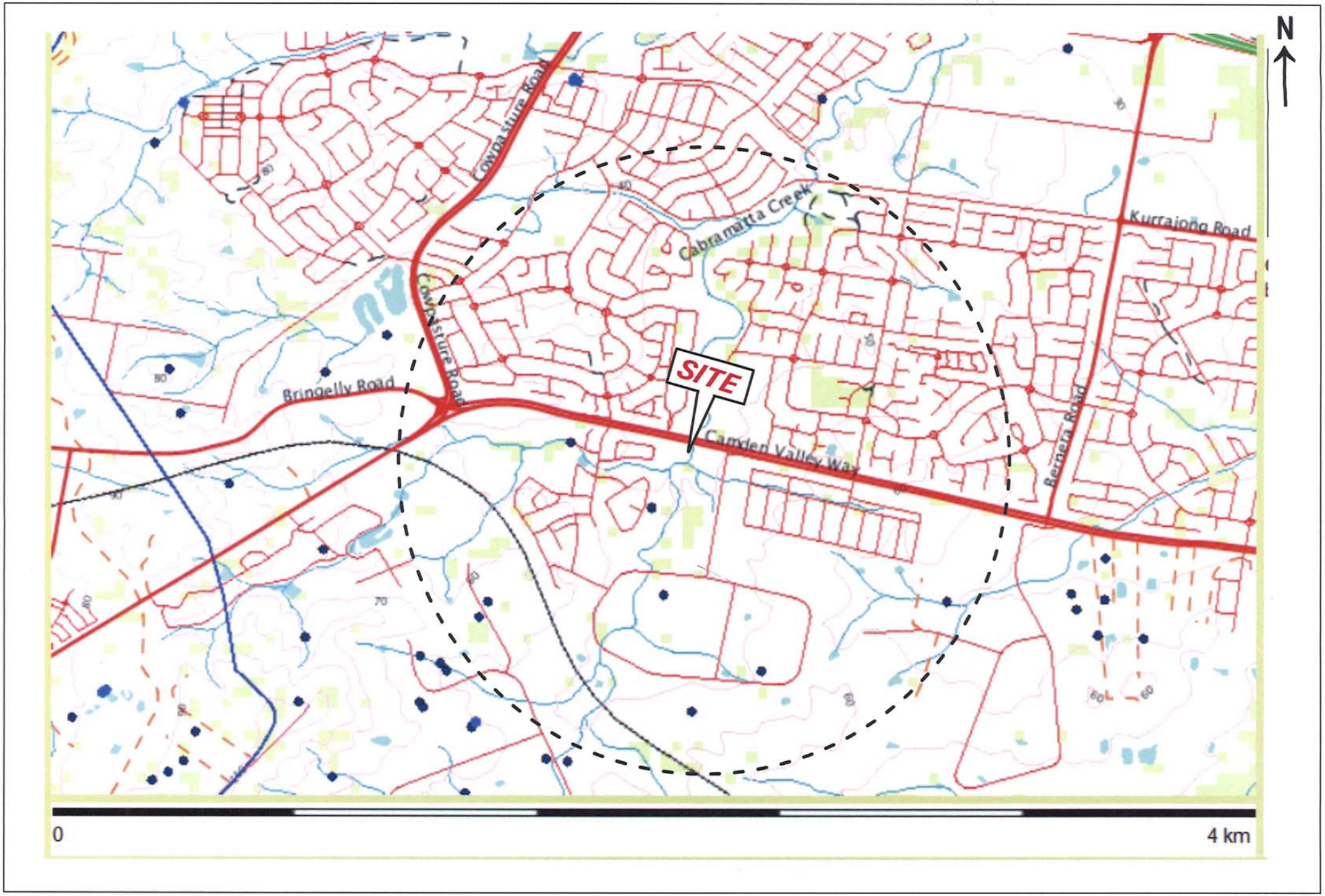
Monday, July 07, 2014



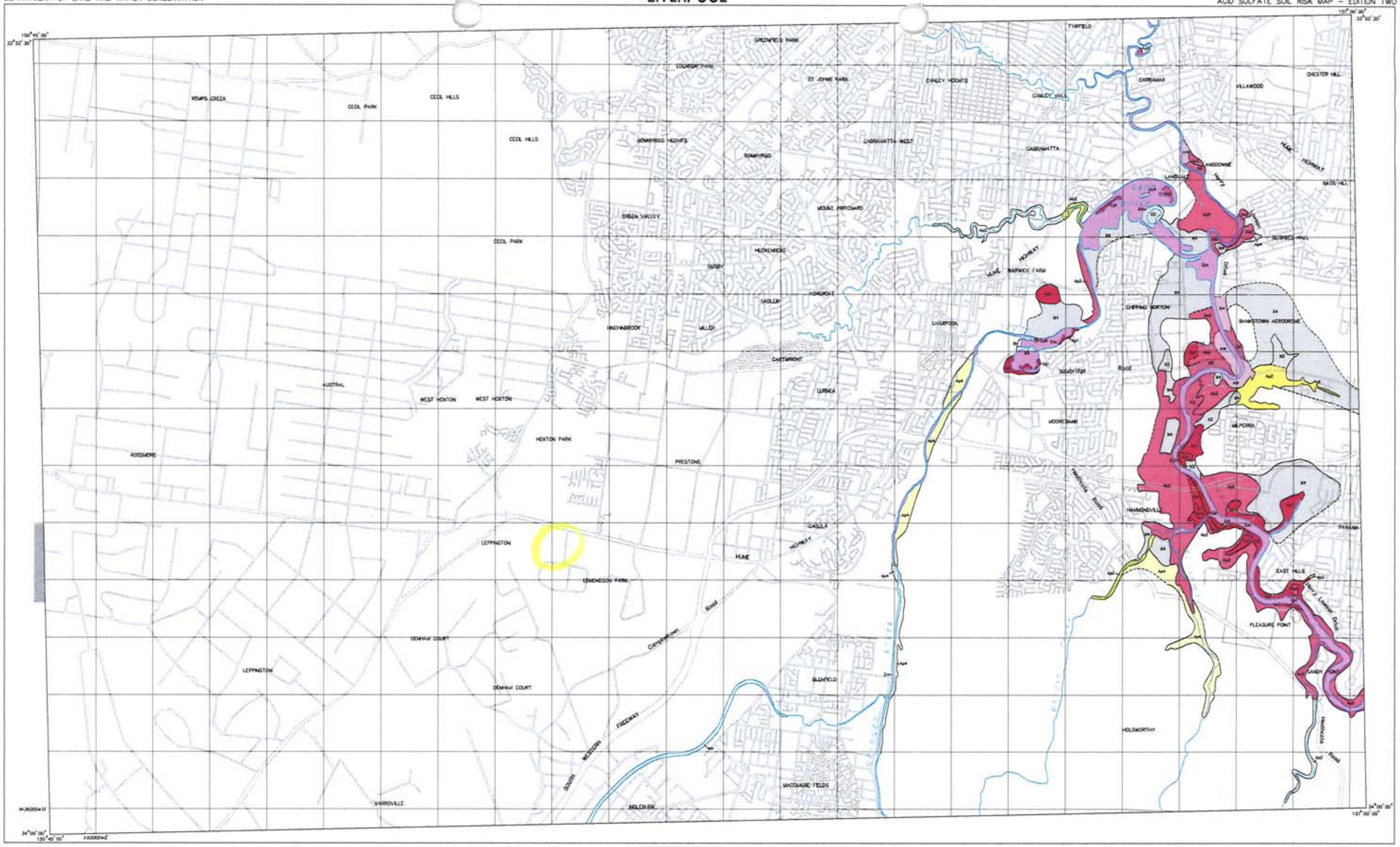
0 4 Km

Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
Symbol	Groundwater Bores	
Symbol	Catchment Management Authority boundaries	
Symbol	Major rivers	
Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map	


N
SITE
Cowpasture Road
Cowpasture Road
Cabramatta Creek
Kurrajong Road
Bringelly Road
Camden Valley Way
Berrera Road
0
4 km

LIVERPOOL



KEY

Map Class Description	Depth to Acid Sulfate Soil Materials		Environmental Risk	Typical Landform Types
HIGH PROBABILITY		Bottom sediments	[illegible]	[illegible]
		At or near the ground surface.	[illegible]	[illegible]
		Within 1 metre of the ground surface.	[illegible]	[illegible]
		Between 1 and 3 metres below the ground surface.	[illegible]	[illegible]
		Greater than 3 metres below the ground surface.*	[illegible]	[illegible]
LOW PROBABILITY		Bottom sediments.	[illegible]	[illegible]
		At or near the ground surface.		
		Within 1 metre of the ground surface.		
		Between 1 and 3 metres below the ground surface.		
		Greater than 3 metres below the ground surface.*		
NO KNOWN OCCURRENCE		[illegible]	[illegible]	[illegible]
DISTURBED TERRAIN		[illegible]		

SCALE 1:25000

TRANSVERSE MERCATOR PROJECTION

LANDFORM CODES

Landform Process Class	Landform Element	Elevation*
[illegible]	[illegible]	0 .... 0-1 m
		1 .... 1-2 m
		2 .... 2-4 m
		4 .... >4 m

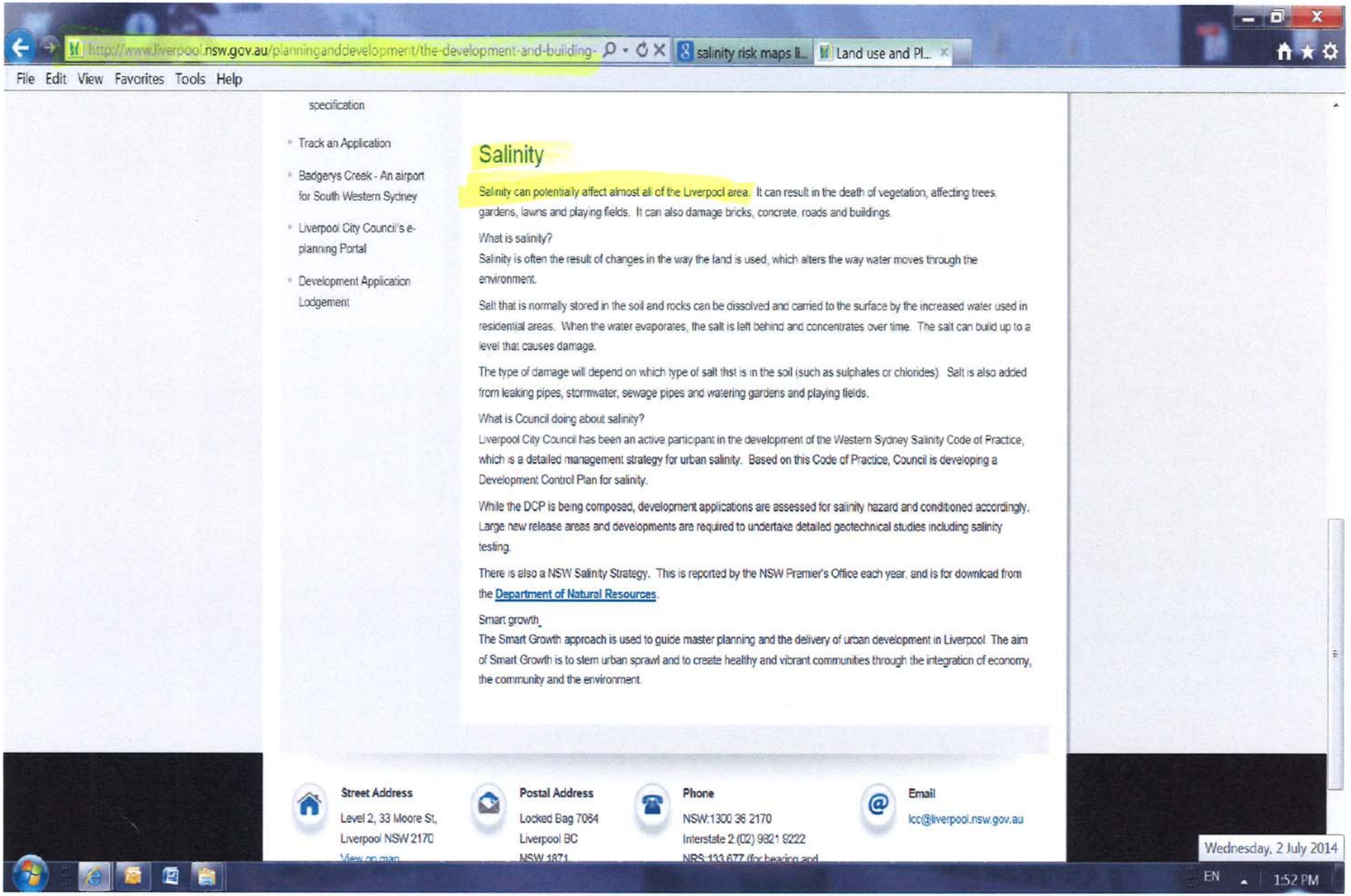
LEGEND

LANDFORM BOUNDARY
APPROXIMATE LANDFORM BOUNDARY
SOIL PROFILE DESCRIPTION SITE
RIVER or CREEK
CADASTRE

KEY TO ADJOINING MAPS IN THIS SERIES

		PROSPECT/ PARRAMATTA RIVER
	LIVERPOOL	BOTANY BAY
		PORT HACKING

LAND & WATER CONSERVATION


http://www.liverpool.nsw.gov.au/planninganddevelopment/the-development-and-building-
salinity risk maps li...
Land use and Pl...
File Edit View Favorites Tools Help
specification
Track an Application
Badgerys Creek - An airport for South Western Sydney
Liverpool City Council's e-planning Portal
Development Application Lodgement
Salinity
Salinity can potentially affect almost all of the Liverpool area. It can result in the death of vegetation, affecting trees, gardens, lawns and playing fields. It can also damage bricks, concrete, roads and buildings.
What is salinity?
Salinity is often the result of changes in the way the land is used, which alters the way water moves through the environment.
Salt that is normally stored in the soil and rocks can be dissolved and carried to the surface by the increased water used in residential areas. When the water evaporates, the salt is left behind and concentrates over time. The salt can build up to a level that causes damage.
The type of damage will depend on which type of salt that is in the soil (such as sulphates or chlorides). Salt is also added from leaking pipes, stormwater, sewage pipes and watering gardens and playing fields.
What is Council doing about salinity?
Liverpool City Council has been an active participant in the development of the Western Sydney Salinity Code of Practice, which is a detailed management strategy for urban salinity. Based on this Code of Practice, Council is developing a Development Control Plan for salinity.
While the DCP is being composed, development applications are assessed for salinity hazard and conditioned accordingly. Large new release areas and developments are required to undertake detailed geotechnical studies including salinity testing.
There is also a NSW Salinity Strategy. This is reported by the NSW Premier's Office each year, and is for download from the Department of Natural Resources.
Smart growth
The Smart Growth approach is used to guide master planning and the delivery of urban development in Liverpool. The aim of Smart Growth is to stem urban sprawl and to create healthy and vibrant communities through the integration of economy, the community and the environment.
Street Address
Level 2, 33 Moore St,
Liverpool NSW 2170
View on map
Postal Address
Locked Bag 7064
Liverpool BC
NSW 1871
Phone
NSW:1300 36 2170
Interstate 2 (02) 9821 9222
Email
lcc@liverpool.nsw.gov.au
Wednesday, 2 July 2014
EN
1:52 PM

DIAL BEFORE YOU DIG www.1100.com.au

Job No 8075447

Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Para Bokalawela	**Caller Id:**	1258868	**Phone:**	0298885000
Company:	Environmental Investigation Services	**Mobile:**	0425859209	**Fax:**	0298885004
Address:	115 Wicks Road Macquarie Park NSW 2113	**Email:**	pbokalawela@jkgroup.net.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: Edmondson Park
Working on Behalf of:
Private

Enquiry Date:	Start Date:	End Date:
04/07/2014	09/07/2014	10/07/2014

Address:
5 Rynan Avenue
Edmondson Park NSW 2174
Job Purpose: Design
Onsite Activity: Planning & Design
Location of Workplace: Private Property
Location in Road: Not Supplied

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Not Supplied

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
40350205	APA Group Transmission (Gorodok)	1800103452	NOTIFIED
40350199	Endeavour Energy	0298534161	NOTIFIED
40350201	Jemena Gas West	1300880906	NOTIFIED
40350204	NBN Co, NswAct	1800626762	NOTIFIED
40350198	Savcor-Gorodok	1800623121	NOTIFIED
40350202	Sydney Water	132092	NOTIFIED
40350200	Telstra NSW, Central	1800653935	NOTIFIED
40350203	Westlink Motorway Ltd	0298349200	NOTIFIED

END OF UTILITIES LIST

DIAL BEFORE YOU DIG www.1100.com.au

Asset Information

Sydney WATER

Legend

Sewer

- Sewer Main (with flow arrow & size type text) — 225 PVC
- Disused Main
- Rising Main
- Maintenance Hole (with upstream depth to invert) — 1.7
- Maintenance Hole with Overflow — VSE
- Ventshalft EDUCT
- Ventshaft INDUCT — VSI
- Property Connection Point (with chainage to downstream MH) — 10.6
- Concrete Encased Section — Concrete Encased
- Terminal Maintenance Shaft — TMS
- Maintenance Shaft — MS
- Rodding Point — RP
- Lamphole
- Vertical — VERT
- Pumping Station — SP0882

Pressure Sewer

- Pressure Sewer Main
- Pump Unit (Alarm, Electrical Cable, Pump Unit)
- Property Valve Boundary Assembly
- Stop Valve
- Reducer / Taper
- Flushing Point — FP

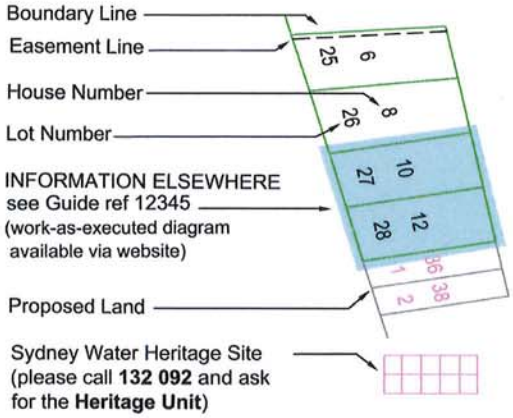
Vacuum Sewer

- Pressure Sewer Main
- Division Valve
- Vacuum Chamber
- Clean Out Point

Stormwater

- Stormwater Pipe
- Stormwater Channel
- Stormwater Gully
- Stormwater Maintenance Hole

Property Details



Water

- WaterMain - Potable (with size type text) — 200 PVC
- Disconnected Main - Potable
- Proposed Main - Potable
- Water Main - Recycled
- Special Supply Conditions - Potable
- Special Supply Conditions - Recycled
- Restrained Joints - Potable
- Restrained Joints - Recycled
- Hydrant
- Maintenance Hole
- Stop Valve
- Stop Vale with By-pass
- Stop Valve with Tapers
- Closed Stop Valve
- Air Valve
- Valve
- Scour
- Reducer / Taper
- Vertical Bends
- Reservoir
- Recycled Water is shown as per Potable above. Colour as indicated

Private Mains

- Potable Water Main
- Recycled Water Main
- Sewer Main
- Symbols for Private Mains shown grey

DBYD Address:
5 Rynan Avenue
Edmondson Park NSW 2174

DBYD Job No: 8075447

DBYD Sequence No: 40350202

SYDNEY WATER CORPORATION

Scale: 1:1500

Date of Production: 04/07/2014

Plan 1 of 1

0m 9m 18m 27m 36m

PIPELINE

APA Group

DBYD Enquiry Response

For your immediate information **'THERE IS A GORODOK HIGH PRESSURE ETHANE GAS TRANSMISSION PIPELINE'** in the area of your proposed works. Please **do not** proceed until the next steps below are completed.

Date: 04/07/2014
From: Land Officer, APA group

Phone: 1800 103 452
Email: HELM@apa.com.au

Scale: 1: 10000 0 0.1km

To: Mr Para Bokalawela
Company: Environmental Investigation Services
Phone: 0298885000
Email: pbokalawela@jkgroup.net.au
Fax: 0298885004

RE:
DBYD Seq No: 40350205
Utility ID: 90328

Address: 5 Rynan Avenue Edmondson Park
Map: UbdSyd :287F1,287G1,287H1

Next step:

Please contact an APA Group Lands Officer immediately on **1800 103 452** to discuss the exact nature and extent of your works. This inquiry will replace Savcor DBYD sequence number.

There is to be **NO ATTEMPT TO PHYSICALLY LOCATE THE PIPELINE.** Although the route of the pipeline is marked out by warning signs it shall not be inferred that the pipe is buried under and in a straight line between signs. No depths on the pipeline should be assumed. Only an **APA representative** can locate the pipeline and is required to be scheduled for locations. APA Group advises that information supplied in this response is only valid for 30 days.

Damage to a high pressure natural gas transmission pipeline could result in:-

- possible explosion and fire;
- possible injury or loss of life;
- substantial repair and gas restoration liability damage costs;
- gas escaping at pressures of up to 7,000 kPa;
- loss of gas to thousands of customers.

Thank you for your interest in maintaining a safe and secure gas pipeline network.

Please note that this is **not** an approval to carry out work within APA Group's pipeline easement.

Legend

DBYD Requests

Wilton to Botany Ethane

Scale: 1: 10000

0 0.1km

N W E S

APA DBYD Transmissions Project

Dial Before You Dig Enquiry

DATE: 04/07/2014

SEQUENCE NO: 40350205

DATA SOURCE:

Pipeline Data Copyright APA Group and Gorodok Ethane Pipeline, Property Parcels Copyright respective State Governments, mapping data Copyright OpenStreetMap contributors, DBYD Dig Location provided by DBYD.

APA Group

Please note that this is **not** an approval to carry out work within APA Group's pipeline easement. For further information please call APA on 1800 103 452.

Westlink

DBYD Sequence No: 40350203
DBYD Job No: 8075447
Address: 5 Rynan Avenue, Edmondson Park, NSW 2174

Note: Buried communications cables are contained within white conduit. Buried electric cables are contained within orange conduits.

Create Date: 04/07/2014

Scale 1:2500

N

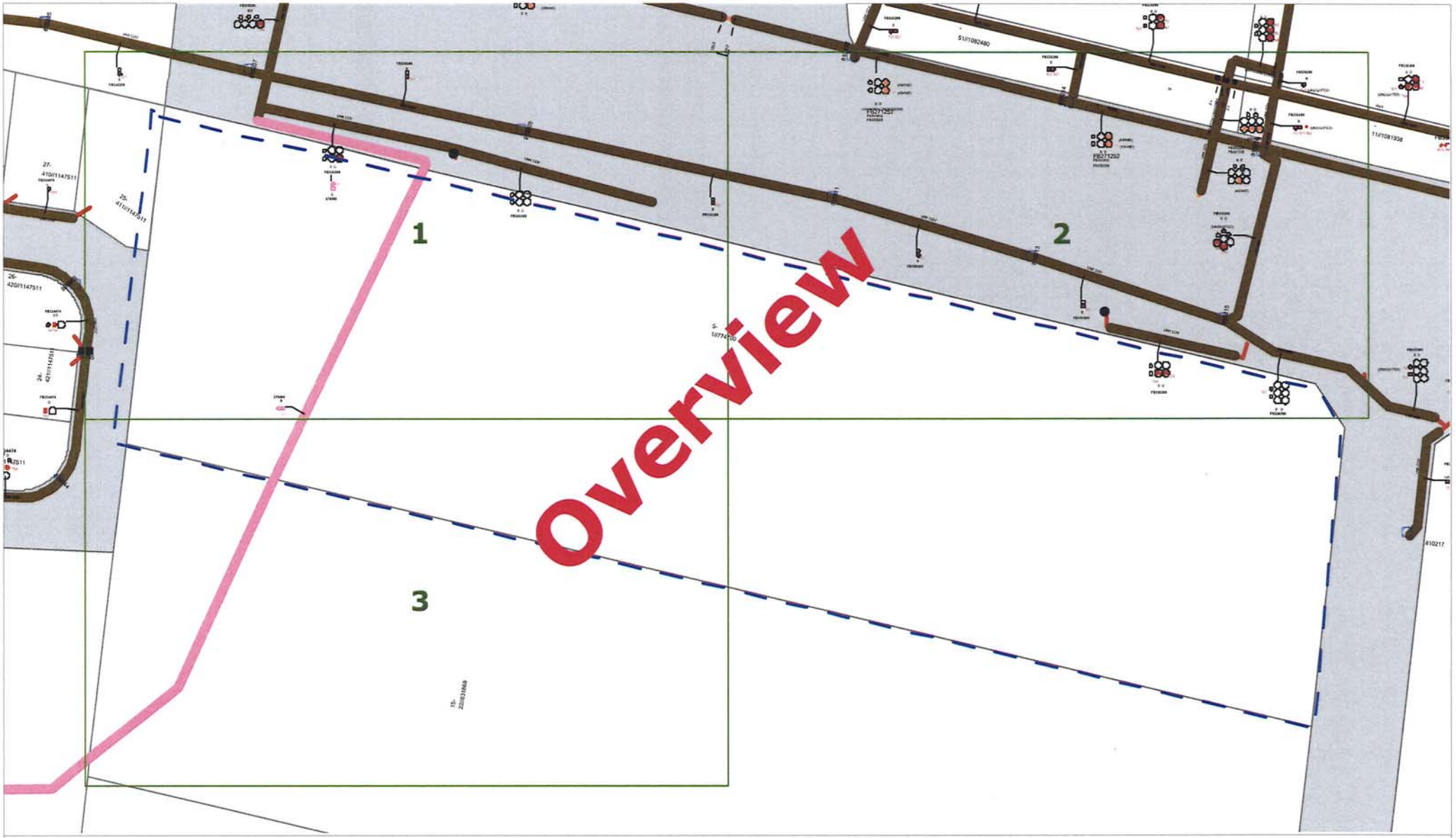
Legend

Communications Cable / Devices

Electric Cable / Devices

Please be advised that, although not necessarily shown on the attached plan, there are many services within the Westlink M7 Motorway reserve including live power and optical fibres. A permit must be obtained from Westlink for any work proposed within the M7 motorway corridor. The permit would cover excavation near services that are within the M7 boundary.
Westlink does not guarantee the accuracy of the information shown in this plan nor does it accept any responsibility for injury, loss or damage arising from its use or errors or omissions therein. Persons are advised to make their own investigations and site checks to confirm the actual situation on site.


LEPPINGTON 5A
SCALE 1:2000
50 0 50 100 150 200
THIS MAP UPDATED ON 25/06/2014
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.
DATE ALTERED:..... BY:.....
L1D L2C L2D
L4B L5A L5B
L4D L5C L5D
ADJOINING MAPS
717 719
LIVERPOOL
NETWORK AREA
MUNICIPALITY AREA
Jemena
KEY
MAX ALLOWABLE OPERATING PRESSURE
T TRUNK PIPELINE 7000 kPa
P PRIMARY MAIN 3500 kPa
S SECONDARY MAIN 1050 kPa
400 NETWORK MAIN 400 kPa
300 NETWORK MAIN 300 kPa
210 NETWORK MAIN 210 kPa
100 NETWORK MAIN 100 kPa
30 NETWORK MAIN 30 kPa
7 NETWORK MAIN 7 kPa
2 NETWORK MAIN 2 kPa
PROPOSED MAINS
PM 4-2 J STEEL MAIN PROJECT NUMBER
PRESSURE MONITORING STATION
VALVE
SYSTEM PRESSURE REGULATOR
SIPHON
03 NETWORK NODE
035 NETWORK VALVE NODE
(098) VALVE NUMBER
6NB 6 INCH CAST IRON MAIN
150MM 150MM STEEL MAIN
110MM PE/NY 110MM POLYETHYLENE/NYLON MAIN
(6)NB 50MM NY 50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN
L2MBL DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE
1957 YEAR LAID
MUNICIPALITY BOUNDARY
NETWORK BOUNDARY
63 HOUSE NUMBER
LEPPINGTON 5A



Endeavour Energy

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising. Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

ALL ELECTRICAL APPARATUS SHALL BE CONSIDERED LIVE UNTIL PROVED DE-ENERGISED.
Contact with live electrical apparatus will cause severe injury or death.

Those excavating near Endeavour Energy's cables should be aware that **ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT** in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches

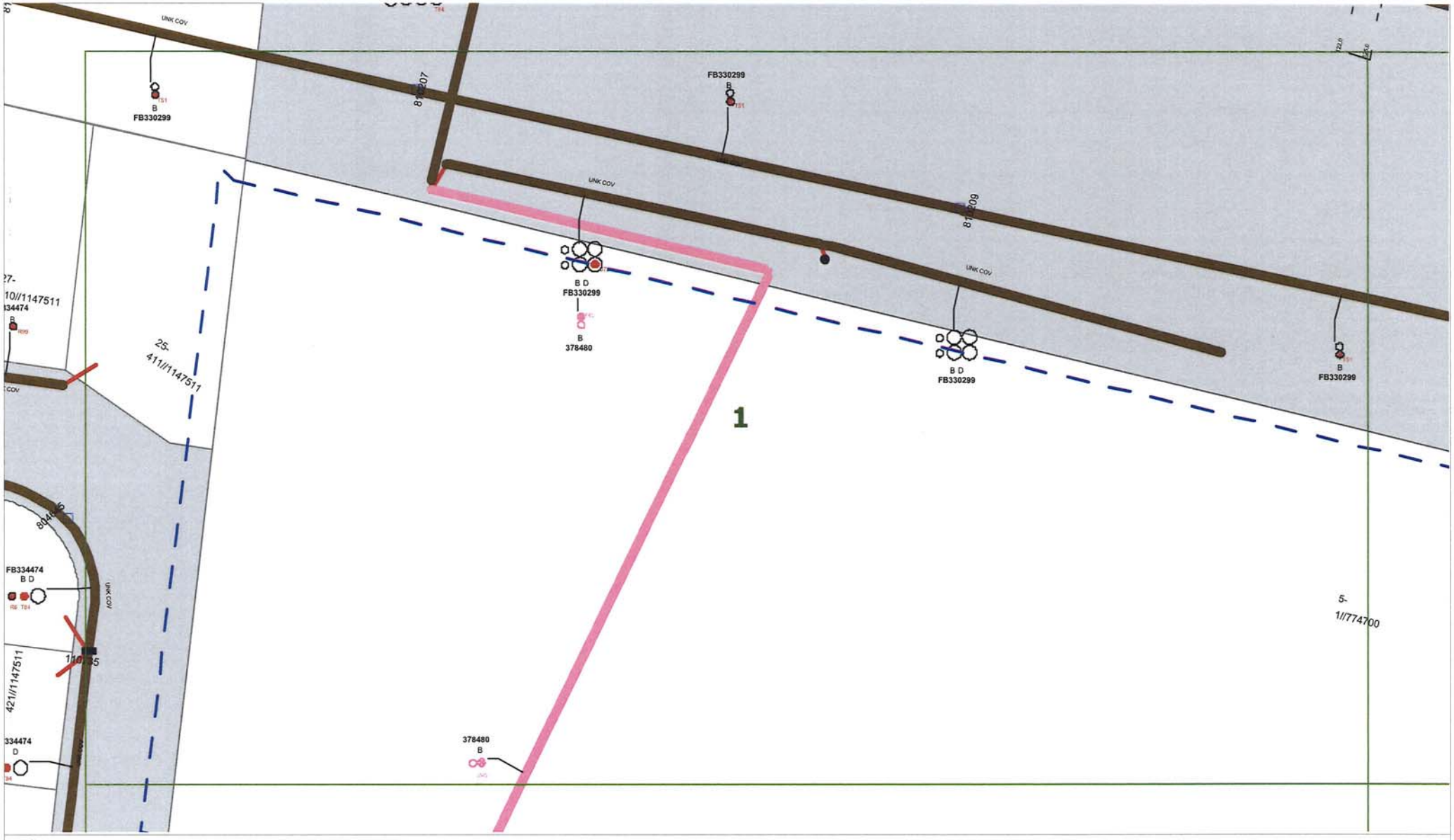
WARNING
ASBESTOS

WARNING
THIS EXCAVATION IS IN THE VICINITY OF ENDEAVOUR ENERGY TRANSMISSION, PILOT, COMMUNICATION OR FIBRE OPTIC CABLES
PLEASE RING **9853 7121** or **MOB. 0407 468 626**
4 WORKING DAYS BEFORE COMMENCING WORK

N

DO NOT SCALE

DBYD Sequence Number:	40350199
Issued Date:	07/07/2014



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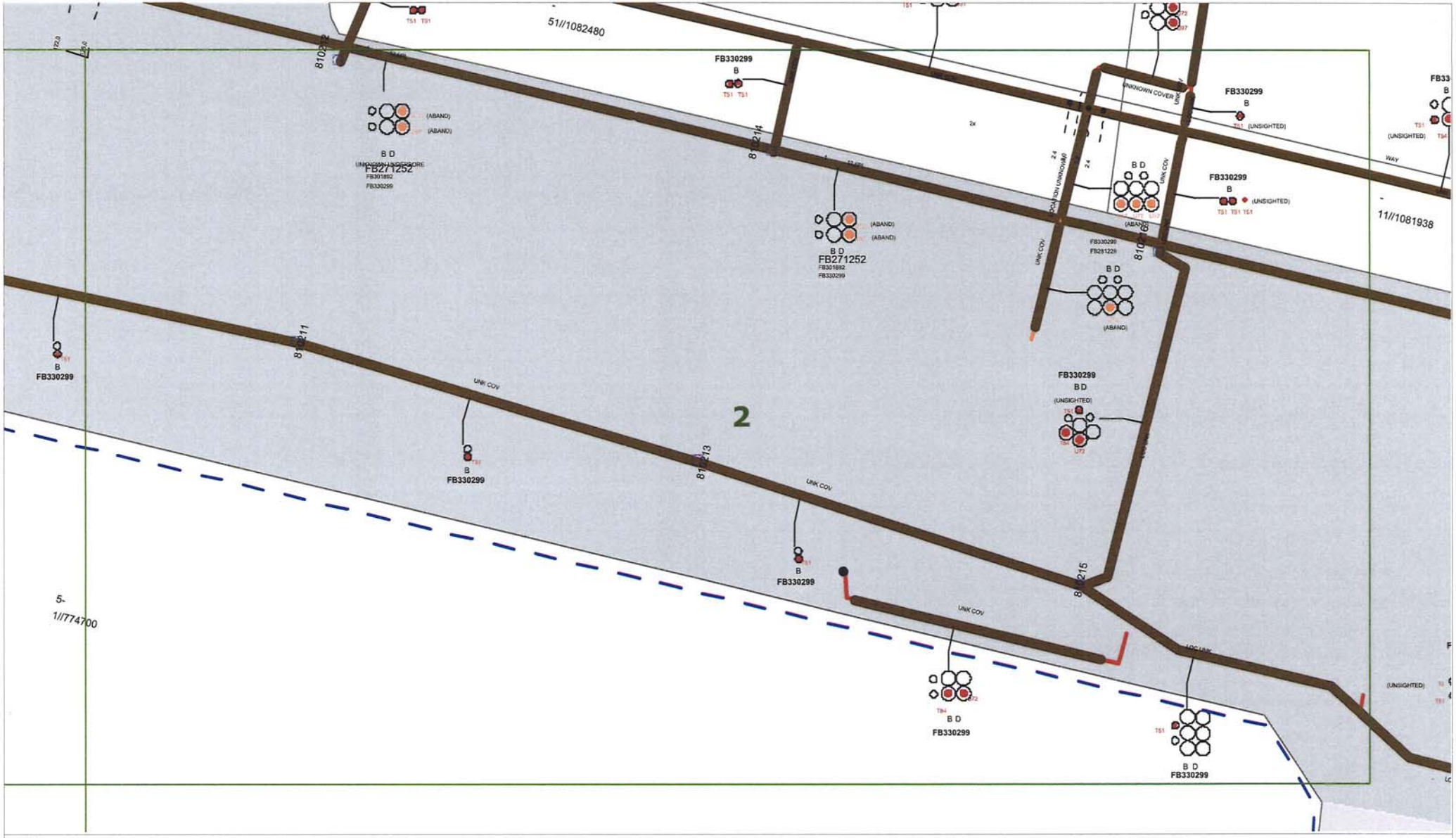
4 WORKING DAYS BEFORE COMMENCING WORK

N

DO NOT SCALE

DBYD Sequence Number:	40350199
Issued Date:	07/07/2014



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WARNING
ASBESTOS

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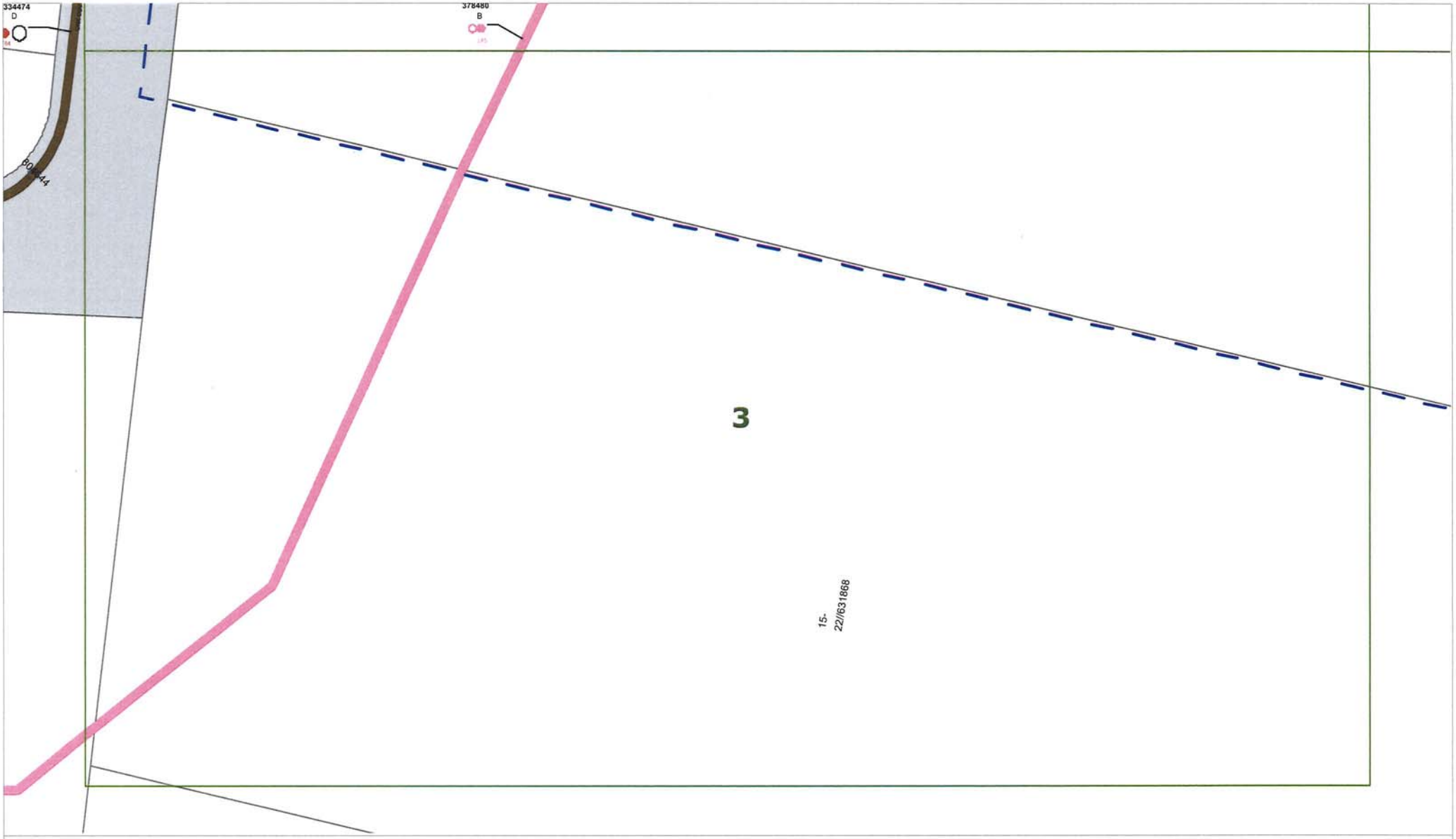
WARNING
THIS EXCAVATION IS IN THE VICINITY OF ENDEAVOUR ENERGY TRANSMISSION, PILOT, COMMUNICATION OR FIBRE OPTIC CABLES
PLEASE RING **9853 7121** or **MOB. 0407 468 626**
4 WORKING DAYS BEFORE COMMENCING WORK

N

DO NOT SCALE

DBYD Sequence Number:	40350199
Issued Date:	07/07/2014



Endeavour Energy

WARNING
ASBESTOS

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising. Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

ALL ELECTRICAL APPARATUS SHALL BE CONSIDERED LIVE UNTIL PROVED DE-ENERGISED.
Contact with live electrical apparatus will cause severe injury or death.

Those excavating near Endeavour Energy's cables should be aware that **ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT** in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches

WARNING
THIS EXCAVATION IS IN THE VICINITY OF ENDEAVOUR ENERGY TRANSMISSION, PILOT, COMMUNICATION OR FIBRE OPTIC CABLES
PLEASE RING **9853 7121** or **MOB. 0407 468 626**
4 WORKING DAYS BEFORE COMMENCING WORK

N

DO NOT SCALE

DBYD Sequence Number:	40350199
Issued Date:	07/07/2014

Appendix B2: Historical Land Title Records

P3

23 JUN 2014

ADVANCE LEGAL SEARCHERS PTY LIMITED

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9644 1679
Mobile: 0412 169 809
Facsimile: +612 8076 3026
Email: alsearch@optusnet.com.au

20th June, 2014

ENVIRONMENTAL INVESTIGATION SERVICES
PO Box 976,
NORTH RYDE BC NSW 1670

Attention: Para Bokalwela,

RE: **5 Rynan Avenue,**
Edmondson Park
Ref: E27532KG

Current Search

Folio Identifier 1/774700 (title attached)
DP 774700 (plan attached)
Dated 18th June, 2014
Registered Proprietor:
MICHAEL TAOUK
AMAM TAOUK

Title Tree
Lot 1 DP 774700

Folio Identifier 1/774700

(a)	(b)
CTVol 8112 Folio 102	CTVol 13373 Folio 58
CTVol 8048 Folio 205	IVA 40570
CTVol 7422 Folio 140	Conv Bk 2545 No 929
CTVol 6190 Folio 37	Conv Bk 2425 No 667
CTVol 6087 Folio 174	Conv Bk 2417 No 498
CTVol 2858 Folio 120	Conv Bk 2266 No 160
CTVol 1833 Folio 74	Conv Bk 1969 No 998
****	Conv Bk 1801 No 581
	*****

Summary of Proprietors
Lot 1 DP 774700

Year	Proprietor
	(Lot 1 DP 774700)
2012 – todate	Michael Taouk Amal Taouk
2001 – 2012	Michael Taouk
1989 – 2001	Michael Taouk Marie Taouk
1988 – 1989	Michael Taouk Jackie Taouk

See Notes (a) & (b)

Note (a)

	(Lot 1A DP 29317 – CTVol 8112 Fol 102)
1988 – 1988	Michael Taouk Jackie Taouk
1961 – 1988	Stanislaw Galka, hospital attaendent
	(Lot 1A DP 29317 – and other lands – CTVol 8048 Fol 205)
1960 – 1961	East Australia Construction Company Pty Limited
	(Lot B DP 402317 – Area 105 Acres – CTVol 7422 Fol 140)
1958 – 1960	East Australia Construction Company Pty Limited
1956 – 1958	Norman Rutherford Lenehan, clerk
	(Lots 2C & 2E DP 367789 – Area 167 Acres 2 Roods – CTVol 6190 Fol 37)
1950 – 1956	A.A. Tegel Pty Limited
	(Lot 2B DP 365586 – Area 170 Acres – CTVol 6087 Fol 174)
1950 – 1950	A.A. Tegel Pty Limited
1950 – 1950	William Allan Wells, contractor
	(Lot C DP 959792 – Area 192 Acres 3 Rood – CTVol 2858 Fol 120)
1947 – 1950	William Allan Wells, contractor
1927 – 1947	Joseph William Edmondson, farmer
1918 – 1927	Alexander Keith Edmondson, clerk
	(Part Portions 63 & 64 Parish Minto and other lands – Area 564 Acres 1 Rood 26 Perches – CTVol 1833 Fol 74)
1907 – 1918	Joseph Edmondson, hotel proprietor

****

Note (b)

	(Lot 1 DP 29317 – CTVol 13373 Fol 58)
1988 – 1988	Michael Taouk Jackie Taouk
1977 – 1988	Stanislaw Galka, hospital attendant
	(Part of the Land in DP 161342 being part of the Claremont Estate – Area 2 Acres 3 Roods 4 ¾ Perches – Conv Bk 2545 No 929)
1960 – 1977	Stanislaw Galka, hospital attendant
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 2425 No 667)
1957 – 1960	East Australian Construction Company Pty Limited
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 2417 No 498)
1956 – 1957	Norman Rutherford Lenehan, investor
	(Part Portion 63 Parish Minto – Area 264 Acres 3 Roods 12 ¾ Perches – Conv Bk 2266 No 160)
1953 – 1956	Vincent Fazzari, dairyman Ralph Nicholas Fazzari, dairyman John Joseph Fazzari, dairyman Julius Carmel Fazzari, dairyman
	(Part Portion 63 Parish Minto – Conv Bk 1969 No 998)
1945 – 1953	Harold Alfred Swane, market gardener
	(Part Portion 63 Parish Minto – Area 236 Acres 0 Roods 38 Perches – Conv Bk 1801 No 581)
1937 – 1945	Annie Shepherd, wife of farmer
1937 – 1937	Charles Henry Throsby, grazier
1854 – 1937	Charles Henry Throsby, grazier / executor Francis Henry Throsby, grazier / trustee Margaret Elizabeth Ahern, married woman / trustee Charles Throsby, estate

****

Land & Property Information
A division of the Department of Finance & Services

Cadastral Records Enquiry Report

Ref : BOX 97 - EDMONDSON PARK

Requested Parcel : Lot 1 DP 774700 **Identified Parcel :** Lot 1 DP 774700

Locality : EDMONDSON PARK **LGA :** LIVERPOOL **Parish :** MINTO **County :** CUMBERLAND

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/774700

SEARCH DATE	TIME	EDITION NO	DATE
18/6/2014	2:06 PM	16	30/5/2014

LAND

LOT 1 IN DEPOSITED PLAN 774700
AT EDMONDSON PARK
LOCAL GOVERNMENT AREA LIVERPOOL
PARISH OF MINTO COUNTY OF CUMBERLAND
TITLE DIAGRAM DP774700

FIRST SCHEDULE

MICHAEL TAOUK
IN 90/100 SHARE
AMAL TAOUK
IN 10/100 SHARE
AS TENANTS IN COMMON (T AH377983)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 BK 2545 NO 929 COVENANT
3 G737245 COVENANT
4 H653667 COVENANT
5 K135418 EASEMENT FOR TRANSMISSION LINE AFFECTING THE LAND ABOVE DESCRIBED
O896377 EASMENT VESTED IN PROSPECT ELECTRICITY
6 AH377984 MORTGAGE TO WESTPAC BANKING CORPORATION
7 AI622246 MORTGAGE TO DENNIS MICHAEL GILL, MOIRA CECILIA GILL & RESUP PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Form: 01T
Release: 6·0

TRANSFER

New South Wales
Real Property Act 1900

AH377983V

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

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 89478257
Duty: $10-00 Trans No: 6887671 1263
TS

(A) **TORRENS TITLE** 1/774700

(B) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and Customer Account Number if any	CODES
208X	ST GEORGE BANK LLPN 123131V C/- SAI GLOBAL DX 885 SYDNEY 9210 0700 Reference: 2781 0132	T TW

(C) **TRANSFEROR** MICHAEL TAOUK

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 130,000.00 and as regards

(E) **ESTATE** the abovementioned land transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED** 10/100ths

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** MICHAEL TAOUK as to 90/100ths and AMAL TAOUK as to 10/100ths

(I) **TENANCY:** Tenants in Common

DATE

(J) I certify I am an eligible witness and that the transferor signed this dealing in my presence. [See note* below]

Signature of witness:

Name of witness: Maria Malkoc
Address of witness: L 50 Pitt St, Sydney 2000

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

Signature of transferor:

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

Signature:

Signatory's name: Michael John Shehadie
Signatory's capacity: solicitor

(K) The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. 346212 Full name: Michael John Shehadie Signature:

* *s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.*

ALL HANDWRITING MUST BE IN BLOCK CAPITALS

1111

Req:R702380 /Doc:DL Y469024 /Rev:18-Aug-2010 /Sts:OK.OK /Prt:18-Jun-2014 14:09 /Pgs:ALL /Seq:1 of 1
Ref:EIS - Edmondson P /Src:T

[redacted]

Chester Hill 2162

Y469024

REGISTRAR GENERAL NEW SOUTH WALES

STAMP DUTY REVENUE TREASURY
55
$1702-50
COMMISSIONER

TRANSFER

REAL PROPERTY ACT, 1900

T

3	2 of 3	X
$ 42		

R2/3

DESCRIPTION OF LAND Note (a)

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Volume. 13373 Folio. 58 Volume. 8112 Folio. 102 NOW BEING FOLIO IDENTIFIER 1/774700	WHOLE	Parish Minto County Cumberland

TRANSFEROR Note (b)

MICHAEL TAOUK and JACKIE TAOUK joint tenants

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 91,500.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

MICHAEL TAOUK and MARIE TAOUK
28 Macauley Ave Bankstown

OFFICE USE ONLY

JT2

TENANCY Note (e)

as joint tenants/~~tenants in common~~

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES
1. Reservations & Conditions contained in Crown Grant
2. Caution Sect 28A RPA 1900
3. Covenant Book 2545 No. 929
4. Covenant G737245 & H653667
5. Resumption K135418
6. Mortgage to Westpac Bank

DATE 7th December 1988

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

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

Signature of Witness

GEORGE SHAD
SOLICITOR — PUNCHBOWL
Name of Witness (BLOCK LETTERS)

Address and occupation of Witness

x Michael Taouk

Jackie Taouk
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 and occupation of Witness

GEORGE SHAD
Solicitor for
Signature of Transferee

WESTPAC TRANSFER
0321740872160105

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY

Westpac Banking Corporation
[illegible]

Delivery Box Number

CT	OTHER	LOCATION OF DOCUMENTS
✓	Dm M	Herewith.
		In L.T.O. with
		Produced by

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19
[initials]		
Signed	Extra Fee	

Secondary Directions			
Delivery Directions			

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
18/6/2014 2:07PM

FOLIO: 1/774700

First Title(s): OLD SYSTEM
Prior Title(s): VOL 8112 FOL 102 VOL 13373 FOL 58

Recorded	Number	Type of Instrument	C.T. Issue
6/5/1988	DP774700	DEPOSITED PLAN	FOLIO CREATED EDITION 1
10/7/1989	Y469023	DISCHARGE OF MORTGAGE	
10/7/1989	Y469024	TRANSFER	
10/7/1989	Y469025	MORTGAGE	EDITION 2
15/10/1991	Z987421	DISCHARGE OF MORTGAGE	
15/10/1991	Z987422	MORTGAGE	EDITION 3
15/9/1993	I648151	CAVEAT	
14/7/1994	U439934	WITHDRAWAL OF CAVEAT	
22/8/1994	U550947	DISCHARGE OF MORTGAGE	
22/8/1994	U550948	MORTGAGE	EDITION 4
7/2/1996	O896377	REQUEST	
7/6/2001	7672852	NOTICE OF DEATH	EDITION 5
4/9/2002	8924722	DISCHARGE OF MORTGAGE	
4/9/2002	8924723	MORTGAGE	EDITION 6
13/11/2002	9123664	CAVEAT	
3/11/2003	AA118320	DISCHARGE OF MORTGAGE	EDITION 7
26/5/2006	AC334172	WITHDRAWAL OF CAVEAT	
26/5/2006	AC334173	CAVEAT	
1/8/2006	AC446675	MORTGAGE	EDITION 8
21/9/2006	AC615400	MORTGAGE	EDITION 9
3/4/2007	AD31477	DISCHARGE OF MORTGAGE	
3/4/2007	AD31478	DISCHARGE OF MORTGAGE	
3/4/2007	AD31479	MORTGAGE	EDITION 10
5/4/2011	AG158948	APPLICATION FOR REPLACEMENT	EDITION 11

END OF PAGE 1 - CONTINUED OVER

EIS - Edmondson P

PRINTED ON 18/6/2014

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
18/6/2014 2:07PM

FOLIO: 1/774700 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
		CERTIFICATE OF TITLE	
28/4/2011	AG181712	DISCHARGE OF MORTGAGE	
28/4/2011	AG181713	MORTGAGE	EDITION 12
9/3/2012	AG862580	DISCHARGE OF MORTGAGE	
9/3/2012	AG862581	MORTGAGE	EDITION 13
20/11/2012	AH377982	DISCHARGE OF MORTGAGE	
20/11/2012	AH377983	TRANSFER	
20/11/2012	AH377984	MORTGAGE	EDITION 14
27/7/2013	AH906574	MORTGAGE	EDITION 15
11/4/2014	AI505704	CAVEAT	
30/5/2014	AI622244	WITHDRAWAL OF CAVEAT	
30/5/2014	AI622245	DISCHARGE OF MORTGAGE	
30/5/2014	AI622246	MORTGAGE	EDITION 16

*** END OF SEARCH ***

[redacted]CATE OF TITLE

[redacted]PROPERTY ACT, 1900

13373058

NEW SOUTH WALES

Vol. 13373 Fol. 58

IVA NO. 40570

CANCELLED W EDITION ISSUED 7 7 1977

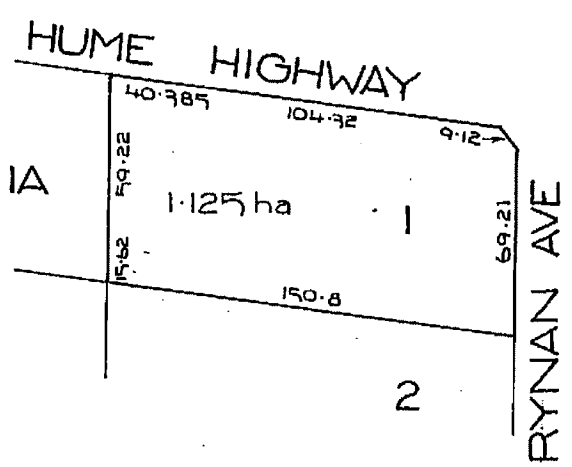
(Page 1) Vol. 13373 Fol. 58

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.

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



IVA 40570 JDC

REDUCTION RATIO 1:2000

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 29317 in the City of Liverpool Parish of Minto and County of Cumberland being part of Portions 63 and 64 granted to Henry Kitchen and Robert Bostock respectively on 17-8-1819.

FIRST SCHEDULE

~~STANISLAW GALKA of South Liverpool Hospital Attendant.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. CAUTION. The land within described is held subject to any subsisting interest (as defined in Section 28A of the Real Property Act, 1900).
3. Covenant created by Deed Book 2545 No. 929.

Vol. 13373 Fol. 58

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Michael Taouk and Jackie Taouk as joint tenants by Transfer	X	380476	Registered 1-3-1988		

DP/3~~9~~ 774700 Registered 5.5.88
This folio is cancelled as to whole/~~part~~ upon creation of computer folios for lots 1 in the abovementioned plan.

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
X	380477		Mortgage to Westpac Savings Bank Limited Registered 1-3-1988					

(Page 2 of 2 pages)

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

X380476
7
& P. 774

PLAN FORM 1 — Plan Drawing only to appear in this space — *OFFICE USE ONLY

DP 774700

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

As Mortgagee under Mortgage No X380477 WESTPAC SAVINGS BANK LIMITED hereby consents to the within Plan.Dated at Sydney this 25th day of March 1988. WESTPAC SAVINGS BANK LIMITED by its Attorney who hereby states at the time of his executing this instrument he has no notice of the revocation of the Power of Attorney registered in the office of the Registrar General No 736 Book 3598 under the authority of which he has executed this instrument. Michel Taouk. Acting Assistant to Manager-Legal

Signed Sealed and Delivered for and on behalf of WESTPAC SAVINGS BANK LIMITED by Richard Henry Arnold its duly constituted Attorney who is personally known to me W H Keyes JP

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... pages .....

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 349 of the † Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, † Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the proposed ..... (Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. .....

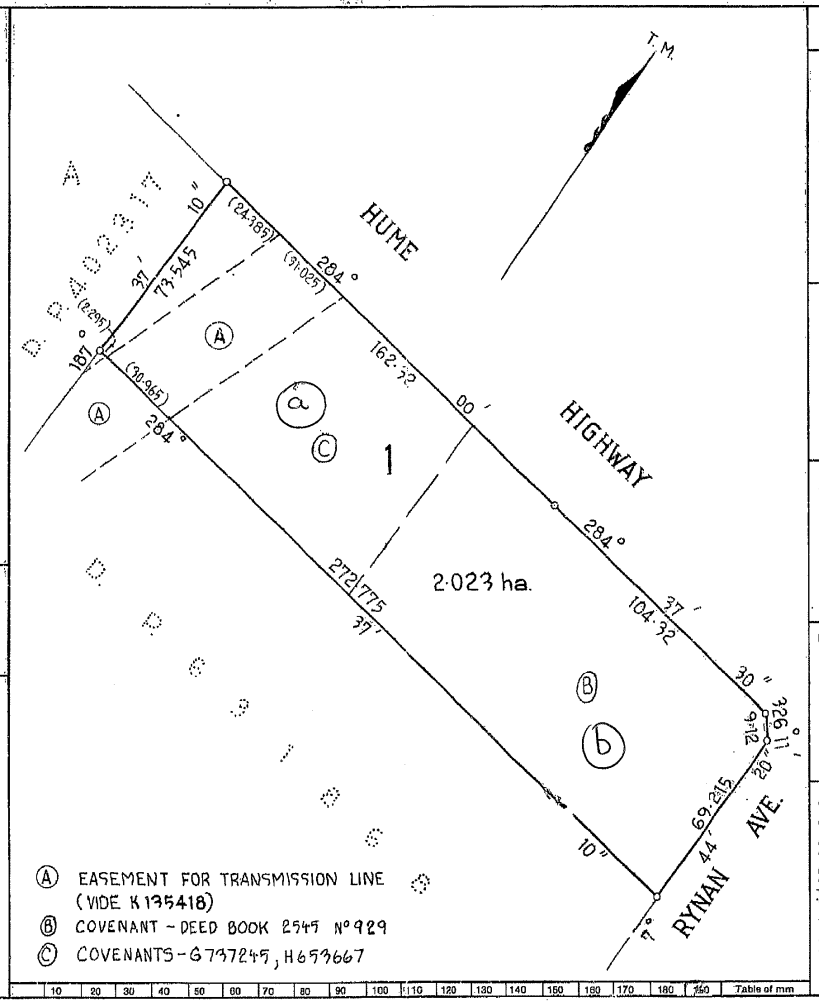
Date .....

(Signature) ..... Council Clerk

Council File No. .....

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

† Delete if inapplicable.



10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 Table of mm

Registered: 5-5-1988 IN001K1B

C.A: —

Title System: TORRENS

Purpose: CONSOLIDATION

Ref. Map: U8237 - 5#

Last Plan: DP29317

PLAN OF CONSOLIDATION OF LOT 1 IN D.P. 29317 AND LOT 1A IN D.P. 29317

Lengths are in metres. Reduction Ratio 1: 1250

~~Mun./Shire~~ City: LIVERPOOL.

Locality: EDMONDSON PARK.

Parish: MINTO

County: CUMBERLAND.

Plans used in preparation of ~~survey~~/compilation.

D.P. 29317, D.P. 444552, D.P. 402317

I, WAYNE RONALD DAVIS of 56 YOUNG ST, SYLVANIA HTS. 2224

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that ~~the survey represented in~~ this plan is accurate ~~and has been made in accordance with the Survey Practice Regulations, 1933 and any special requirements of the Department of Lands~~, and was completed on 8TH MAR. 1988#

Signature ..... Surveyor registered under Surveyors Act, 1929, as amended.

~~Datum Line of Audbulls~~

#Insert date of survey.

SURVEYOR'S REFERENCE: B/025

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION M.P.D.

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

This negative is a photograph made a a permanent record of a document in the custody of the Registrar General this day. 16th May, 1988

Appendix B5: WorkCover Records

(WorkCover records were not available at the time of the preparation of this report)

Appendix B6: NSW EPA Records

EPA

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: Name (site, occupier, owner, recipient): 5 Rynan Avenue Edmondson Park
LGA: Liverpool City Council

Search Again
Refine Search

did not find any records in our database.

Search TIP

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

... more search tips

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.

7 July 2014

Connect Fe

We
Pul

EPA

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: **General Search** with the following criteria

Suburb - EDMONDSON PARK

returned 0 result

Search Again

Appendix C: Abbreviations

Abbreviations

ABC	Ambient Background Concentrations
ACL	Added Contaminant Limits
AC	Asbestos Cement
ACM	Asbestos-Containing Material
ADWG	Australian Drinking Water Guidelines
AEC	Area of Environmental Concern
AF	Asbestos Fines
AHD	Australian Height Datum
As	Arsenic
ASL	Asbestos Health Screening Levels
ASS	Acid Sulfate Soil
AST	Above Ground Storage Tank
BA	Building Application
Bgl	Below Ground Level
BH	Borehole
BOM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CLM	Contaminated Land Management
CMP	Construction Management Plan
COC	Chain of Custody Documentation
Cr	Chromium
CSM	Conceptual Site Model
CT	Contamination Threshold
Cu	Copper
DA	Development Application
DBYD	Dial Before You Dig
DQI	Data Quality Indicators
DQOs	Data Quality Objective
DSI	Detailed Site Investigation
EAC	Ecological Assessment Criteria
EC	Electrical Conductivity
EILs	Ecological Investigation Levels
EMP	Environmental Management Plan
ENM	Excavated Natural Material
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESL	Ecological Screening Level
FA	Fibrous Asbestos
FR	Field Rinsate
GAI	General Approvals of Immobilisation
GSW	General Solid Waste
HILs	Health Based Investigation Level
HM	Heavy Metals
HMTV	Hardness Modified Trigger Values
HSLs	Health Screening Level
HW	Hazardous Waste
ISO	International Organisation of Standardisation
JK	Jeffery and Katauskas
LCS	Lab Control Spike
LNAPL	Light Non-Aqueous Phase Liquid
MGA	Map Grid of Australia
MW	Monitoring Well

Abbreviations

NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCB	Polychlorinated Biphenyls
PCC	Potential Contaminants of Concern
PID	Photo-ionisation Detector
PQL	Practical Quantitation Limit
PSI	Preliminary Site Investigation
PVC	Polyvinyl chloride
QA	Quality Assurance
QC	Quality Control
RAP	Remediation Action Plan
RL	Reduced Level
RPD	Relative Percentage Difference
RSW	Restricted Solid Waste
SAC	Site Assessment Criteria
SAQP	Sampling, Analysis and Quality Plan
SAS	Site Audit Statement
SAR	Site Audit Report
SCC	Specific Contamination Concentration
SD	Standard Deviation
SIX	Six Maps
SPT	Hardness Modified Trigger Values
sVOC	Semi-Volatile Organic Compounds
SWL	Standard Water Level
TB	Trip Blank
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TS	Trip Spike
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material
VOC	Volatile Organic Compounds
VOCC	Volatile Organic Chlorinated Compound
WA	Western Australia
WHS	Workplace, Health and Safety
Zn	Zinc