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Environmental - Remediation - Engineering - Laboratories - Drilling

PHASE II ENVIRONMENTAL SITE ASSESSMENT

2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW

Prepared for

Mr Tony Khattar

December 2011

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- NSW EPA "Guidelines for Assessing Service Station Sites" (1994). NSW Environment Protection Authority, Sydney.
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- NSW EPA "Guidelines for Consultants Reporting on Contaminated Sites" (1997). NSW Environment Protection Authority, Sydney.
- National Environment Protection Council "Guideline on the Investigation Levels for Soil and Groundwater", NEPM, 1999.
- National Environmental Protection (Assessment of Site Contamination) Measure, NEPC Schedule B series, 1999.
- ANZECC National Water Quality Management Strategy "Australian Water Quality Guidelines for Fresh and Marine Waters", 1992.
- NSW OEH (2009) – *Waste Classification Guidelines, Part 1: Classifying Waste.*
- Environmental Investigations (2011) - "Stage 1 Environmental Site Assessment, 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW". (Report no. ES1367.1, dated 31st May 2011).

ABBREVIATIONS

- BTEX - Benzene, Toluene, Ethyl benzene and Xylene
- OCP - Organochlorin Pesticides
- OPP – Organo phosphorous Pesticides
- PAH - Polycyclic Aromatic Hydrocarbons
- TPH - Total Petroleum Hydrocarbons
- VHC – Volatile Halogenated Compounds
- VOC – Volatile Organic Compounds
- PID - Photo Ionisation Detector
- QA/QC - Quality Assurance, Quality Control
- RAP - Remediation Action Plan
- SAC - Site Assessment Criteria
- UCL - Upper Confidence Limit
- UST - Underground Storage Tank
- AST – Aboveground Storage Tank
- PQL – Practical Quantitation Limits
- RPD – Relative Percentage Difference
- DQOs – Data Quality Objectives
- HIL – NSW EPA Health-based Investigation Levels as per “Guidelines for the NSW Site Auditor Scheme”
- CoC – Chain of Custody
- SWL – Standing Water Level.
- DIPNR – Department of Infrastructure Planning and Natural Resources.
- NSL – No Set Limit.
- ND – Not Detected.
- PPM – Parts Per Million.
- NATA – National Australian Testing Authority.

EXECUTIVE SUMMARY

Aargus Pty Ltd was appointed by Mr Tony Khattar to conduct an Environmental Site Assessment (ESA) of the property situated at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW ('the site'). The proposed development is for a mixed commercial and residential development, comprising of a double level basement car park, ground floor commercial / retail and seven storeys of residential apartments.

The primary objective of this ESA was to assess the environmental suitability of the site in regards to the current usage and the potential for any contamination on site in relation to compliance with current NSW and Local Council environmental regulatory criteria.

The scope of work in preparing this ESA report included review of existing information, soil sampling and analysis, interpretation of results/findings and report preparation in general accordance with NSW EPA '*Guidelines for Consultants Reporting on Contaminated Sites', 2009.*

One previous environmental investigation was conducted on the site by Environmental Investigations (EI) in May 2011, titled "*Stage 1 Environmental Site Assessment, 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW*" (Report no. ES1367.1). Information from the EI report was utilised within this current assessment.

The site currently comprises of two single-storey residential dwellings, one single-storey retail building, one two-storey commercial building and a large concrete car park which occupies the central portion of the site. A number of stockpiles of demolition waste and soil were noted on the site surfaces. A potential grease trap was located at the rear of the single-storey brick building.

A number of potential areas of environmental concerns were identified at the site, particularly:

- Current & Previous site uses;
- Whole site where uncontrolled fill was imported to level the site prior to the construction of the buildings and the filling of previous low lying areas;
- Where pesticides were potentially utilised within the site for weed control or beneath buildings / floor slabs for termite control;
- Car park areas where leaks and spills from cars may have occurred;
- Vicinity of metal features;
- Stockpiles of demolition waste;
- Stockpiles of soil with fibro-cement sheeting;
- Grease trap; and
- Asbestos / Fibro features within the building structures.

During this investigation, soil samples were collected from nine (9) boreholes (BH1 to BH9) located on a semi regular grid over the site (modified to allow accesses to sample locations). Boreholes were drilled using a stainless steel hand auger. Sampling was conducted on the 8th November 2011.

To reach our stated objectives, a set of seventeen (17) primary soil samples were submitted for analysis on the differing fill and natural soil profiles. One QA/QC intra-laboratory duplicate sample and one rinsate sample were analysed by the NATA accredited laboratories of MGT LabMark. One QA/QC inter-laboratory split sample was analysed by the NATA accredited laboratories of SGS.

The assessment criteria adopted were the available Health Investigation Levels (HIL's) for *residential use with minimal access to the soil* (HIL 'D') and the suggested levels in the EPA service station guidelines.

Laboratory results and QA/QC data fulfil the DQOs. The results are therefore considered a reliable basis for the following conclusions and recommendations. Laboratory results for the soil samples analysed were lower than the relevant regulatory guideline criteria adopted, those being HIL 'D' and EPA Service Station guidelines.

In Summary

Based on the results of this investigation it is considered that the risks to human health and the environment associated with soil contamination at the site are low in the context of the proposed use of the site for a mixed use development with two level basement car park. The site is therefore considered ***to be suitable*** for the proposed use, subject to the following:

- Any fibro-cement pieces verified to contain asbestos should be disposed of by a licensed contractor.
- A hygienist should provide a clearance certificate once all asbestos has been removed from the site.
- An inspection of the soils beneath the grease pit should take place once the pit has been removed to determine the quality of the soils.
- All soils (fill and natural), in particular the stockpiles of soil, that require removal from the site as part of the construction of the basement, should be classified in accordance with the "*Waste Classification Guidelines, Part 1: Classifying Waste" NSW* DECC (2009).

If during any potential site works, significant odours and / or evidence of gross contamination not previously detected are encountered, or any other significant unexpected occurrence, site works should cease in that area, at least temporarily, and the environmental consultant should be notified immediately to set up a response to this unexpected occurrence.

Reference should be made to the Limitations of Assessment at the end of the report and Appendix B, which set out details of the limitations of the assessment.

1.0 INTRODUCTION

Aargus Pty Ltd was appointed by Mr Tony Khattar to conduct an Environmental Site Assessment (ESA) of the property situated at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW ('the site'). The proposed development is for a mixed commercial and residential development, comprising of a double level basement car park, ground floor commercial / retail and seven storeys of residential apartments.

One previous environmental investigation was conducted on the site by Environmental Investigations (EI) in May 2011, titled "*Stage 1 Environmental Site Assessment, 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW*" (Report no. ES1367.1). Information from the EI report was utilised within this current assessment.

The site currently comprises of two single-storey residential dwellings, one single-storey retail building, one two-storey commercial building and a large concrete car park which occupies the central portion of the site. A number of stockpiles of demolition waste and soil were noted on the site surfaces. A potential grease trap was located at the rear of the single-storey brick building.

This assessment was performed in accordance with the Aargus proposal and Aargus Environmental Protocols (refer Appendix F – Aargus Environmental Protocols), and in general accordance to relevant environmental regulatory criteria including the NSW EPA regulatory guidelines and National Environmental Protection (*Assessment of Site Contamination*) Measure, 1999.

2.0 OBJECTIVES

The primary objective of this ESA was to assess the environmental suitability of the site for the proposed development in relation to compliance with current NSW and Local Council environmental regulatory criteria.

In accordance with our instructions, the purpose of this ESA is to:

- Identify the likelihood and/or extent of significant soil and groundwater contamination occurring from past and present practices on the site; and
- Recommend any further management strategies including any additional investigations and/or remediation; and

Specifically, the ESA will assess:

- Contaminant dispersal in soil and if an impact to groundwater occurs;
- The potential effects of contaminants on public health, the environment and building structures; and
- The adequacy and completeness of all information available to be used in making decisions on site suitability.

3.0 SCOPE OF WORKS

In order to achieve the above objectives the following scope of work was carried out for the ESA:

- Collecting site information, review of historical information and past site practices, (site surveys, site records on waste management practices, NSW Land Titles Office records of ownership, aerial photographs obtained from the NSW Department of Lands, WorkCover NSW records and site interviews);
- A site inspection to identify areas of environmental concern, on-site waste disposal practices and location of sewers, drains, holding tanks, Underground Storage Tanks, Aboveground Storage Tanks and pits, spills and ground discolouration etc.;
- A targeted soil boring/sampling investigative study – formulating and conducting a sampling plan and borehole investigation; the soil samples are taken and submitted for analysis on particular contaminants;
- Laboratory analysis and results from sample analysis – findings and comparison to regulatory guidelines;
- Quality Assurance/Quality Control (QA/QC) – all QA/QC procedures were undertaken in accordance with the Aargus Quality Assurance/Quality Control manual;
- Interpretation of results and findings; and
- Recommendations and final conclusions drawn from interpretation of the results.

4.0 SITE INFORMATION

4.1 Site Identification

The site is currently registered as Lot 1 in SP 438, Lots C & D in DP 416771, Lots A & B in DP 432751, Lots 5 & 6 in section 8 in DP 3424, and is located at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW (refer Appendix A – Locality Map). Site identification information is summarised below:

Table 1 – Summary Site Details

Street Address	**2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW**
Lot and DP Number	Lot 1 in SP 438 Lots C & D in DP 416771 Lots A & B in DP 432751 Lots 5 & 6 in Section 8 in DP 3424
Local Government Area	Auburn
Parish	Liberty Plains
County	Cumberland
Approx. Site Area	2,800m^2

4.2 Site Description

The site is located at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW and is in the Auburn Council region. At the time of the site inspection the following observations were also made:

- The site currently comprises of two single-storey residential dwellings, one single-storey retail building, one two-storey commercial building and a large concrete car park which occupies the central portion of the site.
- The two residential dwellings were in a dilapidated condition at the time of the site visit.

- The concrete car park show minimal signs of hydrocarbon staining.
- There was a stockpile of soil and inert demolition rubble (including fibro cement sheeting pieces) located on the central portion of the site in the concrete car park area.
- There was a potential grease trap (which was locked) located behind the single-storey brick building.
- There were no other signs of soil staining, plant distress or any other visible indicators of potential contamination.
- There were no olfactory indicators of potential contamination; and
- A hazardous building materials survey was not commissioned as part of this assessment, however there is potential for asbestos-containing materials within the buildings within the site.

The shape and layout of the site are shown on the Site Plan (Appendix A).

4.3 Topography and Surface Waters

Local relief is <5m with slope gradients <3° and broad concave valleys. The site slopes gently towards the south.

The closest water is a drainage channel of Haslem Creek located approximately 1.4km north of the site, which flows into Homebush Bay. Stormwater from the local and surrounding areas are expected to flow towards this drainage channel. On and off site migration from surface areas are not considered to be of environmental concern.

4.4 Geology

The Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, 1983), published by the Department of Mineral Resources indicates the residual soils within the site to be underlain by Triassic Age Shale of the Wianamatta Group (Ashfield Shale), comprising black to dark grey shale and laminite.

Fieldwork observations indicated that underlying the sealed surfaces, the subsurface lithology of the site comprises of fill materials then natural clay.

Reference should be made to Section 9.2 for the soil profile within the site.

4.5 Hydrogeology

A groundwater bore search from the Department of Natural Resources database revealed no registered bores within a 1km radius of the site.

4.6 Surrounding Land Use

Surrounding land use was identified as follows:

To the North ⇒ Vaughan Street, then Commercial properties;
To the South East ⇒ Kerrs Road, then Retail / Commercial properties;
To the East ⇒ Joseph Street, then a park; and
To the West ⇒ High density residential apartments, Laneway and vacant land.

The district consists of a mixture of residential, recreational, retail and commercial land uses. Surrounding land use is unlikely to impact the site with respect to contamination.

4.7 Proposed Development

The proposed development is for a mixed commercial and residential development, comprising of a double level basement car park, ground floor commercial / retail and seven storeys of residential apartments.

Reference may be made to Appendix L – Proposed Development Plans.

5.0 SITE HISTORY

5.1 Historical Aerial Photographs

Reference is made to the previous assessment undertaken on the site where a number of aerial photographs obtained from the NSW Department of Lands were reviewed as part of this ESA. The results of this review are presented in the following table.

Table 2 – Summary of Aerial Photograph Interpretation

Year	Site		Surrounding areas
1930	Residential and Commercial	The site consists of one large commercial property. There was four smaller, presumably, residential properties to the west and south west with some open areas.	N: Vaughan Street and Commercial property S: Kerrs Road and Commercial properties E: Joseph Street and Lidcombe Remembrance Park W: Residential properties
1951	Residential and Commercial	The site appears to be unchanged with the exception of the following: Larger commercial property to the south east	There appears to have been no major modifications within the surrounding area with the exception of: SW: Commercial properties
1970	Residential and Commercial	The site appears to be unchanged with the exception of the removal of the small building to the north of the site	There appears to have been no major modifications within the surrounding area.
1994	Residential and Commercial	The site appears to be unchanged with the exception of the removal of two small buildings to the south west of the site	There appears to have been no major modifications within the surrounding area with the exception of: N: Commercial and residential properties appear to have been removed

In summary, the aerial photographs reveal that the site has predominantly been a mix of residential and commercial properties up until the 1990's and from then on commercial and residential to the current year.

5.2 Historical Land Titles

Reference is made to the previous assessment undertaken where a review of historical documents held at the NSW Department of Lands offices was undertaken to characterise the previous land use and occupiers of the site.

As reported above, the site is registered as several Lot and DP numbers, as summarised below:

- Lot 1 in SP438
- Lots C & D in DP416771
- Lots A & B in DP432751
- Lots 5 & 6 Section 8 in DP3424

The results of the title search are summarised in the following tables.

Table 3 – Summary of Historical Land Titles

Year	**Owners: Lot: 1 in SP438**
1991 to date	Tony, Raymond, George, Joseph, Robert and Peter Khatter
1976	The Australian Mid-Eastern Club Limited
1981	Emilie Kosorsi and Alek Moses
1970	Domain Clients Limited
1964	K. B. McDonald Pty Ltd
	Prior Title: Volume:1648 Folio: 148
1963	Council of the Municipality of Auburn
1963	The Dancers Club Limited
1963	Lidcombe Project Developers Pty Ltd
1953	Garnett Barkley and Nellie Doreen McOnie
1925	Carrington Jubilee Barkley and Clementine Garnett Barkley
Year	Owners: Lot: C in DP416771
2011 to date	Tony Khatter
	Prior Title: Volume:8045 Folio: 244

Year	Owners: Lot: 1 in SP438
1976	Levik Pty Ltd
1968	Lillian Sneesby
	Prior Title: Volume:5659 Folio: 134
1960	Henry Sneesby
1959	Clive Walter Corrick
1947	Clive Walter Corrick
	Prior Title: Volume:3308 Folio: 82
1937	Walter Corrick
1930	Alick Robert Shephard

Year	Owners: Lot: D in DP416771
2011 to date	Tony, Raymond, George, Joseph, Robert and Peter Khatter
	Prior Title: Volume:8497 Folio:176
1986	The Australian Mid-Eastern Club Limited
1981	Emile Koborsi and Alek Moeses
1967	The Dancers club limited
1964	Clive Walter Corrick
	Prior Title: Volume:5659 Folio: 134
1960	Henry Sneesby
1959	Clive Walter Corrick
1947	Clive Walter Corrick
	Prior Title: Volume:3308 Folio: 82
1937	Walter Corrick
1930	Alick Robert Shephard

Year	Owners: Lot: A in DP432751
2011 to date	Tony, Raymond, George, Joseph, Robert and Peter Khatter
	Prior Title: Volume:5874 Folio:236
1986	The Australian Mid-Eastern Club
1981	Emile Koborsi and Alek Moeses
1968	The Dancers Club Limited
1959	Olto Simon Weissman
1958	Amanut Australia Pty Ltd
1954	Francis Pettift
1948	Stewart Geddes and James Geddes
	Prior Title: Volume:3204 Folio: 91

Year	Owners: Lot: A in DP432751
1948	Rainsford Edward Dennis
1948	Steward Geddes and James Geddes
1921	Clive Walter Corrick

Year	Owners: Lot: B in DP432751
2011 to date	Tony, Raymond, George, Joseph, Robert and Peter Khatter
	Prior Title: Volume:5875 Folio:8
1986	The Australian Mid-Eastern Club Limited
1984	Emile Koborsi and Alek Moeses
1679	Ian David Gewanloch
1960	Daphe June Greentree and Evol Manganet Faux
1955	Eric Winton and Elsa Rosa Winton
1948	James Sibray
1948	Rainsford Edward Dennis
	Prior Title: Volume:3308 Folio: 82
1937	Walter Corrick
1930	Alick Robert Shephard

Year	Owners: Lot: 6 Section 8 in DP3424
2011 to date	Tony, Raymond, George, Joseph, Robert and Peter Khatter
	Prior Title: Volume:6388 Folio:33
1986	Dinh Vu And Thi Yen Vu
1978	Rafet Sima and Naime Sima
1973	William Bagan and Maria Bagan
1951	Letitia Keren Cameron and Sydney Keith Cameron
	Prior Title: Volume:2716 Folio: 81
1951	Letitia Keren Cameron and Sydney Keith Cameron
1951	Louis Sylvester Turner and Hasel Mary Turner
1923	War Services Homes Comissioner
1913	Fredrick Henry O'Grady

Year	Owners: Lot: 5 Section 8 in DP432751
2011 to date	Carla Khatter
2003	Raymond Khatter
1999	Ihsan Dogan and Neriman Dogan
1994	Davinder Singh Passi and Anita Passi

Year	Owners: Lot: 5 Section 8 in DP432751
	Prior Title: Volume:6379 Folio:179
1972	Hazel Mary Turner
1951	Louis Sylvester Turner and Hazel Mary Turner
	Prior Title: Volume:2716 Folio: 81
1951	Letitia Keren Cameron and Sydney Keith Cameron
1951	Louis Sylvester Turner and Hasel Mary Turner
1923	War Services Homes Comissioner
1913	Fredrick Henry O'Grady

In summary, information provided suggests that the site was occupied by government authorities, private owners and commercial owners.

Copies of the Land Title Information are included in Appendix K - Land Title Information.

5.3 NSW OEH Records

The NSW OEH publishes records of contaminated sites under Section 58 of the Contaminated Land Management (CLM) Act 1997. The notices relate to investigation and/or remediation of site contamination considered to pose a significant risk of harm under the definition in the CLM Act.

A search of the database revealed that the subject site is not listed; however there are eight listed properties within the local government area of Auburn with current notices listed on the database. These properties are not of a concern as they are located more than 500 metres away from the subject site.

It should be noted that the OEH record of Notices for Contaminated Land does not provide a record of all contaminated land in NSW.

Copies of the records are included in Appendix J – OEH Search.

5.4 WorkCover NSW Records

A search of the WorkCover records was not undertaken.

5.5 Council Records

A Council record search was undertaken during the previous assessment, with the following summary provided:

- Council records for 2-4 Vaughan Street went back to 1976.
- May 1976, a DA was approved for the demolition of the existing structure and the construction of a new building.
- November 1976, a DA was approved for the use of the newly constructed building as a dental surgery.
- May 1982, a DA was approved for the construction of a car park.
- November 1984, a DA was approved for the construction of a car park and a licensed club.
- December 1984, a BA was submitted for the construction of a club.
- 1991, a DA was approved for the change of use from club to function centre.
- No records were available for the southern and north-western portions of the site.

5.6 Historical Land Use Summary

In summary:

- Land title information suggests that the site was occupied by government authorities, private owners and commercial owners.
- Aerial photographs indicate that the site has been predominantly been a mix of residential and commercial properties.
- Council records support the use of the site for residential and then commercial uses.

6.0 PREVIOUS ENVIRONMENTAL ASSESSMENTS

One previous environmental investigation was conducted on the site as shown below:

- Environmental Investigations (2011) - "*Stage 1 Environmental Site Assessment, 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW*". (Report no. ES1367.1, dated 31st May 2011).

The investigation comprised of a site history review, a site inspection and reporting. In view of the historical activities and site walkover inspection, areas of environmental concern were subject to potential soil contamination. These areas comprised of the central and eastern part of the site where a car park and commercial activities were conducted; and the entire site where demolition rubble or fill of unknown origin may have used to level the site.

Therefore, it was recommended that a field-based investigation be conducted aiming the identified areas of environmental concern, prior to the development of the site.

A full copy of the report is provided in Appendix M – Previous Report.

7.0 SITE INSPECTION

The site inspection took into account the surrounding environment and aesthetic issues pertaining to the site.

7.1 Site Walkover

Before the Aargus project team (refer to Appendix H – Resumes of Client Team) engaged in borehole drilling and sampling, a site walkover was conducted and information pertinent to the environmental assessment was noted. Aargus took into consideration the following items where they were relevant:

- Description and quality of the building structures/footings;
- Adjoining operations;
- Prior functions and operations within the site;
- Surface water;
- Groundwater;
- Former industrial processes;
- Former raw materials;
- Former raw material transportation;
- Chemicals formerly used on the site;
- Trade waste;
- Hazardous operations;
- Waste Management Practices;
- Underground Storage Tanks;
- Above ground Storage Tanks;
- Review of former roof materials;
- Odour and noise quality; and
- Occupational health and safety.

The main features of the site are presented in the Site Plan (Refer to Appendix A) and site photographs are presented in Appendix G – Site Photographs.

7.2 Chemical Storage

According to the site history, the site has been used for a mixture of commercial and residential land uses. These industries may have stored minor amounts of oils, lubricants, petrol, diesel, gas, paints and other chemicals which would have been used in day-to-day operations. A grease pit was located at the rear of the single-storey building within the central portion of the site.

7.3 Trade Waste

Based on the information gathered regarding the site it was considered unlikely that the site was not a scheduled premise under the Pollution Control and Waste regulations. No search was therefore undertaken.

7.4 Hazardous Materials

There was no hazardous material assessment carried out as part of this scope of works.

7.5 Areas of Environmental Concern

A number of potential areas of environmental concerns were identified at the site, particularly:

- Current & Previous site uses;
- Whole site where uncontrolled fill was imported to level the site prior to the construction of the buildings and the filling of previous low lying areas;
- Where pesticides were potentially utilised within the site for weed control or beneath buildings / floor slabs for termite control;
- Car park areas where leaks and spills from cars may have occurred;
- Vicinity of metal features;
- Stockpiles of demolition waste;
- Stockpiles of soil with fibro-cement sheeting;
- Grease trap; and
- Asbestos / Fibro features within the building structures.

Chemicals of concern associated with each of the identified areas are as follows:

- Previous uses - general suite of chemicals including heavy metals, TPH, BTEX, PAH, OCP & PCB.
- Fill material of unknown quality of origin – general suite of chemicals including heavy metals, TPH, BTEX, PAH, OCP & PCB.
- Possible pesticide treatments – metals & OCP's.
- Car park areas – metals, TPH, BTEX and PAH.
- Vicinity of metal features – metals.
- Stockpiles of demolition waste and soil - heavy metals, TPH, BTEX, PAH, OCP, PCB and asbestos.
- Grease pit – metals, TPH, BTEX & PAH.
- Asbestos / Fibro features – asbestos.

The areas of environmental concern are based upon site observations and anecdotal evidence as well as historical documentation. The evidence within boreholes taken around the site show fill material consisting mainly of Sand and Gravel possibly used to level the site. Foreign materials consisting of gravel, rocks, glass, sandstone and bitumen were noted in a number of the boreholes. Fibro-cement sheeting was noted in a number of areas within the site.

8.0 REVIEW OF QUALITY OF DATA

The DQOs were also prepared using Appendix IV of the Site Auditor Guidelines. These require 7 steps. The steps being:

a. State the problem
b. Identify the decisions
c. Identify inputs to decision
d. Define the study boundaries
e. Develop a decision rule
f. Specify limits on decision errors
g. Optimise the design for obtaining data

8.1 State the problem

The site requires to be confirmed suitable for the proposed development. The site is proposed to be redeveloped and has had some areas of potential concern, those being imported fill of unknown origin, current and previous uses, the possible leaking of vehicles, possible historical pesticide use, metal degradation, stockpiles, grease pit and asbestos.

8.2 Identify the decisions

The decisions made in completing this assessment are as follows:

- Does the site or is the site likely to present a risk of harm to humans or the environment
- Is the site currently suitable for the proposed land use being residential with minimal access to soils
- Is there a potential for soil and groundwater contamination
- Is there a potential for offsite migration issues
- Does the sampling results meet the site criteria proposed
- If not, does the site require remediation works

8.3 Identify inputs to decision

Inputs to the decision include:

- Existing site information
- Site history
- Regional geology, topography and hydrogeology
- Potential contaminants
- Site assessment criteria
- Results as measured against criteria

8.4 Define the study boundaries

The site boundary is identified as the entire boundary of the subject site as shown on the site plan (Appendix A), currently registered as Lot 1 in SP 438, Lots C & D in DP 416771, Lots A & B in DP 432751, Lots 5 & 6 in section 8 in DP 3424 and located at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW.

8.5 Develop a decision rule

The information obtained through this assessment will be used to characterise the soils on the site in terms of contamination issues and risks to human health and the environment. The decision rule in characterising the site will be as follows:

- Laboratory test results will be measured against the criteria provided within this report
- The site will be deemed not contaminated if the following criteria are fulfilled
    - Soil concentrations are within background levels
    - QA/QC shows data can be relied upon
    - Results generally meet regulatory criteria
    - Results are from NATA accredited laboratories
    - Detection limits are below assessment criteria

8.6 Specify limits on decision errors

The limits on decision errors for this assessment are as follows:

- The assessment criteria adopted from the guidelines within this report have risk probabilities already incorporated.
- The acceptable limits for inter/intra laboratory duplicate sample comparisons are laid out within our protocols.
- The acceptable limits for laboratory QA/QC parameters are based upon the laboratory reported acceptable limits and those stated within the NEPM 1999 Guidelines.

8.7 Optimise the design for obtaining data

The design for optimising data was achieved by the location and the collection of soil samples. Samples were placed systematically and at targeted locations equal to the NSW EPA sampling density guidelines (EPA requires between seven and nine locations – the site sampling was conducted at nine (9) locations.

Further to this, only laboratories accredited by NATA for the analysis undertaken were used. The laboratory data was assessed from quality data calculated during this assessment. Field QA/QC protocols adopted and listed within appendices incorporate traceable documentation of procedures used in the sampling and analytical program and in data verification procedures.

9.0 SOIL BORING AND SAMPLING STRATEGY

9.1 Soil sampling

The NSW EPA "Sampling Design Guidelines" (September 1995) shows the minimum number of sampling points for a site of area 2,800 m^2 is between seven and nine.

During this investigation, soil samples were collected from nine boreholes (BH1 to BH9) located on a semi regular grid over the site (modified to allow accesses to sample locations). All fieldwork and borehole logging was conducted by qualified environmental staff (refer Appendix H – Resumes of Client Team). Boreholes were drilled using a stainless steel hand auger. Sampling was conducted on the 8th November 2011.

To reach our stated objectives, a set of seventeen (17) primary soil samples were submitted for analysis on the differing fill and natural soil profiles. One QA/QC intra-laboratory duplicate sample and one rinsate sample were analysed by the NATA accredited laboratories of MGT LabMark (NATA accreditation number 1261). One QA/QC inter-laboratory split sample was analysed by the NATA accredited laboratories of SGS (NATA accreditation number 2562).

The rationale for sampling depths was based upon the targeting of fill and natural soils on site. Samples were targeted in the homogeneous fill material and then within the natural soil profile. Reference may be made to Table 4 in Section 9.3 – Laboratory Analysis for the soil analysis schedule of the recovered samples. The sample locations were chosen to provide site coverage and also target the most likely areas at which potential contamination could occur.

The approximate locations of the boreholes are shown on Figure 2 in Appendix A.

9.2 Surface and Subsurface Conditions

This section should be read in conjunction with site plan (Refer to Appendix A) and the borehole logs (Refer to Appendix D). Hydrocarbon staining was noted in BH7, with no hydrocarbon odours encountered in the remaining soil profiles of the boreholes.

Based on information from all boreholes, the surface and sub-surface profile across the site is generalised as follows:

- Concrete.
- FILL, comprising Silty Clay, Silty Sand, Sand & Gravelly Sand with gravel, rocks, glass, rubbish and bitumen.
- NATURAL, comprising of Clay and Silty Clay, low to medium plasticity, dark brown to brown / orange and grey.

9.3 Laboratory analysis

The samples were selected for analysis based on a combination of sample location and field observations. The soil analysis schedules are shown in the following tables.

Table 4 – Schedule of Laboratory Analysis – Soils

Analyte / Analyte Group / Sample	Depth (m)	TYPE	SAMPLING DATE	DUPLICATE	SPLIT	MET-8	TPH & BTEX	PAH	OCP	PCB
BH1	0.2	F	8.11.2011			✔	✔		✔	
BH1	0.4	N	8.11.2011			✔				
BH2	0.2	F	8.11.2011			✔	✔		✔	
BH2	0.6	N	8.11.2011			✔				
BH3	0.1	F	8.11.2011			✔			✔	
BH3	0.5	N	8.11.2011			✔				
BH4	0.1	F	8.11.2011			✔	✔	✔		
BH4	0.3	F	8.11.2011			✔				
BH5	0.3	F	8.11.2011	D1		✔	✔	✔	✔	✔
BH5	0.5	N	8.11.2011			✔				
BH6	0.3	F	8.11.2011			✔	✔	✔		
BH7	0.3	F	8.11.2011			✔	✔	✔		
BH7	0.4	N	8.11.2011			✔				
BH8	0.4	N	8.11.2011		SS1	✔	✔	✔	✔	✔
BH8	0.6	N	8.11.2011			✔				
BH9	0.4	F	8.11.2011			✔	✔	✔	✔	✔
BH9	0.9	N	8.11.2011			✔				
R1	-	W	8.11.2011			✔				

Notes
MET-8: arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc
OCP : Organochlorine Pesticides
PCB : Polychlorinated Biphenyls
PAH: Polycyclic Aromatic Hydrocarbons
TPH: Total Petroleum Hydrcarbons
BTEX: Benzene, Toluene, Ethyl Benzene, Xylene
F,T,N,W: Fill, Topsoil, Natural, Water

9.4 DQO's for Sampling

The following table provides a list of the data quality objectives for the soil and groundwater sampling and the methods adopted in ensuring that the data quality objectives were met.

Table 5: DQO's for Soil Sampling

DATA QUALITY OBJECTIVE	METHODS OF ACHIEVEMENT
Documentation Completeness	Preparation of chain of custody records Laboratory sample receipt information NATA registered laboratory results certificates
Data Completeness	On site visual assessment of soils Analysis for all potential contaminants of concern
Data Comparability	Using appropriate techniques for sample recovery Experienced samplers used Using appropriate sample storage and transportation methods Use of a NATA registered laboratory
Data Representativeness	Reasonable sampling coverage Representative sampling Representative coverage of contaminants through analysis
Data Precision and Accuracy	Use of trained and qualified field staff Appropriately calibrated equipment used Appropriate industry standard sampling equipment and decontamination procedures Field duplicates and split samples prepared and analysed Acceptable RPD for duplicate and split sample comparisons Check of laboratory quality control methods and results

10.0 QUALITY ASSURANCE / QUALITY CONTROL

10.1 Data Quality Objectives

Data Quality Objectives (DQOs) were created to produce quality assured, accurate and useful data for the sampling plan. Blind samples were split in the field for testing or at the laboratory. Other areas reviewed are:

- sampling methods;
- decontamination procedures;
- sample preservation;
- container type;
- headspace within containers;
- disturbed or undisturbed sampling for organics;
- PQL's;
- preparation of CoC forms;
- review of laboratory surrogate and spike % returns; and
- review of Laboratory duplicate results.

MGT LabMark (primary laboratory) and SGS Laboratory (secondary laboratory) performed all analyses using test methods accredited by the National Association of Testing Authorities (NATA). All data quality objectives were reviewed and met and we therefore conclude that the DQOs were satisfactory for our stated objectives.

The Practical Quantitation Limits (PQLs) of the laboratory analyses were less than the threshold guidelines adopted for the purpose of this investigation, and therefore meet DQOs.

The results of all quality checking have been reviewed and are considered adequate in satisfying the reliability of the results and meet Data Quality Objectives (DQOs).

10.2 Field QA/QC

10.2.1 Sampling Procedures

Aargus procedures followed throughout the field investigation are presented in Appendix F – Aargus fieldwork protocols, which are based on industry accepted standard practice. The work was undertaken by appropriately qualified personnel; see Appendix H – Resumes of Client Team.

Soil sampling was carried out using a stainless steel hang auger. The decontamination of sampling equipment was achieved by washing the equipment with phosphate-free detergent and tap water, followed by a final rinse with distilled water. Decontamination was conducted after the collection of samples at each sample location. Soil samples were placed in 250g clean glass jars, leaving no headspace, and closed using Teflon-coated lids. Samples were then stored in an ice brick-cooled esky and transported to the laboratory under chain of custody conditions.

Samples were taken at varying depths as shown in the Borehole Logs (refer Appendix D – Borehole Logs).

10.2.2 Intra-laboratory Duplicates

One intra-laboratory duplicate sample was collected and analysed in order to assess the variation in analyte concentration between samples collected from the same sampling point. The duplicate sample frequency was computed using the total number of samples analysed as part of this assessment.

The duplicate sample frequencies computed are presented in the following table.

Table 6 – Discrete Soil – Duplicate Sample Analyses

Analyte – Discrete Soil	Samples Analysed	Duplicate Samples	Frequency
Heavy Metals	17	1	6%
TPH/BTEX	8	1	13%
PAH	6	1	17%
OCP	6	1	17%
PCB	3	1	33%

The duplicate frequency for the analytical suite adopted complies with the NEPM, which recommends a duplicate frequency of at least 5%.

It is considered that the number of duplicate samples collected is adequate to assess the variation in analyte concentration between samples collected from the same sampling point. A summary of the test results with the Relative Percentage Difference (RPD) is presented in the following tables. A discussion of the test data is also presented below.

Table 7 – Duplicate D1 – Discrete Soil – RPD's

ANALYTE	BH5 0.3 mg/kg	DUPLICATE D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	9.7	8.9	9
Cadmium	5.2	0.8	147
Chromium	36	24	40
Copper	170	42	121
Nickel	120	46	89
Lead	350	310	12
Zinc	490	240	68
Mercury	0.22	0.14	44
TOTAL PETROLEUM HYDROCARBONS (TPH)			
C6 - C9	<10	<10	-
C10 - C14	<50	<50	-
C15 - C28	<100	<100	-
C29-C36	110	<100	-
BTEX			
Benzene	<0.5	<0.5	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<1.5	<1.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
BENZO(a)PYRENE	<0.5	<0.5	-
Total PAH	<1	<1	-
ORGANOCHLORINE PESTICIDES (OCP)			
Heptachlor	<0.05	<0.05	-
Aldrin	<0.05	<0.05	-
Dieldrin	<0.1	<0.05	-
DDD	<0.1	<0.05	-
DDE	<0.05	<0.05	-
DDT	<0.2	<0.2	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.5	<0.5	-

The comparisons between the intra-laboratory duplicates and corresponding original sample indicated generally acceptable RPD overall, except for the following:

- Cadmium (147%), Copper (121%), Nickel (89%) and Zinc (68%) in Table 7.

The higher RPD's in Table 7 exceeded the DQOs for this project, however this exceedance is not considered to be significant as the concentrations of both samples are at

generally low concentrations and/or the duplicates were prepared from fill materials indicating the inhomogeneous quality of the materials.

Overall, the duplicate sample comparisons indicate that the laboratory test data provided by MGT LabMark are of adequate accuracy and reliability for this assessment.

10.2.3 Inter-laboratory Duplicates

One soil sample was collected and analysed in order to assess the variation in analyte concentration between samples collected from the same sampling point. The inter-laboratory duplicate (split) sample frequency was computed using the total number of samples analysed as part of this assessment.

The split sample frequencies computed are presented in the following table.

Table 8 – Soil – Split Sample Analyses

Analyte – Discrete Soil	Samples Analysed	Split Sample	Frequency
Heavy Metals	17	1	6%
TPH/BTEX	8	1	13%
PAH	6	1	17%
OCP	6	1	17%
PCB	3	1	33%

The split frequency for the analytical suite adopted generally complies with the NEPM, which recommends a frequency of at least 5%.

It is considered that the number of split samples collected is adequate to assess the variation in analyte concentration between samples collected from the same sampling point. A summary of the test results with the Relative Percentage Difference (RPD) is presented in the following table. A discussion of the test data is also presented below.

Table 9 – Split SS1 – Discrete Soil – RPD's

ANALYTE	BH8 0.4 mg/kg	SPLIT SS1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	3.9	6	42
Cadmium	0.3	1.4	129
Chromium	8.2	10	20
Copper	7.7	16	70
Nickel	2.2	4.6	71
Lead	45	900	181
Zinc	86	110	24
Mercury	<0.05	0.08	-
TOTAL PETROLEUM HYDROCARBONS (TPH)			
C6 - C9	<10	<20	-
C10 - C14	<50	<20	-
C15 - C28	100	<50	-
C29-C36	<100	<50	-
BTEX			
Benzene	<0.5	<0.1	-
Toluene	<0.5	<0.1	-
Ethyl Benzene	<0.5	<0.1	-
Total Xylenes	<1.5	<0.3	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
BENZO(a)PYRENE	3	0.31	163
Total PAH	45.0	<4.50	-
ORGANOCHLORINE PESTICIDES (OCP)			
Heptachlor	<0.05	<0.1	-
Aldrin	<0.05	<0.1	-
Dieldrin	<0.05	<0.1	-
DDD	<0.05	<0.2	-
DDE	<0.05	<0.2	-
DDT	<0.05	<0.2	-
Chlordane (trans & cis)	<0.1	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.5	<0.90	-

The comparisons between the inter-laboratory duplicates and corresponding original samples for soil indicated generally acceptable RPD overall, with the exception of the following:

- Cadmium (129%), Copper (70%), Nickel (71%), Lead (181%) and Benzo(a)pyrene (163%) in Table 9.

The higher RPD's exceeded the DQOs for this project, however this exceedance is not considered to be significant as the concentrations of both samples are at generally low concentrations and/or the split was prepared from fill materials indicating the inhomogeneous quality of the materials.

Overall, the duplicate sample comparisons indicate that the laboratory test data provided by SGS are of adequate accuracy and reliability for this assessment.

10.2.4 Rinsate

One rinsate sample was recovered on the day of fieldwork (8th November 2011) in which sampling took place, in order to identify possible cross contamination between the sampling locations.

The laboratory results for the rinsate sample are presented in the following table.

Table 10– Rinsate Sample

ANALYTE	RINSATE R1 (mg/L) 8.11.2011	Practical Quantitation Limits (PQL)
HEAVY METALS		
Arsenic	<0.001	0.001
Cadmium	0.0002	0.0001
Chromium	0.005	0.001
Copper	0.002	0.001
Nickel	<0.001	0.001
Lead	<0.001	0.001
Zinc	<0.005	0.005
Mercury	<0.0001	0.0001

As indicated in Table 10 above, the concentrations of the analytes were found to be the same as or not significantly different to the PQL's, indicating that cross contamination did not take place.

Overall, the cleaning and decontamination processes adopted in the field were found to be adequate.

10.3 Laboratory QA/QC

Collected soil samples were analysed by SGS and MGT LabMark laboratories. Laboratories used within this study are accredited by the National Association of Testing Authorities (NATA) for the analyses undertaken.

The following table lists the allowable holding times, detailed in Schedule B(3) of The National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM) prepared by the National Environment Protection Council (NEPC) and the *Standard Methods for the Examination of Water and Wastewater (APHA)*.

Table 11 – Analyte Holding Times

ANALYTE - Soil	**HOLDING TIME**
Metals *	6 months
Mercury	28 days
Monocyclic Aromatic Hydrocarbons (MAH)	7 days
Total Petroleum Hydrocarbons (TPH)	7 days
Polycyclic Aromatic Hydrocarbons (PAH)	7 days
Organochlorine Pesticides (OCP)	7 days
ANALYTE - Groundwater	**HOLDING TIME**
Metals *	6 months
Mercury	28 days

* Metals include arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni) and zinc (Zn)

The actual holding times of the two laboratories used for this assessment are shown on the following table.

Table 12 – Actual Sample Holding Times

Laboratory	Batch No	Sampling Dates	Sample Receipt	Extraction / Analysis Date	Holding Time
MGT LabMark	317997-S	8.11.2011	9.11.2011	11-15.11.2011	3-7 days
MGT LabMark	317997-W	8.11.2011	9.112011	10.11.2011	2 days
SGS	SE89979	8.11.2011	9.11.2011	9-11.2011	3-6 days

The tests were carried out within the relevant holding times.

Review of the QA/QC results provided with the laboratory reports by the laboratories indicated that the laboratory QAQC was satisfactory for the laboratory analyses undertaken, with the exception of:

- The RPD of the LabMark duplicate soil sample of mercury (sample ID S11-No05574) of 56% which exceeded the Acceptance criteria. This result was due to the low concentrations of both results used to obtain the RPD. In addition, the RPD reported passes mgt-LabMark's Acceptance Criteria as stipulated in SOP 15.
- The RPD of the LabMark duplicate water sample of mercury (sample ID S11-No06655) of 53% which exceeded the Acceptance criteria. This result was due to the low concentrations of both results used to obtain the RPD. In addition, the RPD reported passes mgt-LabMark's Acceptance Criteria as stipulated in SOP 15.

The Practical Quantitation Limits (PQLs) of the laboratory analyses were less than the threshold guidelines adopted for the purpose of this investigation, and therefore meet LABORATORY DQOs.

The results of all quality checking have been reviewed and are considered adequate in satisfying the reliability of the results and meet Data Quality Objectives (DQOs).

10.4 QA/QC for Data Evaluation

The following table provides a list of the data quality indicators for the analytical phase of the assessment and the methods adopted in ensuring that the data quality indicators were met.

Table 13: DQO's for Laboratories

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Data Precision and Accuracy	Use of analytical laboratories experienced in the analyses undertaken, with appropriate NATA certification. NATA accreditation requires adequately trained and experienced testing staff. Field duplicate, and inter-laboratory duplicate / split samples analysed Acceptable RPD for duplicate and split comparison overall Appropriate and validated laboratory test methods used Adequate laboratory performance based on results of the blank samples, matrix spike samples, control samples, duplicates and surrogate spike samples
Data Representativeness	Representative coverage of potential contaminants, based on history, site activities and site features Adequate laboratory internal quality control and quality assurance methods, complying with the NEPM.
Documentation Completeness	Preparation of chain of custody records Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody NATA registered laboratory results certificates provided
Data Comparability	Use of NATA registered laboratories Test methods consistent for each sample Test methods comparable between primary and secondary laboratory Acceptable Relative Percentage Differences between original samples and field duplicates and inter-laboratory duplicate / split samples. Some high RPDs recorded.

Data Completeness	Analysis for all potential contaminants of concern. Field duplicate sample numbers complying with NEPM

Based on the above, it is considered that the quality assurance and quality control data quality indicators have been complied with, both in the field and in the laboratory. As such, it is concluded that the laboratory test data obtained as part of this assessment is reliable and useable for this assessment.

10.5 Conclusion for the QA/QC

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were consistent with Aargus protocols and were found to meet the DQOs for this project. It is therefore considered that the data is sufficiently precise and accurate and that the results can be used for the purpose of this project.

11.0 SITE ASSESSMENT CRITERIA

11.1 Soil

To assess the contamination status of soils at a site, the NSW EPA refers to the document entitled National Environmental Protection Council (1999) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM).

The EPA guidelines indicate that the assessment of soil test results and comparison with defined soil criteria should include consideration of a number of factors such as:

1. Land uses, e.g. residential, agricultural/horticultural, recreation or commercial/industrial;
2. Potential child occupancy;
3. Potential environmental effects including leaching into groundwater;
4. Single or multiple contaminants;
5. Depth of contamination;
6. Level and distribution of contamination;
7. Bioavailability of contaminant(s), e.g. Related to speciation, route of exposure;
8. Toxicological assessment of the contaminant(s), e.g. Toxic kinetics, carcinogenicity, acute and chronic toxicity;
9. Physico-chemical properties of the contaminant(s);
10. State of the site surface, e.g. paved or grassed exposed;
11. Potential exposure pathways; and
12. Uncertainties with the sampling methodology and toxicological assessment.

The proposed development is for a mixed commercial and residential development, comprising of a double level basement car park, ground floor commercial / retail and seven storeys of residential apartments.

With respect to human health, the analytical results are assessed against risk based health investigation (HIL) guidelines appropriate for the site as follows:

- **(HIL 'D') -** *Residential with minimal opportunities for soil access, including high-rise, apartments and flats*.

The NEPM 1999 does not include investigation levels for TPH and BTEX. For assessing contamination by these compounds at sites used for sensitive land use, such as residential, the NSW EPA refers to the NSW EPA (1994) "Guidelines for Assessing Service Station Sites". The NSW EPA has recommended that these threshold values should also be used to assess the suitability of sites for less stringent uses, such as residential with minimal access to the soil or parklands.

The adopted assessment criteria are presented in the following table:

Table 14 – Soil Assessment Criteria

Contaminant	Assessment Criteria (mg/kg)		Source
	HIL 'D'	NSW EPA	
Inorganics			
Arsenic	400	-	NEPM, 1999
Cadmium	80	-	NEPM, 1999
Chromium (III)	48,000	-	NEPM, 1999
Copper	4,000	-	NEPM, 1999
Lead	1,200	-	NEPM, 1999
Zinc	28,000	-	NEPM, 1999
Nickel	2400	-	NEPM, 1999
Mercury	60	-	NEPM, 1999
Organics			
TPH/BTEX			
C_6 to C_9 Fraction	-	65	NSW EPA, 1994
C_{10} to C_{36} Fraction	-	1,000	NSW EPA, 1994
Benzene	-	1	NSW EPA, 1994
Toluene	-	1.4	NSW EPA, 1994
Ethylbenzene	-	3.1	NSW EPA, 1994
Total Xylenes	-	14	NSW EPA, 1994
PAH			
Benzo(a)pyrene	4	-	NEPM, 1999
Total PAH	80	-	NEPM, 1999

Contaminant	Assessment Criteria (mg/kg)		Source
OCP			
Aldrin + Dieldrin	40	-	NEPM, 1999
Chlordane	200	-	NEPM, 1999
DDT+DDD+DDE	800	-	NEPM, 1999
Heptachlor	40	-	NEPM, 1999
PCB (Total)	40	-	NEPM, 1999
Phenol	34,000	-	NEPM, 1999
Cyanide	1,000	-	NEPM, 1999

11.2 Disposal

To assess the waste classification of materials to be disposed of off-site, the NSW OEH refers to the *NSW OEH* (2009) *Waste Classification Guidelines, Part 1: Classifying Waste.*

To classify a non-liquid waste as General Solid Waste or Restricted Solid Waste, the threshold values of the "total concentration without TCLP" (referred to as CT in the text), or the threshold values for the "leachable and total concentration" together can be used.

12.0 ASSESSMENT DISCUSSION

A summary of the test results are presented in the following tables together with the assessment criteria adopted. A discussion of the test data is also presented in the following sub-sections.

Reference may be made to Appendix C - Laboratory Results for the laboratory certificates.

12.1 Soil Results

12.1.1 Heavy Metals

Table 15 – Heavy Metals Test Results

Analyte / Sample Location	Depth (m)	HEAVY METALS (mg/kg) ARSENIC	CADMIUM	CHROMIUM	COPPER	NICKEL	LEAD	ZINC	MERCURY
BH1	0.2	5.2	0.4	13	92	5.3	220	300	0.3
BH1	0.4	2.3	<0.1	12	4.5	2.3	8.6	5.8	<0.05
BH2	0.2	5.3	0.5	11	33	5.2	180	290	0.2
BH2	0.6	5	<0.1	12	16	3.4	38	35	0.11
BH3	0.1	6.2	0.1	15	24	8.4	47	120	0.07
BH3	0.5	7.1	0.8	14	27	8.7	330	760	0.66
BH4	0.1	2.8	0.4	11	21	6.6	140	300	0.11
BH4	0.3	4	0.6	62	42	35	330	340	0.09
BH5	0.3	9.7	5.2	36	170	120	350	490	0.22
BH5	0.5	4	<0.1	8.3	20	4.8	29	79	<0.05
BH6	0.3	2.9	5.6	24	78	74	23	92	<0.05
BH7	0.2	2.3	3.9	11	14	3.2	60	86	1.5
BH7	0.4	3.6	<0.1	8.4	8.2	1.3	63	36	<0.05
BH8	0.4	3.9	0.3	8.2	7.7	2.2	45	86	<0.05
BH8	0.6	5.5	0.2	13	16	7.4	40	40	0.1
BH9	0.3	2.8	1.3	18	8.6	11	150	180	0.15
BH9	0.9	4.3	<0.1	9.2	3.6	2.1	20	35	<0.05
Practical Quantitation Limits (PQL)		1	0.1	2	2	1	2	5	0.05
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)									
Provisional Phytotoxity-Based Investigation Levels		20	3	400/1 [e]	100	60	600	200	1
NATIONAL ENVIRONMENT PROTECTION MEASURE (1999)									
Health Investigation Levels (HIL) [a] (HIL 'A')		100	20	12%/100 [f]	1000	600	300	7000	10/15 [g]
HIL 'D' [b]		**400**	**80**	**48%/400**	**4000**	**2400**	**1200**	**28000**	**40/60**
HIL 'E' [c]		200	40	24%/200	2000	600	600	14000	20/30
HIL 'F' [d]		500	100	60%/500	5000	3000	1500	35000	50/75

a: Residential with gardens and accessible soil including children's day-care centres, preschools, primary schools, townhouses and villas.

b: Residential with minimal opportunities for soil access, including high-rise, apartments and flat

c: Parks, recreational open space and playing fields, including secondary schools

d: Commercial or industrial development

e: 400mg/kg for Chromium (+3) and 1mg/kg for Chromium (+6). Chromium (Cr) may exist in a number of states. Cr (+6) is easily reduced to form the most stable Cr (+3) whenever exposed to the atmosphere. Therefore Cr (+3) is adopted for this assessment.

f: 12% (120000mg/kg) for Chromium (+3) and 100mg/kg for Chromium (+6).

g: 10mg/kg for Methyl Mercury and 15mg/kg for Inorganic Mercury.

As shown in Table 15, the concentrations of metals for the soils were below the assessment criteria those being HIL 'D'.

12.1.2 TPH & BTEX

Table 16 – TPH & BTEX Test Results

Analyte / Sample Location	Depth (m)	TPH (mg/kg) C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 [a]	BTEX (mg/kg) BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
BH1	0.2	<10	<50	120	120	240	<0.5	<0.5	<0.5	<1.5
BH2	0.2	<10	<50	<100	<100	<100	<0.5	<0.5	<0.5	<1.5
BH4	0.1	<10	<50	130	110	240	<0.5	<0.5	<0.5	<1.5
BH5	0.3	<10	<50	<100	110	110	<0.5	<0.5	<0.5	<1.5
BH6	0.3	<10	<50	<100	<100	<100	<0.5	<0.5	<0.5	<1.5
BH7	0.2	<10	<50	<100	<100	<100	<0.5	<0.5	<0.5	<1.5
BH8	0.4	<10	<50	100	<100	100	<0.5	<0.5	<0.5	<1.5
BH9	0.3	<10	<50	<100	<100	<100	<0.5	<0.5	<0.5	<1.5
Practical Quantitation Limits (PQL)		10	50	100	100	NA	0.5	0.5	0.5	1.5
EPA Levels [b]		65	C10-C36 =1000				1	1.4	3.1	14

a: C10-C36 = (C10-C14) + (C15-C28) + (C29-C36); concentrations less than PQL are assumed equal to PQL.
b: Contaminated Sites: "Guidelines for Assessing Service Station Sites", 1994, EPA
NA: Not Applicable

As indicated in Table 16 above, TPH & BTEX concentrations were all below the suggested levels in the EPA Service Station.

12.1.3 B(a)P, Total PAH, OCP & PCB

Table 17 – B(a)P, Total PAH, OCP & PCB Test Results

Analyte / Sample Location	Depth (m)	PAH (mg/kg)		Organochlorine Pesticides (mg/kg)							
		BENZO(a)PYRENE (mg/kg)	TOTAL PAH (mg/kg)	HEPTACHLOR	ALDRIN	DIELDRIN	DDD	DDE	DDT	CHLORDANE (trans & cis)	TOTAL PCB (mg/kg)
BH1	0.2	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-
BH2	0.2	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-
BH3	0.1	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-
BH4	0.1	2.8	33	-	-	-	-	-	-	-	-
BH5	0.3	<0.5	<1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	<0.5
BH6	0.3	<0.5	<1	-	-	-	-	-	-	-	-
BH7	0.2	<0.5	<1	-	-	-	-	-	-	-	-
BH8	0.4	3	45	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	<0.5
BH9	0.3	0.7	5.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	<0.5
Practical Quantitation Limits (PQL)		0.5	NA	0.05	0.05	0.05	0.05	0.05	0.2	0.1	0.5
NATIONAL ENVIRONMENT PROTECTION MEASURE (1999)											
Health Investigation Levels (HIL) [a] (HIL 'A')		1	20	10	10 [e]	10 [e]	200 [f]			50	10
HIL 'D' [b]		**4**	**80**	**40**	**40**	**40**	**800**			**200**	**20**
HIL 'E' [c]		2	40	20	20	20	400			100	40
HIL 'F' [d]		5	100	50	50	50	1000			250	50

a: Residential with gardens and accessible soil including children's day-care centres, preschools, primary schools, townhouses and villas.
b: Residential with minimal opportunities for soil access, including high-rise, apartments and
c: Parks, recreational open space and playing fields, including secondary schools
d: Commercial or industrial development
e: Aldrin + Dieldrin
f: Total of DDD + DDE + DDT
NA: Not Applicable

As shown in Table 17, the concentrations of benzo(a)pyrene, total PAH, OCP & PCB for the soils were below the assessment criteria those being HIL 'D'.

13.0 CONCLUSIONS AND RECOMMENDATIONS

Aargus Pty Ltd was appointed by Mr Tony Khattar to conduct an Environmental Site Assessment (ESA) of the property situated at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW ('the site'). The proposed development is for a mixed commercial and residential development, comprising of a double level basement car park, ground floor commercial / retail and seven storeys of residential apartments.

Historical information indicates that:

- Land title information suggests that the site was occupied by government authorities, private owners and commercial owners.
- Aerial photographs indicate that the site has been predominantly been a mix of residential and commercial properties.
- Council records support the use of the site for residential and then commercial uses.

A number of potential areas of environmental concerns were identified at the site, particularly:

- Current & Previous site uses;
- Whole site where uncontrolled fill was imported to level the site prior to the construction of the buildings and the filling of previous low lying areas;
- Where pesticides were potentially utilised within the site for weed control or beneath buildings / floor slabs for termite control;
- Car park areas where leaks and spills from cars may have occurred;
- Vicinity of metal features;
- Stockpiles of demolition waste;
- Stockpiles of soil with fibro-cement sheeting;
- Grease trap; and
- Asbestos / Fibro features within the building structures.

During this investigation, soil samples were collected from nine (9) boreholes (BH1 to BH9) located on a semi regular grid over the site (modified to allow accesses to sample locations). Boreholes were drilled using a stainless steel hand auger. Sampling was conducted on the 8th November 2011.

To reach our stated objectives, a set of seventeen (17) primary soil samples were submitted for analysis on the differing fill and natural soil profiles. One QA/QC intra-laboratory duplicate sample and one rinsate sample were analysed by the NATA accredited laboratories of MGT LabMark. One QA/QC inter-laboratory split sample was analysed by the NATA accredited laboratories of SGS.

The assessment criteria adopted were the available Health Investigation Levels (HIL's) for *residential use with minimal access to the soil* (HIL 'D') and the suggested levels in the EPA service station guidelines.

Laboratory results and QA/QC data fulfil the DQOs. The results are therefore considered a reliable basis for the following conclusions and recommendations. Laboratory results for the soil samples analysed were lower than the relevant regulatory guideline criteria adopted, those being HIL 'D' and EPA Service Station guidelines.

In Summary

Based on the results of this investigation it is considered that the risks to human health and the environment associated with soil contamination at the site are low in the context of the proposed use of the site for a mixed use development with two level basement car park. The site is therefore considered ***to be suitable*** for the proposed use, subject to the following:

- Any fibro-cement pieces verified to contain asbestos should be disposed of by a licensed contractor.
- A hygienist should provide a clearance certificate once all asbestos has been removed from the site.

- An inspection of the soils beneath the grease pit should take place once the pit has been removed to determine the quality of the soils.
- All soils (fill and natural), in particular the stockpiles of soil, that require removal from the site as part of the construction of the basement, should be classified in accordance with the "*Waste Classification Guidelines, Part 1: Classifying Waste" NSW* DECC (2009).

If during any potential site works, significant odours and / or evidence of gross contamination not previously detected are encountered, or any other significant unexpected occurrence, site works should cease in that area, at least temporarily, and the environmental consultant should be notified immediately to set up a response to this unexpected occurrence.

We would be pleased to provide further information on any aspects of this report.

For and on behalf of

Aargus Pty Ltd **Reviewed By**

Michael Silk **Mark Kelly**

Environmental Scientist Environmental Manager

LIMITATIONS OF ASSESSMENT

Whilst to the best of our knowledge, information contained in this report is accurate at the date of issue, although subsurface conditions, including groundwater levels and contaminant concentrations, can change in a limited time. This should be borne in mind if the report is used after a protracted delay.

There is always some disparity in subsurface conditions across a site that cannot be fully defined by investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during environmental works carried out at a site will characterise the extremes of conditions that exist within the site.

There is no investigation that is thorough enough to preclude the presence of material that presently or in the future, may be considered hazardous at the site. Since regulatory criteria are constantly changing, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards that require remediation.

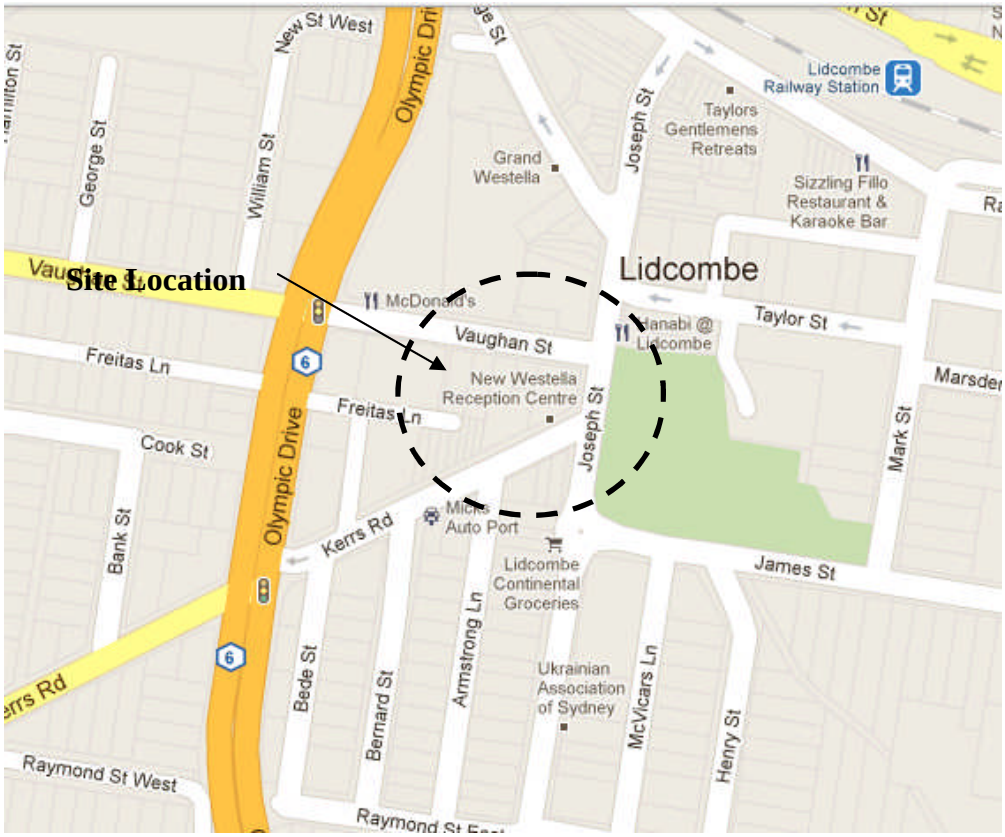
Opinions are judgements, which are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions.

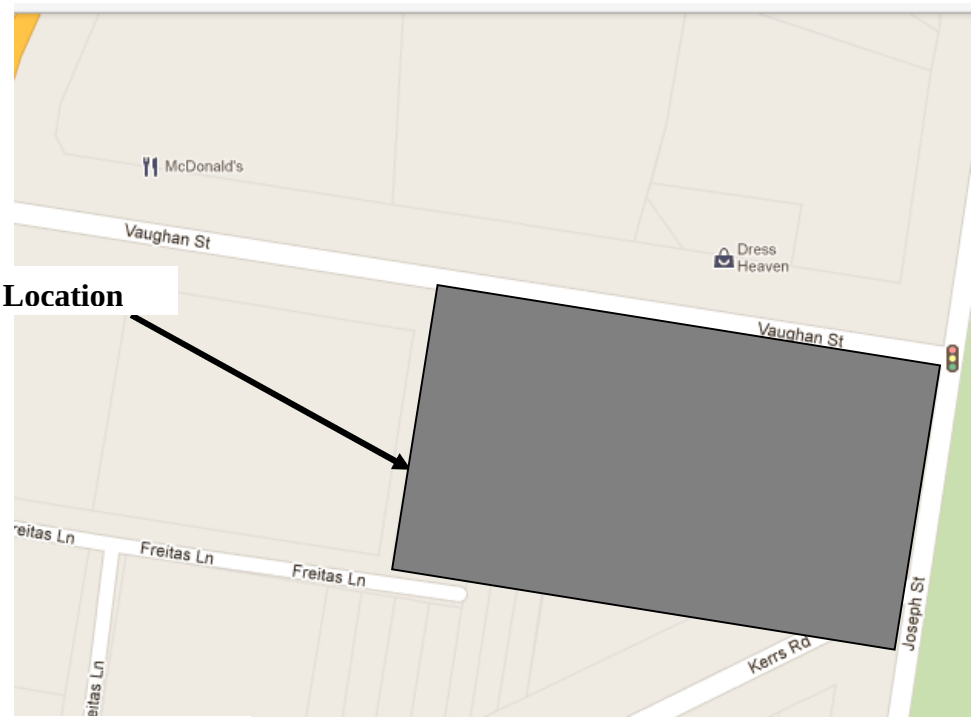
Appendix B – Important information about your environmental report should also be read in conjunction with this report.

APPENDIX A

LOCALITY MAP & SITE PLAN

LOCALITY MAP





Reference: Google Maps (2011)

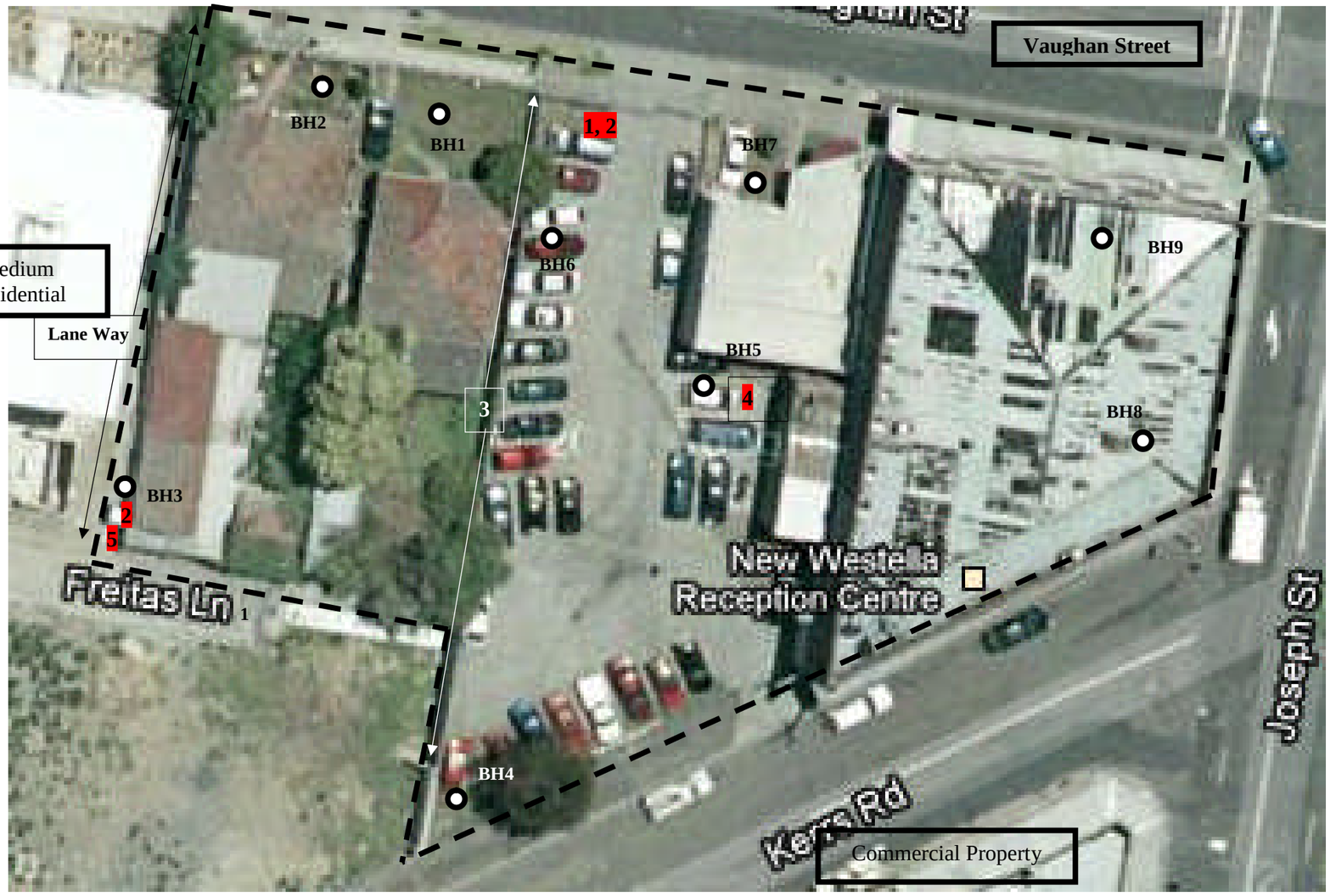
ABN 46 063 579 313 Aargus Pty Limited Environment – Chemicals – Business Development

Drawn	AW	**Environmental Site Assessment Mr Tony Khattar 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe NSW**	Aargus AUSTRALIA	Figure 1
Approved	MK			
Date	16/11/2011			
Scale	N/A			Job No: ES4703

SITE PLAN

N

Commercial Property



Public Park

Key

Stockpiled waste, including inert building materials, sandstone and bitumen.	1
Asbestos Waste	2
Besa Brick Wall (~3m x ~20m)	3
Grease Trap	4
Domestic Waste	5
Steel and Timber Waste	6

ABN 46 063 579 313 Aargus Pty Limited Environment – Remediation – Geotechnical Engineering

Source: Google Earth 2011

Drawn	AW
Approved	MK
Date	04/11/2011
Approx Scale	N/A

Environmental Site Assessment
Mr Tony Khattar
2-8 Vaughan Streets and 1-15 Kerrs Road, Lidcombe NSW

Aargus AUSTRALIA

Fig 2

ES4703

APPENDIX B

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL REPORT

Aargus

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL SITE ASSESSMENT

These notes have been prepared by Aargus (Australia) Pty Ltd and its associated companies using guidelines prepared by ASFE (The Association) of Engineering Firms Practising in the Geo-sciences. They are offered to help you in the interpretation of your Environmental Site Assessment (ESA) reports.

REASONS FOR CONDUCTING AN ESA

ESA's are typically, though not exclusively, carried out in the following circumstances:

- as pre-acquisition assessments, on behalf of either purchaser or vender, when a property is to be sold;
- as pre-development assessments, when a property or area of land is to be redeveloped or have its use changed for example, from a factory to a residential subdivision;
- as pre-development assessments of greenfield sites, to establish "baseline" conditions and assess environmental, geological and hydrological constraints to the development of, for example, a landfill; and
- as audits of the environmental effects of an ongoing operation.

Each of these circumstances requires a specific approach to the assessment of soil and groundwater contamination. In all cases however, the objective is to identify and if possible quantify the risks that unrecognised **c**ontamination poses to the proposed activity. Such risks may be both financial, for example, cleanup costs or limitations on site use, and physical, for example, health risks to site users or the public.

THE LIMITATIONS OF AN ESA

Although the information provided by an ESA could reduce exposure to such risks, no ESA, however, diligently carried out can eliminate them. Even a rigorous professional assessment may fail to 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.

AN ESA REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

Your environmental report should not be used:

- when the nature of the proposed development is changed, for example, if a residential development is proposed instead of a commercial one;
- when the size or configuration of the proposed development is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership
- or for application to an adjacent site.

To help avoid costly problems, refer to your consultant to determine how any factors, which have changed subsequent to the date of the report, may affect its recommendations.

ESA "FINDINGS" ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists who then render an opinion about overall subsurface conditions, the nature and extent of contamination, its likely impact on the proposed development and appropriate remediation measures. Actual conditions may differ from those inferred to exist, 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 a report indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to help minimise its impact. For this reason owners should retain the services of their consultants

through the development stage, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

SUBSURFACE CONDITIONS CAN CHANGE

Natural processes and the activity of man change subsurface conditions. As an ESA report is based on conditions, which existed at the time of subsurface exploration, decisions should not be based on an ESA report whose adequacy may have been affected by time. Speak with the consultant to learn if additional tests are advisable.

ESA SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Every study and ESA report is prepared in response to a specific brief to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. Other persons should not use a report for any purpose, or by the client for a different purpose. No individual other than the client should apply a report even apparently for its intended purpose without first conferring with the consultant. No person should apply a report for any purpose other than that originally contemplated without first conferring with the consultant.

AN ESA REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when design professionals develop their plans based on misinterpretations of an ESA. To help avoid these problems, the environmental consultant should be retained to work with appropriate design professionals to explain relevant findings and to review the adequacy of their plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FROM THE ENGINEERING REPORT

Final borehole or test pit logs are developed by environmental scientists, engineers or geologists based upon their interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final logs customarily included in our reports. These logs should not under any circumstances be redrawn for inclusion in site remediation or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimise the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To reduce the likelihood of boring log misinterpretation, the complete report must be available to persons or organisations involved in the project, such as contractors, for their use. Those who o not provide such access may proceed under the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing all the available information to persons and organisations such as contractors helps prevent costly construction problems and the adversarial attitudes that may aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because an ESA 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 transmittals. These are not exculpatory clauses designed to foist liabilities onto some other party. Rather, they are definitive clauses that identify where your consultant's responsibilities begin and end. Their use helps all parties involved recognise their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your ESA report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

APPENDIX C

LABORATORY RESULTS

ANALYTICAL REPORT

18 November 2011

Aargus Pty Ltd
446 Parramatta Road
PETERSHAM
NSW 2049

Attention: **Mark Kelly**

Your Reference: ES4703 - Lidcombe

Our Reference: SE89979 Samples: 1 Soil
Received: 8/11/11

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of:
SGS ENVIRONMENTAL SERVICES

Sample Receipt:	Angela Mamalicos	AU.SampleReceipt.Sydney@sgs.com
Production Manager:	Huong Crawford	Huong.Crawford@sgs.com

Results Approved and/or Authorised by:

Dong Liang
Inorganic/Metal Supervisor

Ly Kim Ha
Organics Signatory

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MBTEX in Soil		
Our Reference:	UNITS	SE89979-1
Your Reference	----------	SS1
Sample Matrix	----------	Soil
Date Sampled		8/11/2011
Date Extracted (MBTEX)		9/11/2011
Date Analysed (MBTEX)		9/11/2011
Methyl-tert-butyl ether (MtBE)	mg/kg	<0.1
Benzene	mg/kg	<0.1
Toluene	mg/kg	<0.1
Ethylbenzene	mg/kg	<0.1
Total Xylenes	mg/kg	<0.3
BTEX Surrogate (%)	%	70

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TRH in soil with..C6-C9 by P/T Our Reference: Your Reference Sample Matrix Date Sampled	 UNITS ---------- ---------- 	 SE89979-1 SS1 Soil 8/11/2011
Date Extracted (TRH C6-C9 PT)		9/11/2011
Date Analysed (TRH C6-C9 PT)		9/11/2011
TRH C_6 - C_9 P&T	mg/kg	<20
Date Extracted (TRH C10-C36)		9/11/2011
Date Analysed (TRH C10-C36)		9/11/2011
TRH C_{10} - C_{14}	mg/kg	<20
TRH C_{15} - C_{28}	mg/kg	<50
TRH C_{29} - C_{36}	mg/kg	<50

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PAHs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	 SE89979-1 SS1 Soil 8/11/2011
Date Extracted		9/11/2011
Date Analysed		9/11/2011
Naphthalene	mg/kg	<0.10
2-Methylnaphthalene	mg/kg	<0.10
1-Methylnaphthalene	mg/kg	<0.10
Acenaphthylene	mg/kg	<0.10
Acenaphthene	mg/kg	<0.10
Fluorene	mg/kg	<0.10
Phenanthrene	mg/kg	0.44
Anthracene	mg/kg	0.13
Fluoranthene	mg/kg	0.73
Pyrene	mg/kg	0.70
Benzo[*a*]anthracene	mg/kg	0.37
Chrysene	mg/kg	0.27
Benzo[*b,k*]fluoranthene	mg/kg	0.49
Benzo[*a*]pyrene	mg/kg	0.31
Indeno[*123-cd*]pyrene	mg/kg	0.17
Dibenzo[*ah*]anthracene	mg/kg	<0.10
Benzo[*ghi*]perylene	mg/kg	0.19
Total PAHs (sum)	mg/kg	<4.50
Nitrobenzene-d5	%	96
2-Fluorobiphenyl	%	89
-*p*erphenyl- *d14*	%	100

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OC Pesticides in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ---------- 	 SE89979-1 SS1 Soil 8/11/2011
Date Extracted		9/11/2011
Date Analysed		9/11/2011
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC (Lindane)	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
Aldrin	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
o,p-DDE	mg/kg	<0.1
alpha-Endosulfan	mg/kg	<0.1
trans-Chlordane *(gamma)*	mg/kg	<0.1
cis-Chlordane *(alpha)*	mg/kg	<0.1
trans-Nonachlor	mg/kg	<0.1
p,p-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
o,p-DDD	mg/kg	<0.1
o,p-DDT	mg/kg	<0.1
beta-Endosulfan	mg/kg	<0.1
p,p-DDD	mg/kg	<0.1
p,p-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Endrin Ketone	mg/kg	<0.1
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	104

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PCBs in Soil Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ----------	 SE89979-1 SS1 Soil 8/11/2011
Date Extracted		9/11/2011
Date Analysed		9/11/2011
Arochlor 1016	mg/kg	<0.1
Arochlor 1221	mg/kg	<0.1
Arochlor 1232	mg/kg	<0.1
Arochlor 1242	mg/kg	<0.1
Arochlor 1248	mg/kg	<0.1
Arochlor 1254	mg/kg	<0.1
Arochlor 1260	mg/kg	<0.1
Arochlor 1262	mg/kg	<0.1
Arochlor 1268	mg/kg	<0.1
Total Positive PCB	mg/kg	<0.90
PCB_Surrogate 1	%	104

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Metals in Soil by ICP-OES Our Reference: Your Reference Sample Matrix Date Sampled	UNITS ---------- ---------- 	SE89979-1 SS1 Soil 8/11/2011
Date Extracted (Metals)		9/11/2011
Date Analysed (Metals)		9/11/2011
Arsenic	mg/kg	6
Cadmium	mg/kg	1.4
Chromium	mg/kg	10
Copper	mg/kg	16
Lead	mg/kg	900
Nickel	mg/kg	4.6
Zinc	mg/kg	110

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Mercury Cold Vapor/Hg Analyser		
Our Reference:	UNITS	SE89979-1
Your Reference	----------	SS1
Sample Matrix	----------	Soil
Date Sampled		8/11/2011
Date Extracted (Mercury)		11/11/2011
Date Analysed (Mercury)		11/11/2011
Mercury	mg/kg	0.08

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Moisture		
Our Reference:	UNITS	SE89979-1
Your Reference	----------	SS1
Sample Matrix	----------	Soil
Date Sampled		8/11/2011
Date Analysed (moisture)		9/11/2011
Moisture	%	17

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Method ID	Methodology Summary
AN410	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B.
AN403	Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C_6-C_9, C_{10}-C_{14}, C_{15}-C_{28} and C_{29}-C_{36}, in accordance with the Australian Institute of Petroleum (AIP). Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the elluent solvents. The GC/FID method is not well suited to the analysis of refined high boiling point materials (i.e. lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol (if care to control volatility is taken). This method will detect naturally occurring hydrocarbons, lipids, organic acids, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN422	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode. Based on USEPA 8270 and 8310.
AN400	The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN320	Determination of elements by ICP-OES following appropriate sample preparation / digestion process. Based on USEPA 6010C / APHA 21st Edition, 3120B.
AN312	After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112B/3500
AN002	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105 ± 5°C.

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QUALITY CONTROL MBTEX in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (MBTEX)				9/11/11	SE89979-1	9/11/2011 || 9/11/2011	LCS	8/11/11
Date Analysed (MBTEX)				9/11/11	SE89979-1	9/11/2011 || 9/11/2011	LCS	8/11/11
Methyl-tert-butyl ether (MtBE)	mg/kg	0.1	AN410	<0.1	SE89979-1	<0.1 || <0.1	LCS	71%
Benzene	mg/kg	0.1	AN410	<0.1	SE89979-1	<0.1 || <0.1	LCS	86%
Toluene	mg/kg	0.1	AN410	<0.1	SE89979-1	<0.1 || <0.1	LCS	63%
Ethylbenzene	mg/kg	0.1	AN410	<0.1	SE89979-1	<0.1 || <0.1	LCS	92%
Total Xylenes	mg/kg	0.3	AN410	<0.3	SE89979-1	<0.3 || <0.3	LCS	96%
BTEX Surrogate (%)	%	0	AN410	67	SE89979-1	70 || 97 || RPD: 32	LCS	77%

QUALITY CONTROL TRH in soil with..C6-C9 by P/T	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)				9/11/11	SE89979-1	9/11/2011 || 9/11/2011	LCS	8/11/11
Date Analysed (TRH C6-C9 PT)				9/11/11	SE89979-1	9/11/2011 || 9/11/2011	LCS	8/11/11
TRH C_6 - C_9 P&T	mg/kg	20	AN410	<20	SE89979-1	<20 || <20	LCS	122%
Date Extracted (TRH C10-C36)				9/11/2011	SE89979-1	9/11/2011 || [N/T]	LCS	9/11/2011
Date Analysed (TRH C10-C36)				9/11/2011	SE89979-1	9/11/2011 || [N/T]	LCS	9/11/2011
TRH C_{10} - C_{14}	mg/kg	20	AN403	<20	SE89979-1	<20 || [N/T]	LCS	108%
TRH C_{15} - C_{28}	mg/kg	50	AN403	<50	SE89979-1	<50 || [N/T]	LCS	100%
TRH C_{29} - C_{36}	mg/kg	50	AN403	<50	SE89979-1	<50 || [N/T]	LCS	88%

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QUALITY CONTROL PAHs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				9/11/2011	[NT]	[NT]	LCS	9/11/2011
Date Analysed				9/11/2011	[NT]	[NT]	LCS	9/11/2011
Naphthalene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	98%
2-Methylnaphthalene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
1-Methylnaphthalene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Acenaphthylene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	105%
Acenaphthene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	106%
Fluorene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Phenanthrene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	103%
Anthracene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	111%
Fluoranthene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	108%
Pyrene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	110%
Benzo[*a*]anthracene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Benzo[*b,k*]fluoranthene	mg/kg	0.2	AN422	<0.20	[NT]	[NT]	[NR]	[NR]
Benzo[*a*]pyrene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	LCS	111%
Indeno[*123-cd*]pyrene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Dibenzo[*ah*]anthracene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Benzo[*ghi*]perylene	mg/kg	0.1	AN422	<0.10	[NT]	[NT]	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.8	AN422	<1.8	[NT]	[NT]	[NR]	[NR]
Nitrobenzene-d5	%	0	AN422	103	[NT]	[NT]	LCS	101%
2-Fluorobiphenyl	%	0	AN422	93	[NT]	[NT]	LCS	95%
p-Terphenyl-*d*14	%	0	AN422	107	[NT]	[NT]	LCS	110%

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QUALITY CONTROL OC Pesticides in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				9/11/11	[NT]	[NT]	LCS	9/11/11
Date Analysed				9/11/11	[NT]	[NT]	LCS	9/11/11
HCB	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Heptachlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	116%
Aldrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	105%
beta-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
delta-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	94%
Heptachlor Epoxide	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
o,p-DDE	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
trans-Chlordane *(gamma)*	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
cis-Chlordane *(alpha)*	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
trans-Nonachlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDE	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Dieldrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	103%
Endrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	108%
o,p-DDD	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
o,p-DDT	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
beta-Endosulfan	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDD	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDT	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	113%
Endosulfan Sulphate	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Methoxychlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	0	AN400	104	[NT]	[NT]	LCS	92%

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QUALITY CONTROL PCBs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				9/11/11	[NT]	[NT]	LCS	9/11/11
Date Analysed				9/11/11	[NT]	[NT]	LCS	9/11/11
Arochlor 1016	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1260	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	118%
Arochlor 1262	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1268	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Total Positive PCB	mg/kg	0.9	AN400	<0.90	[NT]	[NT]	[NR]	[NR]
PCB_Surrogate 1	%	0	AN400	104	[NT]	[NT]	LCS	99%

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals)				09/11/2011	[NT]	[NT]	LCS	09/11/2011
Date Analysed (Metals)				09/11/2011	[NT]	[NT]	LCS	09/11/2011
Arsenic	mg/kg	3	AN320	<3	[NT]	[NT]	LCS	101%
Cadmium	mg/kg	0.3	AN320	<0.3	[NT]	[NT]	LCS	102%
Chromium	mg/kg	0.3	AN320	<0.3	[NT]	[NT]	LCS	102%
Copper	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	102%
Lead	mg/kg	1	AN320	<1	[NT]	[NT]	LCS	100%
Nickel	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	104%
Zinc	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	102%

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QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				11/11/2011	[NT]	[NT]	LCS	11/11/2011
Date Analysed (Mercury)				11/11/2011	[NT]	[NT]	LCS	11/11/2011
Mercury	mg/kg	0.05	AN312	<0.05	[NT]	[NT]	LCS	104%

QUALITY CONTROL Moisture	UNITS	LOR	METHOD	Blank
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

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Result Codes

[INS] : Insufficient Sample for this test
[NR] : Not Requested
[NT] : Not tested
[LOR] : Limit of reporting
[RPD] : Relative Percentage Difference
* : Not part of NATA Accreditation
[N/A] : Not Applicable

Report Comments

Samples analysed as received. Solid samples expressed on a dry weight basis.
Date Organics extraction commenced:
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans*)
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Quality Control Protocol

Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-11.pdf

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Certificate of Analysis

Aargus Environmental
446 Parramatta Road
Petersham
NSW 2049

Attention: Mark Kelly

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Report	317997-W
Client Reference	LIDCOMBE ES4703
Received Date	Nov 09, 2011

Client Sample ID			**R1**
Sample Matrix			**Water**
mgt-LabMark Sample No.			**S11-No05575**
Date Sampled			**Nov 08, 2011**
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	< 0.001
Cadmium (filtered)	0.0001	mg/L	0.0002
Chromium (filtered)	0.001	mg/L	0.005
Copper (filtered)	0.001	mg/L	< 0.001
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	< 0.001
Zinc (filtered)	0.005	mg/L	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

Description	Testing Site	Extracted	Holding Time
Metals M8 filtered - Method: E020/E030 Filtered Metals in Water, E026 Mercury	Sydney	Nov 10, 2011	28 Day

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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600

Company Name: Aargus Pty Ltd
Address: 446 Parramatta Road
Petersham
NSW 2049

Order No.:
Report #: 317997
Phone: 1300 137 038
Fax: 1300 136 038

Received: Nov 9, 2011 2:00 PM
Due: Nov 16, 2011 4:00 PM
Priority: 5 Day
Contact name: Mark Kelly

Client Job No.: LIDCOMBE ES4703

mgt-LabMark Client Manager: Onur Mehmet

Sample Detail					% Moisture	Filtering	Metals M8	Metals M8 filtered	Organochlorine Pesticides (OC)	mgt-LabMark Suite 13	mgt-LabMark Suite 6	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site #1261												
Sydney Laboratory - NATA Site #1645					X	X	X	X	X	X	X	X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
BH1 0.2	Nov 08, 2011		Soil	S11-No05557	X				X		X	
BH1 0.4	Nov 08, 2011		Soil	S11-No05558	X		X					
BH2 0.2	Nov 08, 2011		Soil	S11-No05559	X				X		X	
BH2 0.6	Nov 08, 2011		Soil	S11-No05560	X		X					
BH3 0.1	Nov 08, 2011		Soil	S11-No05561	X		X		X			
BH3 0.5	Nov 08, 2011		Soil	S11-No05562	X		X					
BH4 0.1	Nov 08, 2011		Soil	S11-No05563	X							X
BH4 0.3	Nov 08, 2011		Soil	S11-No05564	X		X					
BH5 0.3	Nov 08, 2011		Soil	S11-No05565	X					X		X
BH5 0.5	Nov 08, 2011		Soil	S11-No05566	X		X					
BH6 0.3	Nov 08, 2011		Soil	S11-No05567	X							X
BH7 0.2	Nov 08, 2011		Soil	S11-No05568	X							X

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Sample Detail					% Moisture	Filtering	Metals M8	Metals M8 filtered	Organochlorine Pesticides (OC)	mgt-LabMark Suite 13	mgt-LabMark Suite 6	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site #1261												
Sydney Laboratory - NATA Site #1645					X	X	X	X	X	X	X	X
BH7 0.4	Nov 08, 2011		Soil	S11-No05569	X		X					
BH8 0.4	Nov 08, 2011		Soil	S11-No05570	X					X		X
BH8 0.6	Nov 08, 2011		Soil	S11-No05571	X		X					
BH9 0.3	Nov 08, 2011		Soil	S11-No05572	X					X		X
BH9 0.9	Nov 08, 2011		Soil	S11-No05573	X		X					
D1	Nov 08, 2011		Soil	S11-No05574	X					X		X
R1	Nov 08, 2011		Water	S11-No05575		X		X				

mgt-LabMark Internal Quality Control Review

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis.
7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001)

For samples received on the last day of holding time, notification of testing requirements should have been received at least

6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as an RPD

UNITS

mg/kg:milligrams per Kilogram

mg/L:milligrams per litre

µg/L:micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%:Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

TERMS

Dry:	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR:	Limit Of Reporting.
SPIKE:	Addition of the analyte to the sample and reported as percentage recovery.
RPD:	Relative Percent Difference between two Duplicate pieces of analysis.
LCS:	Laboratory Control Sample - reported as percent recovery.
CRM:	Certified Reference Material - reported as percent recovery.
Method Blank:	In the case of solid samples these are performed on laboratory certified clean sands.
	In the case of water samples these are performed on de-ionised water.
Surr - Surrogate:	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate:	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate:	A second piece of analysis from a sample outside of the client's batch of samples but run within the laboratory batch of analysis.
Batch SPIKE:	Spike recovery reported on a sample from outside of the client's batch of samples but run within the laboratory batch of analysis.
USEPA:	U.S Environmental Protection Agency
APHA:	American Public Health Association
ASLP:	Australian Standard Leaching Procedure (AS4439.3)
TCLP:	Toxicity Characteristic Leaching Procedure
COC:	Chain Of Custody
SRA:	Sample Receipt Advice
CP:	Client Parent - QC was performed on samples pertaining to this report
NCP:	Non-Client Parent - QC was performed on samples not pertaining to this report, however QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample>
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data below the LOR with a positive RPD - eg: LOR 0.1, Result A = <0.1 (raw data is 0.02) & Result B = <0.1 (raw data is 0.03) resulting in a RPD of 40% calculated from the raw data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Metals M8 filtered E020/E030 Filtered Metals in Water, E026 Mercury							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0001			0.0001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Metals M8 filtered E020/E030 Filtered Metals in Water, E026 Mercury							
Arsenic (filtered)	%	102			70-130	Pass	
Cadmium (filtered)	%	98			70-130	Pass	
Chromium (filtered)	%	94			70-130	Pass	
Copper (filtered)	%	95			70-130	Pass	
Lead (filtered)	%	103			70-130	Pass	
Mercury (filtered)	%	94			70-130	Pass	
Nickel (filtered)	%	96			70-130	Pass	
Zinc (filtered)	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Metals M8 filtered				Result 1					
Arsenic (filtered)	S11-No03595	NCP	%	99			70-130	Pass	
Cadmium (filtered)	S11-No03595	NCP	%	110			70-130	Pass	
Chromium (filtered)	S11-No03595	NCP	%	107			70-130	Pass	
Copper (filtered)	S11-No03595	NCP	%	107			70-130	Pass	
Lead (filtered)	S11-No03595	NCP	%	105			70-130	Pass	
Mercury (filtered)	S11-No06656	NCP	%	92			70-130	Pass	
Nickel (filtered)	S11-No03595	NCP	%	110			70-130	Pass	
Zinc (filtered)	S11-No03595	NCP	%	111			70-130	Pass	
Duplicate									
Metals M8 filtered				Result 1	Result 2	RPD			
Arsenic (filtered)	S11-No03590	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S11-No03590	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Chromium (filtered)	S11-No03590	NCP	mg/L	< 0.001	0.0011	27	30%	Pass	
Copper (filtered)	S11-No03590	NCP	mg/L	< 0.001	< 0.001	9	30%	Pass	
Lead (filtered)	S11-No03590	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S11-No06655	NCP	mg/L	< 0.0001	< 0.0001	53	30%	Fail	Q15
Nickel (filtered)	S11-No03590	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S11-No03590	NCP	mg/L	< 0.005	0.013	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q15	The RPD reported passes mgt-LabMark's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Onur Mehmet Client Services

NATA Signatories:

James Norford Senior Analyst-Metal (NSW)

Dr. Bob Symons
Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

mgt LabMark
ENVIRONMENTAL LABORATORIES

Certificate of Analysis

Aargus Environmental
446 Parramatta Road
Petersham
NSW 2049

Attention: Mark Kelly

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Report	317997-S
Client Reference	LIDCOMBE ES4703
Received Date	Nov 09, 2011

Client Sample ID			**BH1 0.2**	**BH1 0.4**	**BH2 0.2**	**BH2 0.6**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S11-No05557**	**S11-No05558**	**S11-No05559**	**S11-No05560**
Date Sampled			**Nov 08, 2011**	**Nov 08, 2011**	**Nov 08, 2011**	**Nov 08, 2011**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	-	< 10	-
TRH C10-C14	50	mg/kg	< 50	-	< 50	-
TRH C15-C28	100	mg/kg	120	-	< 100	-
TRH C29-C36	100	mg/kg	120	-	< 100	-
TRH C10-36 (Total)	100	mg/kg	240	-	< 100	-
BTEX						
Benzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Toluene	0.5	mg/kg	< 0.5	-	< 0.5	-
Ethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total m+p-Xylenes	1	mg/kg	< 1	-	< 1	-
o-Xylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Xylenes(ortho.meta and para)	1.5	mg/kg	< 1.5	-	< 1.5	-
Total BTEX	1.5	mg/kg	< 1.5	-	< 1.5	-
4-Bromofluorobenzene (surr.)	1	%	96	-	100	-
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N03]	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	270	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
Polychlorinated Biphenyls (PCB)						
Dibutylchlorendate (surr.)	1	%	80	-	96	-
Organochlorine Pesticides (OC)						
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.2	mg/kg	< 0.2	-	< 0.2	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
a-Chlordane	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-

Client Sample ID			**BH1 0.2**	**BH1 0.4**	**BH2 0.2**	**BH2 0.6**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S11-No05557**	**S11-No05558**	**S11-No05559**	**S11-No05560**
Date Sampled			**Nov 08, 2011**	**Nov 08, 2011**	**Nov 08, 2011**	**Nov 08, 2011**
Test/Reference	LOR	Unit				
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
g-Chlordane	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-	< 0.2	-
Tetrachloro-m-xylene (surr.)	1	%	102	-	86	-
Heavy Metals						
Arsenic	1	mg/kg	5.2	2.3	5.3	5.0
Cadmium	0.1	mg/kg	0.4	< 0.1	0.5	< 0.1
Chromium	2	mg/kg	13	12	11	12
Copper	2	mg/kg	92	4.5	33	16
Lead	2	mg/kg	220	8.6	180	38
Mercury	0.05	mg/kg	0.30	< 0.05	0.20	0.11
Nickel	1	mg/kg	5.3	2.3	5.2	3.4
Zinc	5	mg/kg	300	5.8	290	35
% Moisture	0.1	%	17	15	5.7	14

Client Sample ID			BH3 0.1	BH3 0.5	BH4 0.1	BH4 0.3
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05561	S11-No05562	S11-No05563	S11-No05564
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	-	-	< 10	-
TRH C10-C14	50	mg/kg	-	-	< 50	-
TRH C15-C28	100	mg/kg	-	-	130	-
TRH C29-C36	100	mg/kg	-	-	110	-
TRH C10-36 (Total)	100	mg/kg	-	-	240	-
BTEX						
Benzene	0.5	mg/kg	-	-	< 0.5	-
Toluene	0.5	mg/kg	-	-	< 0.5	-
Ethylbenzene	0.5	mg/kg	-	-	< 0.5	-
Total m+p-Xylenes	1	mg/kg	-	-	< 1	-
o-Xylene	0.5	mg/kg	-	-	< 0.5	-
Xylenes(ortho.meta and para)	1.5	mg/kg	-	-	< 1.5	-
Total BTEX	1.5	mg/kg	-	-	< 1.5	-
4-Bromofluorobenzene (surr.)	1	%	-	-	105	-
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N03]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	240	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
Polychlorinated Biphenyls (PCB)						
Dibutylchlorendate (surr.)	1	%	98	-	-	-
Organochlorine Pesticides (OC)						
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.2	mg/kg	< 0.2	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
a-Chlordane	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
g-Chlordane	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	90	-	-	-
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	0.6	-

Client Sample ID			BH3 0.1	BH3 0.5	BH4 0.1	BH4 0.3
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05561	S11-No05562	S11-No05563	S11-No05564
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Anthracene	0.5	mg/kg	-	-	0.8	-
Benz(a)anthracene	0.5	mg/kg	-	-	3.0	-
Benzo(a)pyrene	0.5	mg/kg	-	-	2.8	-
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	-	-	4.4	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	1.7	-
Chrysene	0.5	mg/kg	-	-	2.4	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	6.2	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	1.3	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	3.4	-
Pyrene	0.5	mg/kg	-	-	5.9	-
Total PAH	1	mg/kg	-	-	33	-
2-Fluorobiphenyl (surr.)	1	%	-	-	105	-
p-Terphenyl-d14 (surr.)	1	%	-	-	129	-
Heavy Metals						
Arsenic	1	mg/kg	6.2	7.1	2.8	4.0
Cadmium	0.1	mg/kg	0.1	0.8	0.4	0.6
Chromium	2	mg/kg	15	14	11	62
Copper	2	mg/kg	24	57	21	42
Lead	2	mg/kg	47	330	140	330
Mercury	0.05	mg/kg	0.07	0.66	0.11	0.09
Nickel	1	mg/kg	8.4	8.7	6.6	35
Zinc	5	mg/kg	120	760	300	340
% Moisture	0.1	%	17	17	3.7	11

Client Sample ID			BH5 0.3	BH5 0.5	BH6 0.3	BH7 0.2
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05565	S11-No05566	S11-No05567	S11-No05568
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	-	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	-	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	-	< 100	< 100
TRH C29-C36	100	mg/kg	110	-	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	110	-	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total m+p-Xylenes	1	mg/kg	< 1	-	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Xylenes(ortho.meta and para)	1.5	mg/kg	< 1.5	-	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	-	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	102	-	105	101
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N03]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	140	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1232	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1242	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1248	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1254	0.5	mg/kg	< 0.5	-	-	-
Aroclor-1260	0.5	mg/kg	< 0.5	-	-	-
Total PCB	0.5	mg/kg	< 0.5	-	-	-
Dibutylchlorendate (surr.)	1	%	84	-	-	-
Organochlorine Pesticides (OC)						
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.2	mg/kg	< 0.2	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
a-Chlordane	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
g-Chlordane	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-

Client Sample ID			BH5 0.3	BH5 0.5	BH6 0.3	BH7 0.2
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05565	S11-No05566	S11-No05567	S11-No05568
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	86	-	-	-
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	-	< 1	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	-	< 1	< 1
2-Fluorobiphenyl (surr.)	1	%	89	-	85	89
p-Terphenyl-d14 (surr.)	1	%	105	-	102	106
Heavy Metals						
Arsenic	1	mg/kg	9.7	4.0	2.9	2.3
Cadmium	0.1	mg/kg	5.2	< 0.1	5.6	3.9
Chromium	2	mg/kg	36	8.3	24	11
Copper	2	mg/kg	170	20	78	14
Lead	2	mg/kg	350	29	23	60
Mercury	0.05	mg/kg	0.22	< 0.05	< 0.05	1.5
Nickel	1	mg/kg	120	4.8	74	3.2
Zinc	5	mg/kg	490	79	92	86
% Moisture	0.1	%	14	18	8.6	13

Client Sample ID			BH7 0.4	BH8 0.4	BH8 0.6	BH9 0.3
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05569	S11-No05570	S11-No05571	S11-No05572
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	-	< 10	-	< 10
TRH C10-C14	50	mg/kg	-	< 50	-	< 50
TRH C15-C28	100	mg/kg	-	100	-	< 100
TRH C29-C36	100	mg/kg	-	< 100	-	< 100
TRH C10-36 (Total)	100	mg/kg	-	100	-	< 100
BTEX						
Benzene	0.5	mg/kg	-	< 0.5	-	< 0.5
Toluene	0.5	mg/kg	-	< 0.5	-	< 0.5
Ethylbenzene	0.5	mg/kg	-	< 0.5	-	< 0.5
Total m+p-Xylenes	1	mg/kg	-	< 1	-	< 1
o-Xylene	0.5	mg/kg	-	< 0.5	-	< 0.5
Xylenes(ortho.meta and para)	1.5	mg/kg	-	< 1.5	-	< 1.5
Total BTEX	1.5	mg/kg	-	< 1.5	-	< 1.5
4-Bromofluorobenzene (surr.)	1	%	-	100	-	97
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N03]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	140	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PCB	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	82	-	92
Organochlorine Pesticides (OC)						
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4.4'-DDT	0.2	mg/kg	-	< 0.2	-	< 0.2
a-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
a-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
g-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05

Client Sample ID			BH7 0.4	BH8 0.4	BH8 0.6	BH9 0.3
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S11-No05569	S11-No05570	S11-No05571	S11-No05572
Date Sampled			Nov 08, 2011	Nov 08, 2011	Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit				
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	-	< 0.2
Tetrachloro-m-xylene (surr.)	1	%	-	88	-	89
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	-	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	1.6	-	< 0.5
Anthracene	0.5	mg/kg	-	1.9	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	3.8	-	0.7
Benzo(a)pyrene	0.5	mg/kg	-	3.0	-	0.7
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	-	4.6	-	1.0
Benzo(g.h.i)perylene	0.5	mg/kg	-	1.4	-	< 0.5
Chrysene	0.5	mg/kg	-	2.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	-	8.6	-	1.2
Fluorene	0.5	mg/kg	-	1.1	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	1.2	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	-	< 0.5
Phenanthrene	0.5	mg/kg	-	8.3	-	0.7
Pyrene	0.5	mg/kg	-	7.3	-	1.1
Total PAH	1	mg/kg	-	45	-	5.4
2-Fluorobiphenyl (surr.)	1	%	-	91	-	90
p-Terphenyl-d14 (surr.)	1	%	-	110	-	110
Heavy Metals						
Arsenic	1	mg/kg	3.6	3.9	5.5	2.8
Cadmium	0.1	mg/kg	< 0.1	0.3	0.2	1.3
Chromium	2	mg/kg	8.4	8.2	13	18
Copper	2	mg/kg	8.2	7.7	16	8.6
Lead	2	mg/kg	63	45	40	150
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.10	0.15
Nickel	1	mg/kg	1.3	2.2	7.4	11
Zinc	5	mg/kg	36	86	40	180
% Moisture	0.1	%	16	17	18	19

Client Sample ID			BH9 0.9	D1
Sample Matrix			Soil	Soil
mgt-LabMark Sample No.			S11-No05573	S11-No05574
Date Sampled			Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	10	mg/kg	-	< 10
TRH C10-C14	50	mg/kg	-	< 50
TRH C15-C28	100	mg/kg	-	< 100
TRH C29-C36	100	mg/kg	-	< 100
TRH C10-36 (Total)	100	mg/kg	-	< 100
BTEX				
Benzene	0.5	mg/kg	-	< 0.5
Toluene	0.5	mg/kg	-	< 0.5
Ethylbenzene	0.5	mg/kg	-	< 0.5
Total m+p-Xylenes	1	mg/kg	-	< 1
o-Xylene	0.5	mg/kg	-	< 0.5
Xylenes(ortho.meta and para)	1.5	mg/kg	-	< 1.5
Total BTEX	1.5	mg/kg	-	< 1.5
4-Bromofluorobenzene (surr.)	1	%	-	94
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				
Naphthalene[N02]	0.5	mg/kg	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20
TRH C6-C10 less BTEX (F1)[N03]	20	mg/kg	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50
TRH >C16-C34	100	mg/kg	-	110
TRH >C34-C40	100	mg/kg	-	< 100
Polychlorinated Biphenyls (PCB)				
Aroclor-1016	0.5	mg/kg	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5
Total PCB	0.5	mg/kg	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	97
Organochlorine Pesticides (OC)				
4.4'-DDD	0.05	mg/kg	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05
4.4'-DDT	0.2	mg/kg	-	< 0.2
a-BHC	0.05	mg/kg	-	< 0.05
a-Chlordane	0.05	mg/kg	-	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05
g-Chlordane	0.05	mg/kg	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05

Client Sample ID			BH9 0.9	D1
Sample Matrix			Soil	Soil
mgt-LabMark Sample No.			S11-No05573	S11-No05574
Date Sampled			Nov 08, 2011	Nov 08, 2011
Test/Reference	LOR	Unit		
Heptachlor epoxide	0.05	mg/kg	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2
Tetrachloro-m-xylene (surr.)	1	%	-	92
Polyaromatic Hydrocarbons (PAH)				
Acenaphthene	0.5	mg/kg	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	-	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5
Total PAH	1	mg/kg	-	< 1
2-Fluorobiphenyl (surr.)	1	%	-	88
p-Terphenyl-d14 (surr.)	1	%	-	99
Heavy Metals				
Arsenic	1	mg/kg	4.3	8.9
Cadmium	0.1	mg/kg	< 0.1	0.8
Chromium	2	mg/kg	9.2	24
Copper	2	mg/kg	3.6	42
Lead	2	mg/kg	20	310
Mercury	0.05	mg/kg	< 0.05	0.14
Nickel	1	mg/kg	2.1	46
Zinc	5	mg/kg	35	240
% Moisture	0.1	%	20	13

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Nov 15, 2011	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Nov 11, 2011	14 Day
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * - Method: LM-LTM-ORG2010	Sydney	Nov 15, 2011	14 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Nov 11, 2011	14 Day
Organochlorine Pesticides (OC) - Method: E013 Organochlorine Pesticides (OC)	Sydney	Nov 11, 2011	14 Day
Polyaromatic Hydrocarbons (PAH) - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Nov 15, 2011	14 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils, E026 Mercury	Sydney	Nov 11, 2011	28 Day
% Moisture - Method: E005 Moisture Content	Sydney	Nov 11, 2011	28 Day

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Site # 1254 & 14271

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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600

Company Name: Aargus Pty Ltd
Address: 446 Parramatta Road
Petersham
NSW 2049

Order No.:
Report #: 317997
Phone: 1300 137 038
Fax: 1300 136 038

Received: Nov 9, 2011 2:00 PM
Due: Nov 16, 2011 4:00 PM
Priority: 5 Day
Contact name: Mark Kelly

Client Job No.: LIDCOMBE ES4703

mgt-LabMark Client Manager: Onur Mehmet

Sample Detail					% Moisture	Filtering	Metals M8	Metals M8 filtered	Organochlorine Pesticides (OC)	mgt-LabMark Suite 13	mgt-LabMark Suite 6	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site #1261												
Sydney Laboratory - NATA Site #1645					X	X	X	X	X	X	X	X
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**								
BH1 0.2	Nov 08, 2011		Soil	S11-No05557	X				X		X	
BH1 0.4	Nov 08, 2011		Soil	S11-No05558	X		X					
BH2 0.2	Nov 08, 2011		Soil	S11-No05559	X				X		X	
BH2 0.6	Nov 08, 2011		Soil	S11-No05560	X		X					
BH3 0.1	Nov 08, 2011		Soil	S11-No05561	X		X		X			
BH3 0.5	Nov 08, 2011		Soil	S11-No05562	X		X					
BH4 0.1	Nov 08, 2011		Soil	S11-No05563	X							X
BH4 0.3	Nov 08, 2011		Soil	S11-No05564	X		X					
BH5 0.3	Nov 08, 2011		Soil	S11-No05565	X					X		X
BH5 0.5	Nov 08, 2011		Soil	S11-No05566	X		X					
BH6 0.3	Nov 08, 2011		Soil	S11-No05567	X							X
BH7 0.2	Nov 08, 2011		Soil	S11-No05568	X							X

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Sample Detail					% Moisture	Filtering	Metals M8	Metals M8 filtered	Organochlorine Pesticides (OC)	mgt-LabMark Suite 13	mgt-LabMark Suite 6	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site #1261												
Sydney Laboratory - NATA Site #1645					X	X	X	X	X	X	X	X
BH7 0.4	Nov 08, 2011		Soil	S11-No05569	X		X					
BH8 0.4	Nov 08, 2011		Soil	S11-No05570	X					X		X
BH8 0.6	Nov 08, 2011		Soil	S11-No05571	X		X					
BH9 0.3	Nov 08, 2011		Soil	S11-No05572	X					X		X
BH9 0.9	Nov 08, 2011		Soil	S11-No05573	X		X					
D1	Nov 08, 2011		Soil	S11-No05574	X					X		X
R1	Nov 08, 2011		Water	S11-No05575		X		X				

mgt-LabMark Internal Quality Control Review

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis.
7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001)

For samples received on the last day of holding time, notification of testing requirements should have been received at least

6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as an RPD

UNITS

mg/kg:milligrams per Kilogram

mg/L:milligrams per litre

µg/L:micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%:Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

TERMS

Dry:	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR:	Limit Of Reporting.
SPIKE:	Addition of the analyte to the sample and reported as percentage recovery.
RPD:	Relative Percent Difference between two Duplicate pieces of analysis.
LCS:	Laboratory Control Sample - reported as percent recovery.
CRM:	Certified Reference Material - reported as percent recovery.
Method Blank:	In the case of solid samples these are performed on laboratory certified clean sands.
	In the case of water samples these are performed on de-ionised water.
Surr - Surrogate:	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate:	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate:	A second piece of analysis from a sample outside of the client's batch of samples but run within the laboratory batch of analysis.
Batch SPIKE:	Spike recovery reported on a sample from outside of the client's batch of samples but run within the laboratory batch of analysis.
USEPA:	U.S Environmental Protection Agency
APHA:	American Public Health Association
ASLP:	Australian Standard Leaching Procedure (AS4439.3)
TCLP:	Toxicity Characteristic Leaching Procedure
COC:	Chain Of Custody
SRA:	Sample Receipt Advice
CP:	Client Parent - QC was performed on samples pertaining to this report
NCP:	Non-Client Parent - QC was performed on samples not pertaining to this report, however QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample>
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data below the LOR with a positive RPD - eg: LOR 0.1, Result A = <0.1 (raw data is 0.02) & Result B = <0.1 (raw data is 0.03) resulting in a RPD of 40% calculated from the raw data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 10			10	Pass	
TRH C10-C14	mg/kg	< 50			50	Pass	
TRH C15-C28	mg/kg	< 100			100	Pass	
TRH C29-C36	mg/kg	< 100			100	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.5			0.5	Pass	
Total m+p-Xylenes	mg/kg	< 1			1	Pass	
o-Xylene	mg/kg	< 0.5			0.5	Pass	
Xylenes(ortho.meta and para)	mg/kg	< 1.5			1.5	Pass	
Total BTEX	mg/kg	< 1.5			1.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.2			0.2	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
a-Chlordane	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
g-Chlordane	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils, E026 Mercury							
Arsenic	mg/kg	< 1			1	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Chromium	mg/kg	< 2			2	Pass	
Copper	mg/kg	< 2			2	Pass	
Lead	mg/kg	< 2			2	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 1			1	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	93			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	99			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
Total m+p-Xylenes	%	100			70-130	Pass	
o-Xylene	%	100			70-130	Pass	
Xylenes(ortho.meta and para)	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	%	106			70-130	Pass	
TRH C6-C10	%	109			70-130	Pass	
TRH >C10-C16	%	111			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	76			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4.4'-DDD	%	125			70-130	Pass	
4.4'-DDE	%	86			70-130	Pass	
4.4'-DDT	%	70			70-130	Pass	
a-BHC	%	107			70-130	Pass	
a-Chlordane	%	98			70-130	Pass	
Aldrin	%	105			70-130	Pass	
b-BHC	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
d-BHC	%	113			70-130	Pass	
Dieldrin	%	100			70-130	Pass	
Endosulfan I	%	98			70-130	Pass	
Endosulfan II	%	99			70-130	Pass	
Endosulfan sulphate	%	72			70-130	Pass	
Endrin	%	95			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
Endrin ketone	%	92			70-130	Pass	
g-BHC (Lindane)	%	96			70-130	Pass	
g-Chlordane	%	99			70-130	Pass	
Heptachlor	%	97			70-130	Pass	
Heptachlor epoxide	%	100			70-130	Pass	
Hexachlorobenzene	%	107			70-130	Pass	
Methoxychlor	%	103			70-130	Pass	
LCS - % Recovery							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	101			70-130	Pass	
Benz(a)anthracene	%	93			70-130	Pass	
Benzo(a)pyrene	%	97			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	%	91			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Chrysene	%	95			70-130	Pass	
Dibenz(a.h)anthracene	%	79			70-130	Pass	
Fluoranthene	%	96			70-130	Pass	
Fluorene	%	90			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	97			70-130	Pass	
Phenanthrene	%	98			70-130	Pass	
Pyrene	%	99			70-130	Pass	
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils, E026 Mercury							
Arsenic	%	108			70-130	Pass	
Cadmium	%	101			70-130	Pass	
Chromium	%	101			70-130	Pass	
Copper	%	112			70-130	Pass	
Lead	%	89			70-130	Pass	
Mercury	%	103			70-130	Pass	
Nickel	%	110			70-130	Pass	
Zinc	%	125			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S11-No05557	CP	%	84			70-130	Pass	
TRH C10-C14	S11-No05557	CP	%	93			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S11-No05557	CP	%	85			70-130	Pass	
Toluene	S11-No05557	CP	%	87			70-130	Pass	
Ethylbenzene	S11-No05557	CP	%	91			70-130	Pass	
Total m+p-Xylenes	S11-No05557	CP	%	91			70-130	Pass	
o-Xylene	S11-No05557	CP	%	90			70-130	Pass	
Xylenes(ortho.meta and para)	S11-No05557	CP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
Naphthalene	S11-No05557	CP	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10	S11-No05557	CP	%	92			70-130	Pass	
TRH >C10-C16	S11-No05557	CP	%	116			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides (OC)				Result 1					
4.4'-DDD	S11-No05557	CP	%	118			70-130	Pass	
4.4'-DDE	S11-No05557	CP	%	90			70-130	Pass	
4.4'-DDT	S11-No05557	CP	%	108			70-130	Pass	
a-BHC	S11-No05557	CP	%	101			70-130	Pass	
a-Chlordane	S11-No05557	CP	%	121			70-130	Pass	
Aldrin	S11-No05557	CP	%	93			70-130	Pass	
b-BHC	S11-No05557	CP	%	90			70-130	Pass	
d-BHC	S11-No05557	CP	%	103			70-130	Pass	
Dieldrin	S11-No05557	CP	%	103			70-130	Pass	
Endosulfan I	S11-No05557	CP	%	96			70-130	Pass	
Endosulfan II	S11-No05557	CP	%	98			70-130	Pass	
Endosulfan sulphate	S11-No05557	CP	%	94			70-130	Pass	
Endrin	S11-No05557	CP	%	104			70-130	Pass	
Endrin aldehyde	S11-No05557	CP	%	109			70-130	Pass	
Endrin ketone	S11-No05557	CP	%	118			70-130	Pass	
g-BHC (Lindane)	S11-No05557	CP	%	84			70-130	Pass	
g-Chlordane	S11-No05557	CP	%	92			70-130	Pass	
Heptachlor	S11-No05557	CP	%	94			70-130	Pass	
Heptachlor epoxide	S11-No05557	CP	%	93			70-130	Pass	
Hexachlorobenzene	S11-No05557	CP	%	99			70-130	Pass	
Methoxychlor	S11-No05557	CP	%	116			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Lead	S11-No05782	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S11-No05558	CP	%	79			70-130	Pass	
Cadmium	S11-No05558	CP	%	108			70-130	Pass	
Chromium	S11-No05558	CP	%	87			70-130	Pass	
Mercury	S11-No05558	CP	%	104			70-130	Pass	
Nickel	S11-No05558	CP	%	97			70-130	Pass	
Spike - % Recovery									
Polyaromatic Hydrocarbons (PAH)				Result 1					
Acenaphthene	S11-No05609	NCP	%	87			70-130	Pass	
Acenaphthylene	S11-No05609	NCP	%	87			70-130	Pass	
Anthracene	S11-No05609	NCP	%	92			70-130	Pass	
Benz(a)anthracene	S11-No05609	NCP	%	84			70-130	Pass	
Benzo(a)pyrene	S11-No05609	NCP	%	86			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S11-No05609	NCP	%	80			70-130	Pass	
Benzo(g.h.i)perylene	S11-No05609	NCP	%	78			70-130	Pass	
Chrysene	S11-No05609	NCP	%	83			70-130	Pass	
Dibenz(a.h)anthracene	S11-No05609	NCP	%	73			70-130	Pass	
Fluoranthene	S11-No05609	NCP	%	84			70-130	Pass	
Fluorene	S11-No05609	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S11-No05609	NCP	%	71			70-130	Pass	
Naphthalene	S11-No05609	NCP	%	95			70-130	Pass	
Phenanthrene	S11-No05609	NCP	%	90			70-130	Pass	
Pyrene	S11-No05609	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S11-No05573	CP	%	74			70-130	Pass	
Cadmium	S11-No05573	CP	%	105			70-130	Pass	
Chromium	S11-No05573	CP	%	92			70-130	Pass	
Copper	S11-No05573	CP	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	S11-No05573	CP	%	98			70-130	Pass	
Nickel	S11-No05573	CP	%	95			70-130	Pass	
Zinc	S11-No05573	CP	%	92			70-130	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S11-No05557	CP	mg/kg	< 10	< 10	<1	30%	Pass	
TRH C10-C14	S11-No04925	NCP	mg/kg	490	460	6.0	30%	Pass	
TRH C15-C28	S11-No04925	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH C29-C36	S11-No04925	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total m+p-Xylenes	S11-No05557	CP	mg/kg	< 1	< 1	<1	30%	Pass	
o-Xylene	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes(ortho.meta and para)	S11-No05557	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Total BTEX	S11-No05557	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
Naphthalene	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S11-No05557	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S11-No05557	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S11-No04925	NCP	mg/kg	330	340	1.4	30%	Pass	
TRH >C16-C34	S11-No04925	NCP	mg/kg	< 100	< 100	5.1	30%	Pass	
TRH >C34-C40	S11-No04925	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S11-No05557	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides (OC)				Result 1	Result 2	RPD			
4.4'-DDD	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S11-No05557	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
a-BHC	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-Chlordane	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-Chlordane	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S11-No05557	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S11-No05557	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic	S11-No05557	CP	mg/kg	5.2	4.2	22	30%	Pass	
Cadmium	S11-No05557	CP	mg/kg	0.4	0.4	5	30%	Pass	
Chromium	S11-No05557	CP	mg/kg	13	13	6	30%	Pass	
Copper	S11-No05557	CP	mg/kg	92	150	48	30%	Fail	Q15
Lead	S11-No05557	CP	mg/kg	220	260	18	30%	Pass	
Mercury	S11-No05557	CP	mg/kg	0.30	0.33	11	30%	Pass	
Nickel	S11-No05557	CP	mg/kg	5.3	6.5	21	30%	Pass	
Zinc	S11-No05557	CP	mg/kg	300	290	2	30%	Pass	
Duplicate									
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD			
Acenaphthene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S11-No05609	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Benzo(g.h.i)perylene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S11-No05609	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Mercury	S11-No05574	CP	mg/kg	0.14	0.08	56	30%	Fail	Q15

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques haved passed all QAQC acceptance criteria, and are entirely technically valid.
N03	The method has been audited and technically assessed by NATA. NATA accreditation is pending.
Q15	The RPD reported passes mgt-LabMark's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Onur Mehmet	Client Services

NATA Signatories:

James Norford	Senior Analyst-Metal (NSW)
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)

Dr. Bob Symons
Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

APPENDIX D

BOREHOLE LOGS

Aargus

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH1
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
				F	FILL: Silty Clay, low plastcity, dark brown inclusions of humus and some gravel	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.25				CL	NATURAL: Silty CLAY, low plasticity light brown to orange	No visual asbestos pieces No HC Staining No Odours PID <1ppm
0.5					End of Borehole @ 0.5m BGL in natural Clay	
0.75						
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH2
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
				C	Concrete Paver	
0.25				F	FILL: Silty Clay, low plastcity, dark brown inclusions of humus and some gravel	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.5				CL	NATURAL: Silty CLAY, low plasticity light brown to orange	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.75					End of Borehole @ 0.7m BGL in natural Clay	
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH3
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
0.25				F	FILL: Silty Clay, low plastcity, dark brown inclusions of humus and some gravel	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.5				CL	NATURAL: Silty CLAY, low plasticity light brown to orange	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.75					End of Borehole @ 0.6m BGL in natural Clay	
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH4
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
0.25				F	FILL: Silty Sand, low plasticity, medium to coarse grained, light brown with inclusion of sandstone agregrete, glass and litter	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.5					End of Borehole @ 0.3m BGL in fill refusal	
0.75						
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH5
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
				C	Concrete	
0.25				F	FILL: Silty Clay, low plastcity, dark brown inclusions of humus and some coarse gravel	Wet No visual asbestos pieces, no HC odours No HC Staining, PID <1 ppm
0.5				CL-CI	NATURAL: Silty CLAY, low to medium plasticity, light brown to orange	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.75					End of Borehole @ 0.6m BGL in natural Clay	
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH6
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
				C	Concrete	
0.25				F	FILL: Sand, coarse grained, light brown, with inclusions of some large agregrete and rocks	No visual asbestos pieces, no HC odours No HC Staining, PID <1 ppm
0.5					End of Borehole @ 0.3m BGL in fill refusal	
0.75						
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay	- Particle size less than 0.002mm
Silt	- Particle size between 0.002 and 0.06mm
Sand	- Particle size between 0.06 and 2.0mm
Gravel	- Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH7
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
				C	Concrete	
0.25				F	FILL: Silty Clay, low plastcity, dark brown inclusions of humus and some gravel	No visual asbestos pieces, No HC odours HC Staining, PID <1 ppm
				CL-CI	NATURAL: CLAY, low to meduim placticity, brown/ orange with grey mottling	No visual asbestos pieces, no HC odours No HC Staining, PID <1 ppm
0.5					End of Borehole @ 0.4m BGL in natural Clay	
0.75						
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH8
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
0.25				C	Concrete	
0.5				CI	NATURAL: CLAY, medium plasticity, orange with grey mottling with some course gravel inclusions	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.75					End of Borehole @ 0.6m BGL in natural Clay	
1						
1.25						
1.5						
1.75						
2						
2.25						
2.5						
2.75						
3						

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

BOREHOLE LOG

CLIENT	Tony Khattar	**BOREHOLE NO.**	BH9
PROJECT	Environmental Site Assessment	**DATE.**	8/11/2011
LOCATION	2-8 Vaughan Street and 1-15 Kerrs Road Lidcombe	**JOB NO.**	ES4703
METHOD	Hand Auger	**SURFACE ELEV.**	-
LOGGED BY	AW	**CHECKED BY**	MK

Aargus AUSTRALIA

Depth (m)	Sample	Graphic Symbol	Ground Water	Classification Symbol	Soil Description (Colour, particle characteristics, strength, placticity, moisture, etc)	Observations
0.25				C	Concrete	
0.5				F	FILL: Gravelly Sand, coarse grained, black with inclusions of gravel, rocks, bitumen, with some course gravel inclusions	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
0.75 1				Cl	NATURAL: CLAY, medium plasticity, orange with grey mottling with some course gravel inclusions	No visual asbestos pieces No HC Staining No HC Odours PID <1ppm
1.25 1.5 1.75 2 2.25 2.5 2.75 3					End of Borehole @ 1.0m BGL in natural Clay	

Log Symbols

Standing groundwater level in borehole
Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
S - Surface water sample
GW/W - Groundwater sample/water sample

Moisture Condition

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

Soil Classification

Clay - Particle size less than 0.002mm
Silt - Particle size between 0.002 and 0.06mm
Sand - Particle size between 0.06 and 2.0mm
Gravel - Particle size between 2.0 and 60mm

Strength

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

APPENDIX E

REGULATORY CRITERIA

Table 5-A - Soil Investigation Levels (mg/kg)

Substances	Health Investigation Levels (HILs)						Ecological Investigation Levels (EILs)		Background Ranges[6]
	A[1]	B[2]	C[3]	D	E	F	REIL[4]	Interim Urban[5]	
METALS/METALLOIDS									
Arsenic (total)	100			400	200	500		20	1 - 50
Barium								300	100 - 3000
Beryllium	20			80	40	100			
Cadmium	20			80	40	100		3	1
Chromium (III)	12%			48%	24%	60%		400	
Chromium (VI)	100			400	200	500		1	
Chromium (Total)*[7]									5 - 1000
Cobalt	100			400	200	500			1 - 40
Copper	1000			4000	2000	5000		100	2 - 100
Lead	300			1200	600	1500		600	2 - 200
Manganese	1500			6000	3000	7500		500	850
Methyl mercury	10			40	20	50			
Mercury (inorganic)	15			60	30	75		1	0.03
Nickel	600			2400	600	3000		60	5 - 500
Vanadium								50	20 - 500
Zinc	7000			28000	14000	35000		200	10 - 300
ORGANICS									
Aldrin + Dieldrin	10			40	20	50			
Chlordane	50			200	100	250			
DDT + DDD + DDE	200			800	400	1000			
Heptachlor	10			40	20	50			
Polycyclic aromatic hydrocarbons (PAHs)	20			80	40	100			
Benzo(a)pyrene	1			4	2	5			
Phenol	8500			34000	17000	42500			
PCBs (Total)	10			40	20	50			
Petroleum Hydrocarbon Components (constituents): • >C16 – C35 Aromatics[8]	90			360	180	450			
• >C16 – C35 Aliphatics	5600			22400	11200	28000			
• >C35 Aliphatics	56000			224000	112000	280000			
OTHER									
Boron	3000			12000	6000	15000			
Cyanides (Complexed)	500			2000	1000	2500			
Cyanides (free)	250			1000	500	1250			
Phosphorus								2000	
Sulfur								600	
Sulfate[9]								2000	

1 Human exposure settings based on land use have been established for HILs (see Taylor and Langley 1998). These are:
- **A.** 'Standard' residential with garden/accessible soil (home-grown produce contributing less than 10% of vegetable and fruit intake; no poultry): this category includes children's day-care centres, kindergartens, preschools and primary schools.
- **B.** Residential with substantial vegetable garden (contributing 10% or more of vegetable and fruit intake) and/or poultry providing any egg or poultry meat dietary intake.
- **C.** Residential with substantial vegetable garden (contributing 10% or more of vegetable and fruit intake); poultry excluded.
- **D.** Residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise apartments and flats.
- **E.** Parks, recreational open space and playing fields: includes secondary schools.
- **F.** Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites.

(For details on derivation of HILs for human exposure settings based on land use see Schedule B(7A).

2 Site and contaminant specific: on site sampling is the preferred approach for estimating poultry and plant uptake. Exposure estimates may then be compared to the relevant ADIs, PTWIs and GDs.

3 Site and contaminant specific: on site sampling is the preferred approach for estimating plant uptake. . Exposure estimates may then be compared to the relevant ADIs, PTWIs and GDs.

4 These will be developed for regional areas by jurisdictions as required.

5 Interim EILs for the urban setting are based on considerations of phytotoxicity, ANZECC B levels, and soil survey data from urban residential properties in four Australian capital cities.

6 Background ranges, where HILs or EILs are set, are taken from the Field Geologist's Manual, compiled by D A Berkman, Third Edition 1989. Publisher – The Australasian Institute of Mining & Metallurgy. This publication contains information on a more extensive list of soil elements than is included in this Table. Another source of information is Contaminated Sites Monograph No. 4: Trace Element Concentrations in Soils from Rural & Urban Areas of Australia, 1995. South Australian Health Commission.

7 Valence state not distinguished – expected as Cr (III).

8 The carbon number is an 'equivalent carbon number' based on a method that standardises according to boiling point. It is a method used by some analytical laboratories to report carbon numbers for chemicals evaluated on a boiling point GC column.

9 For protection of built structures.

Table 5-B

Groundwater Investigation Levels

SETTING[10]	Aquatic Ecosystems[11]		Drinking Water	Agricultural[9]	
	Marine Waters µg/L	Fresh Waters µg/L	Health[10]/ Aesthetic[11] mg/L	Irrigation (mg/L)	Livestock (mg/L)
METALS/METALLOIDS					
Aluminium		<5 (if pH <6.5) <100(if pH >6.5)	(0.2)	5.0	5.0
Antimony		30	0.003		
Arsenic (total)	50.0	50	0.007	0.1	0.5
Barium			0.7		
Beryllium		4		0.1	0.1
Boron			0.3	0.5-6.0	5.0
Cadmium	2.0	0.2-2.0	0.002	0.01	0.01
Chromium (Total)	50.0	10		1.0	
Chromium (VI)			0.05	0.1	1.0
Cobalt				0.05	1.0
Copper	5.0	2.0-5.0	2.0 (1.0)	0.2	0.5
Iron		1000	(0.3)	1.0	
Lead	5.0	1.0-5.0	0.01	0.2	0.1
Lithium				2.5	
Manganese			0.5 (0.1)	2.0	
Mercury (total)	0.1	0.1	0.001	0.002	0.002
Molybdenum			0.05	0.01	0.01
Nickel	15.0	15.0-150.0	0.02	0.02	1.0
Selenium	70.0	5.0	0.01	0.02	0.02
Silver	1.0	0.1	0.1		
Thallium	20.0	4.0			
Tin (tributyltin)	0.002	0.008			
Vanadium				0.1	0.1
Zinc	50.0	5.0-50.0	(3.0)	2.0	20.0
ORGANICS					
1,2-dichloroethane			0.003		
Benzo(a)pyrene			0.00001		
Carbon tetrachloride			0.003		
Chlorobenzene			0.3 (0.01)		
Dichloromethane (methylene chloride)			0.004		
Ethylbenzene			0.3 (0.003)		
Ethylenediamine tetracetic acid (EDTA)			0.25		
Hexachlorobutadiene	0.3	0.1	0.0007		

[10] Levels for recreational and industrial uses have not been set. For guidance on Recreational levels, see NHMRC/ARMCANZ, 1996. For recreational uses, toxic substances should, in general, not exceed the concentrations given for drinking water. For guidance on Industrial levels, see ANZECC, 1992. Industrial settings include: generic processes, hydro-electric power generation, textiles, chemical and allied industries, food and beverage, iron and steel, tanning and leather, pulp and paper, petroleum.

[11] Taken from Australian Water Quality Guidelines for Fresh and Marine Waters (AWQG) (ANZECC 1992)

SETTING[10]	Aquatic Ecosystems[11]		Drinking Water	Agricultural[9]	
	Marine Waters µg/L	Fresh Waters µg/L	Health[10]/ Aesthetic[11] mg/L	Irrigation (mg/L)	Livestock (mg/L)
ORGANICS (cont..)					
Monocyclic aromatic compounds					
Benzene	300.0	300.0	0.001		
Chlorinated benzenes		0.007-15.0[12]			
Chlorinated phenols	0.2-8.0	0.05-18.0[13]	0.04-1.5		
Phenol	50.0	50.0			
Toluene		300.0	0.8 (0.025)		
Xylene			0.6 (0.02)		
Pesticides	Footnote[14]	Footnote[15]	Footnote[16]		See guidelines for raw water for drinking water supply (AWQG, ANZECC 1992)
Aldrin	10.0 ng/L	10.0 ng/L	0.0003		
Chlordane	4.0 ng/L	4.0 ng/L	0.001		
DDT	1.0 ng/L	1.0 ng/L	0.02		
Dieldrin	2.0 ng/L	2.0 ng/L	0.0003		
Heptachlor	10.0 ng/L	10.0 ng/L	0.0003		
Phthalate esters					
di-n-butylphthalate		4.0			
di(2-ethylhexyl)phthalate		0.6			
other phthalate esters		0.2			
Polyaromatic hydrocarbons					
Polychlorinated biphenyls	0.004	0.001			
Polycyclic aromatic hydrocarbons	3.0	3.0			
Styrene (vinylbenzene)			0.03 (0.004)		
Tetrachloroethene			0.05		
Trichlorobenzenes (total)			0.03 (0.005)		
Vinyl chloride			0.0003		
OTHER					
Calcium					1,000.0
Chloride			(250.0)	30.0 700.0[17]	
Cyanide	5	0.005	0.08		
Fluoride			1.5	1.0	2.0
Nitrate-N			50.0		30.0
Nitrite-N			3.0		10.0
AESTHETIC PARAMETERS					
Colour and clarity	< 10% change in euphotic depth	< 10% change in euphotic depth			

[12] See table 2.8, p.2-49 AWQG (ANZECC 1992) for further information
[13] see table 2.9, p2-50 AWQG (ANZECC 1992) for further information
[14] see table 2.10 also, p.2-55 (ANZECC 1992) for further information
[15] see table 2.10 also, p.2-55 (ANZECC 1992) for further information
[16] see table on p32 (Guidelines for Pesticides), p32 (NHMRC/ARMCANZ 1996)
[17] Maximum chloride concentration should be set according to the sensitivity of the crop. For further information. (See Tables 5.1, 5.2, 5.3, 5.4, ANZECC 1992)

Table 5-A - Soil Investigation Levels (mg/kg)

Substances	Health Investigation Levels (HILs)						Ecological Investigation Levels (EILs)		Background Ranges[6]
	A[1]	B[2]	C[3]	D	E	F	REIL[4]	Interim Urban[5]	
METALS/METALLOIDS									
Arsenic (total)	100			400	200	500		20	1 - 50
Barium								300	100 - 3000
Beryllium	20			80	40	100			
Cadmium	20			80	40	100		3	1
Chromium (III)	12%			48%	24%	60%		400	
Chromium (VI)	100			400	200	500		1	
Chromium (Total)*[7]									5 - 1000
Cobalt	100			400	200	500			1 - 40
Copper	1000			4000	2000	5000		100	2 - 100
Lead	300			1200	600	1500		600	2 - 200
Manganese	1500			6000	3000	7500		500	850
Methyl mercury	10			40	20	50			
Mercury (inorganic)	15			60	30	75		1	0.03
Nickel	600			2400	600	3000		60	5 - 500
Vanadium								50	20 - 500
Zinc	7000			28000	14000	35000		200	10 - 300
ORGANICS									
Aldrin + Dieldrin	10			40	20	50			
Chlordane	50			200	100	250			
DDT + DDD + DDE	200			800	400	1000			
Heptachlor	10			40	20	50			
Polycyclic aromatic hydrocarbons (PAHs)	20			80	40	100			
Benzo(a)pyrene	1			4	2	5			
Phenol	8500			34000	17000	42500			
PCBs (Total)	10			40	20	50			
Petroleum Hydrocarbon Components (constituents): • >C16 – C35 Aromatics[8]	90			360	180	450			
• >C16 – C35 Aliphatics	5600			22400	11200	28000			
• >C35 Aliphatics	56000			224000	112000	280000			
OTHER									
Boron	3000			12000	6000	15000			
Cyanides (Complexed)	500			2000	1000	2500			
Cyanides (free)	250			1000	500	1250			
Phosphorus								2000	
Sulfur								600	
Sulfate[9]								2000	

1 Human exposure settings based on land use have been established for HILs (see Taylor and Langley 1998). These are:
- **A.** 'Standard' residential with garden/accessible soil (home-grown produce contributing less than 10% of vegetable and fruit intake; no poultry): this category includes children's day-care centres, kindergartens, preschools and primary schools.
- **B.** Residential with substantial vegetable garden (contributing 10% or more of vegetable and fruit intake) and/or poultry providing any egg or poultry meat dietary intake.
- **C.** Residential with substantial vegetable garden (contributing 10% or more of vegetable and fruit intake); poultry excluded.
- **D.** Residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise apartments and flats.
- **E.** Parks, recreational open space and playing fields: includes secondary schools.
- **F.** Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites.

(For details on derivation of HILs for human exposure settings based on land use see Schedule B(7A).

2 Site and contaminant specific: on site sampling is the preferred approach for estimating poultry and plant uptake. Exposure estimates may then be compared to the relevant ADIs, PTWIs and GDs.

3 Site and contaminant specific: on site sampling is the preferred approach for estimating plant uptake. . Exposure estimates may then be compared to the relevant ADIs, PTWIs and GDs.

4 These will be developed for regional areas by jurisdictions as required.

5 Interim EILs for the urban setting are based on considerations of phytotoxicity, ANZECC B levels, and soil survey data from urban residential properties in four Australian capital cities.

6 Background ranges, where HILs or EILs are set, are taken from the Field Geologist's Manual, compiled by D A Berkman, Third Edition 1989. Publisher – The Australasian Institute of Mining & Metallurgy. This publication contains information on a more extensive list of soil elements than is included in this Table. Another source of information is Contaminated Sites Monograph No. 4: Trace Element Concentrations in Soils from Rural & Urban Areas of Australia, 1995. South Australian Health Commission.

7 Valence state not distinguished – expected as Cr (III).

8 The carbon number is an 'equivalent carbon number' based on a method that standardises according to boiling point. It is a method used by some analytical laboratories to report carbon numbers for chemicals evaluated on a boiling point GC column.

9 For protection of built structures.

Table 5-B

Groundwater Investigation Levels

SETTING[10]	Aquatic Ecosystems[11]		Drinking Water	Agricultural[9]	
	Marine Waters µg/L	Fresh Waters µg/L	Health[10]/ Aesthetic[11] mg/L	Irrigation (mg/L)	Livestock (mg/L)
METALS/METALLOIDS					
Aluminium		<5 (if pH <6.5) <100(if pH >6.5)	(0.2)	5.0	5.0
Antimony		30	0.003		
Arsenic (total)	50.0	50	0.007	0.1	0.5
Barium			0.7		
Beryllium		4		0.1	0.1
Boron			0.3	0.5-6.0	5.0
Cadmium	2.0	0.2-2.0	0.002	0.01	0.01
Chromium (Total)	50.0	10		1.0	
Chromium (VI)			0.05	0.1	1.0
Cobalt				0.05	1.0
Copper	5.0	2.0-5.0	2.0 (1.0)	0.2	0.5
Iron		1000	(0.3)	1.0	
Lead	5.0	1.0-5.0	0.01	0.2	0.1
Lithium				2.5	
Manganese			0.5 (0.1)	2.0	
Mercury (total)	0.1	0.1	0.001	0.002	0.002
Molybdenum			0.05	0.01	0.01
Nickel	15.0	15.0-150.0	0.02	0.02	1.0
Selenium	70.0	5.0	0.01	0.02	0.02
Silver	1.0	0.1	0.1		
Thallium	20.0	4.0			
Tin (tributyltin)	0.002	0.008			
Vanadium				0.1	0.1
Zinc	50.0	5.0-50.0	(3.0)	2.0	20.0
ORGANICS					
1,2-dichloroethane			0.003		
Benzo(a)pyrene			0.00001		
Carbon tetrachloride			0.003		
Chlorobenzene			0.3 (0.01)		
Dichloromethane (methylene chloride)			0.004		
Ethylbenzene			0.3 (0.003)		
Ethylenediamine tetracetic acid (EDTA)			0.25		
Hexachlorobutadiene	0.3	0.1	0.0007		

[10] Levels for recreational and industrial uses have not been set. For guidance on Recreational levels, see NHMRC/ARMCANZ, 1996. For recreational uses, toxic substances should, in general, not exceed the concentrations given for drinking water. For guidance on Industrial levels, see ANZECC, 1992. Industrial settings include: generic processes, hydro-electric power generation, textiles, chemical and allied industries, food and beverage, iron and steel, tanning and leather, pulp and paper, petroleum.

[11] Taken from Australian Water Quality Guidelines for Fresh and Marine Waters (AWQG) (ANZECC 1992)

SETTING[10]	Aquatic Ecosystems[11]		Drinking Water	Agricultural[9]	
	Marine Waters µg/L	Fresh Waters µg/L	Health[10]/ Aesthetic[11] mg/L	Irrigation (mg/L)	Livestock (mg/L)
ORGANICS (cont..)					
Monocyclic aromatic compounds					
Benzene	300.0	300.0	0.001		
Chlorinated benzenes		0.007-15.0[12]			
Chlorinated phenols	0.2-8.0	0.05-18.0[13]	0.04-1.5		
Phenol	50.0	50.0			
Toluene		300.0	0.8 (0.025)		
Xylene			0.6 (0.02)		
Pesticides	Footnote[14]	Footnote[15]	Footnote[16]		See guidelines for raw water for drinking water supply (AWQG, ANZECC 1992)
Aldrin	10.0 ng/L	10.0 ng/L	0.0003		
Chlordane	4.0 ng/L	4.0 ng/L	0.001		
DDT	1.0 ng/L	1.0 ng/L	0.02		
Dieldrin	2.0 ng/L	2.0 ng/L	0.0003		
Heptachlor	10.0 ng/L	10.0 ng/L	0.0003		
Phthalate esters					
di-n-butylphthalate		4.0			
di(2-ethylhexyl)phthalate		0.6			
other phthalate esters		0.2			
Polyaromatic hydrocarbons					
Polychlorinated biphenyls	0.004	0.001			
Polycyclic aromatic hydrocarbons	3.0	3.0			
Styrene (vinylbenzene)			0.03 (0.004)		
Tetrachloroethene			0.05		
Trichlorobenzenes (total)			0.03 (0.005)		
Vinyl chloride			0.0003		
OTHER					
Calcium					1,000.0
Chloride			(250.0)	30.0 700.0[17]	
Cyanide	5	0.005	0.08		
Fluoride			1.5	1.0	2.0
Nitrate-N			50.0		30.0
Nitrite-N			3.0		10.0
AESTHETIC PARAMETERS					
Colour and clarity	< 10% change in euphotic depth	< 10% change in euphotic depth			

[12] See table 2.8, p.2-49 AWQG (ANZECC 1992) for further information
[13] see table 2.9, p2-50 AWQG (ANZECC 1992) for further information
[14] see table 2.10 also, p.2-55 (ANZECC 1992) for further information
[15] see table 2.10 also, p.2-55 (ANZECC 1992) for further information
[16] see table on p32 (Guidelines for Pesticides), p32 (NHMRC/ARMCANZ 1996)
[17] Maximum chloride concentration should be set according to the sensitivity of the crop. For further information. (See Tables 5.1, 5.2, 5.3, 5.4, ANZECC 1992)

APPENDIX F

AARGUS FIELDWORK PROTOCOLS

Sampling Quality & Fieldwork Assurance Protocols

January 2011

Aargus AUSTRALIA

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1.0 OBJECTIVE AND SCOPE

The objective of Aargus Pty Ltd, Aargus Engineering Pty Ltd and Aargus Laboratories Pty Ltd (Aargus) Protocols is to ensure that the methodology followed during fieldworks is adequate to provide data which is usable and representative of the conditions actually encountered at the site.

The scope of these protocols is to:

- Outline the methods and procedures for the field investigations during an engineering, laboratory or environmental assessment or remediation and validation program; and
- Specify methods and procedures which ensure that soil and groundwater samples recovered are representative of the actual subsurface conditions at the site, as well as ensuring that the risk of introducing external contamination to samples and to the environment is minimised.

These protocols must be adhered to by Aargus personnel and by sub-contractors involved in field investigations. Any deviations from these protocols should be explained within the Aargus Report to which they are attached.

2.0 SOIL SAMPLING

2.1 Collection methods

Possible collection methods

Soil samples are generally collected by drilling or excavating the subsurface, using one of the following drilling / excavating technique:

- Rotary air hammer
- Hand auger, trowel or manual handling (shovel)
- Solid or hollow auger
- Backhoe or Excavator

Rotary Air Hammer

The air hammer technique requires the use of synthetic blend lubricants to prevent potential contamination of the borehole if a leak were to occur. In addition, micro-filters

are installed into the drilling airline to avoid contamination by hydrocarbons present in the compressed air.

Samples of rock are generally not collected. Where rock samples are needed, specialised techniques are used.

Hand auger, trowel or manual

A hand auger or trowel is generally used to investigate subsurface conditions of unconsolidated materials at shallow depths or in areas difficult to access with other equipment. Samples are recovered from the hand auger, taking care to avoid cross contamination, especially between samples from the same hole but at different depths. Sampling equipment is to be thoroughly cleaned between sampling events, in accordance with the procedures outlined in Section 2.5 Equipment decontamination. In the case of laboratory sampling, a pick and shovel can be used to gather adequate sample size as cross contamination is not considered an issue.

Solid or Hollow auger

Solid and hollow auger drilling techniques are well suited to unconsolidated materials. The main advantage of the hollow auger technique is that the drill rods allow access of sampling equipment at specified depths within the annulus of the drill rods.

Samples of soil are recovered using a split spoon sampler at specific depth intervals. The split spoon sampler is driven into the soil by the drill rig whilst attached to the end of the drill rods. The retrieved sample is then split lengthways into two halves when duplicate samples are required. A few centimetres of soil from the top of the split spoon sampler is discarded. Samples for volatile analysis are collected first, without mixing.

Test pits and trenches excavated with a backhoe or an excavator

Test Pit and Trenches excavated with a backhoe/excavator are used to collect relatively shallow (i.e. less than 3.5m depth) soil samples on occasions where:

- Access multiple sample locations at a site are needed;
- A description of the subsurface soil profile to approximately 3.5 m depth is required (generally in unsaturated conditions);
- The investigated site is free from known underground services and access problems;
- The investigated site is free from impenetrable surface or near surface layers including concrete and asphalt pavements; and

- Undisturbed soil samples are required, usually at multiple depths.

Backfilling

On completion of drilling / test pitting, the investigated locations are backfilled with cuttings and compacted. Excess drill cuttings are disposed of appropriately. If the sampling location is located in an area used for the circulation of people or vehicles, the top of the sampling location should be sealed with mortar.

2.2 Soil logging

The lithological logging of soil samples and subsurface conditions is undertaken by Aargus personnel. The soil characteristics are logged in accordance with the Australian Standard *AS1726-1993 Geotechnical Site Investigations.* This includes description of grain size, visible staining, odour and colour, and of the clues which may suggest that the soil may be contaminated. Descriptions of soils are made using the Northcote method.

2.3 Collecting soil samples

The soil sample is collected using a stainless steel trowel, or directly with the hand if the sampler wears disposable gloves. Soils are quickly transferred into 250g clean amber glass jars, which have been acid washed and solvent rinsed. The jars are sealed with a screw-on teflon lined plastic lid, labelled, and placed for storage in an ice filled chest. Alternatively for engineering and laboratory sampling, 20kg plastic bulk bags are used and appropriately labelled.

2.4 Labelling of soil samples

Samples are labelled with the following information:

- Job number;
- Date of sample collection;
- Name of the Aargus professional who collected the sample; and
- Sample number: the letters used to label the samples are BH, C, SS, SP, TP and V which refer respectively to borehole samples, composite samples, surface samples, stockpile samples, test pit samples and validation samples. For borehole samples, BH3.1.0 is the sample taken from borehole 3 at 1.0m below ground level. For stockpile samples, SP1/1 is the first sample from stockpile 1. TP1.2.5 is the sample taken from testpit 1 at a depth of 2.5 metres below ground level. V3/F is the validation sample taken from location V3, the letters F N, S, E

and W refer to the floor, north, south, east and west walls of an excavation; if some contamination is found in the validation sample, then chasing out of the contamination is required and in this case, the label of the sample is changed by adding /1 or /2 according to the number of times the contamination has been chased out. B stands for blind and could be B1, B2 etc dependant on how many blind samples were taken.

2.5 Equipment decontamination

The drilling and sampling equipment are cleaned using an appropriate surfactant (e.g. phosphate-free detergent or Decon 90), then rinsed with tap water prior to final rinsing with distilled water.

The following procedures shall be followed for decontamination of drilling and sampling equipment where required:

- buckets or tubs used for decontamination shall be cleaned with tap water and detergent and rinsed with tap water before sampling commences;
- fill first bucket or tub with tap water, and phosphate free detergent;
- fill second bucket or tub with tap water;
- clean equipment thoroughly in detergent water, using a stiff brush; rinse equipment in tap water;
- dry equipment with disposable towels;
- rinse equipment by thoroughly spraying with tap water, then final rinse with distilled water;
- allow equipment to dry; and
- change water and detergent solution between sampling event where required or when water is dirty.

Sampling decontaminated equipment should be kept in a clean area to prevent cross-contamination. Equipment that cannot be thoroughly decontaminated using the detergent wash and water rinse should be cleaned with steam or high pressure water or if a cleaner is not available, not used for further sampling (and labelled clearly "not decontaminated") or discarded. Equipment decontaminated using the high pressure steam cleaner will be treated as described above. Any equipment that cannot be thoroughly decontaminated shall be discarded and replaced.

A new pair of latex gloves is used to handle each sample. Contaminated materials such as disposable clothing should be disposed of in accordance with environmental best practice.

2.6 Surveying of sampling locations

Sampling locations are generally located by reference to existing ground features, e.g. fences, buildings.

If the survey for location and elevation is required, it should be done by a licensed surveyor, or alternatively by an Aargus environmental engineer / scientist if the level of precision required can be obtained by the use of Aargus field equipment. Aargus has GPS equipment and level meters.

If the location is given by a licensed surveyor, it is generally given to the nearest 0.1m and referenced to the Australian Map Grid (AMG) coordinates.

3.0 GROUNDWATER SAMPLING

3.1 Groundwater Sampling Objectives

The primary objective of any groundwater (quality) sampling is to produce groundwater samples that are representative of groundwater in the aquifer and will remain representative until analytical determination or measurements are made.

3.2 Groundwater well construction

Typically wells are installed to gain access to the groundwater to be sampled. Well construction details will depend on hydrogeological setting of the site, for example the depth to groundwater strata present. Relevant information regarding the hydrogeological setting will have been obtained prior the development of any groundwater sampling program.

The preferred drilling methods will depend on the hydrogeological setting of the site and the objectives of the groundwater sampling program. For example, shallow wells in unconsolidated materials, such as sand, may be drilled using a hand auger. Drill rigs using solid of hollow flight augers may be used to drill deeper wells or through semi consolidated materials, such as stiff clay. Rotary air hammer drilling may be used were well is to be drilled through consolidated materials, such as rock. Soil samples may also be collected during drilling (see Section 2.0 SOIL SAMPLING).

Drilling methods and materials must not have an unacceptable impact on the groundwater to be sampled. For example, if groundwater from the wells is to be tested for organic analytes, petroleum based lubricants are not to be used and oil traps must be installed on compressed air lines. Drilling techniques should also minimise compaction or smearing of the boreholes wells and transport of material into different zones, in particular, when drilling through potentially contaminated material to access groundwater.

Drill cuttings accumulated over a hole are to be removed as drilling progresses so as to prevent fallback of cuttings into the hole. Samples may be collected at a range of depths in the borehole profile during drilling.

The depth of groundwater well depends of the purpose of the investigation on the soil profile and the regional geology of the area. If the borehole location is covered by concrete, coring of the superficial hard layer is undertaken first.

Petroleum based lubricants are not used on drilling and sampling equipment, instead, Teflon based greases are used where appropriate. An Aargus professional monitors and records drilling activities, procedures adopted, materials used, progress of the stages of well construction, screen location, standpipe lens, placement, of sand filters and well seals, and general completion details, as well as the lithology of the subsurface, visible staining, unusual odours and colours (if any).

The use of a rotary air hammer rig has many advantages for consolidated material (e.g. rock), including:

- Large diameter to allow precise placement of groundwater monitoring equipment;
- No injection of drilling fluids into the formation with resulting benefits in ensuring integrity of recovered samples, and therefore no need to dispose off-site drilling fluids;
- Rapid penetration in consolidated material; and
- Provision of reliable indications of saturated conditions whilst drilling.

Drill cuttings accumulated over a hole are removed as drilling progresses so as to prevent fallback of cuttings into the hole. Samples are taken at a range of depths in the borehole profile.

Construction of the monitoring well may be carried out by the Aargus professional or the drilling contractor under the direct supervision of the Aargus environmental

scientist/engineer. Typically on completion of drilling, slotted heavy duty PVC pipe (generally 50mm in diameter for the installation of monitoring well) is inserted into the drilled hole. The base of the pipe is capped prior to insertion in order to prevent natural soils entering the well from below. The drilled area surrounding the pipe screen is filled with coarse-grained sand. Bentonite or cement grout seal plugs may be placed above the screen depending on the hydrogeological setting of the site and sand cement mix. Excess drill cuttings are disposed of in accordance with environmental best practice.

The Aargus professional will monitor and record drilling activities, and materials encountered during drilling (including visible staining, unusual odours and colours (if any)). They will log the procedures adopted, materials used, and well construction (i.e. location of the screen, placement of sand packs and well seals and general completion details).

3.3 Development of monitoring wells

Development is the process of removing fine sand silt and clay from the aquifer around the well screen in order to maximise the hydraulic connection between the bore and the formation.

Development involves removal of fluids that may have been introduced during drilling operations as well as fines from the sand filter and screens. Well development generally involves actively agitating the water column in the well then pumping water out until, ideally, water pumped comes out visibly clean and of constant quality. Development can be undertaken immediately after installation of the groundwater well or after sufficient time has been allowed for bentonite / grout seals to consolidate.

Bores used for groundwater quality monitoring should be developed after drilling, then left for a period until bore chemistry can be demonstrated to have stabilised, any where between 24 hours and 7 days.

3.4 Purging of monitoring well

In most groundwater monitoring wells, there is a column of stagnant water above the screen that remains standing in the bore between sampling rounds. Stagnant water is generally not representative of formation water because it is in contact with bore construction materials for extended periods, is in direct contact with the atmosphere and is subject to different chemical equilibria.

Purging is the process of removing this water from the well prior to sampling. In newly installed wells, the disturbance cause by drilling may also affect water present in the

well, and purging may be carried out concurrently with well development. Ideally wells should be purged at the lowest rate practicable until stable water chemistry is achieved.

Purging is to be performed less than 24 hours before sample collection, but usually it is performed just before sampling. The default procedure for purging a groundwater monitoring well is as follows:

- If required, measure the concentration of volatile organic vapours in the well standpipe headspace.
- Measure the depth to the standing water level in the well standpipe and the total depth of the well relative to a reference mark (generally the top of the groundwater pipe). The depth of any light non-aqueous phase liquids (LNAPL) floating on the standing water should be recorded if present using an interface probe or other suitable device.
- Calculate the volume of the groundwater in the well standpipe. The internal diameter of the well casing and the diameter of the drill hole are used to calculate the volume of water to be removed during development (nominally a minimum of three well volumes, including water present in the sand pack, should be abstracted during purging).
- Samples of water are collected generally following development/purging of each well volume. The samples are measured immediately in the field for water quality parameters, pH, electrical conductivity, redox potential and temperature. Water quality measurement probes are to be calibrated against stock standards on regular basis and decontaminated between wells.
- Pump/bail groundwater from the well until the water quality parameters have stabilised (i.e. within 10% of the previous reading) or the well is pumped/bailed dry. Collect all purged water into an appropriate volume measurement vessel. Purged water is disposed of appropriately.
- Record all appropriate development details on the well development and sampling sheet.
- Decontaminate all equipment used in the purging procedure.

3.5 Groundwater sampling

For each sampling event, starting water levels, purging times and volumes, water quality parameters and sample details are recorded on well development and sampling sheets.

At each groundwater monitoring well, a polyethylene sheet or Eski lid is placed beside the well head and firmly fixed into position. Sampling equipment is placed onto the sheet to avoid cross contamination between the ground surface and the groundwater in the well.

Groundwater samples are collected in a bailer (Stainless Steel or disposable polymer) fitted with an emptying device. The bailer is decontaminated prior to use. All groundwater samples are retrieved at an appropriate rate in order for turbulence (which leads to cloudy samples) to be minimised.

When collecting a water sample the bailer is lowered gently into the well, until it is within the screened interval. The bailer is then steadily withdrawn, to minimise agitation of water in the well and disturbance of the surrounding sand filter material.

The procedure for using the bailer is:

- Slowly lower the bailer into the water and allow it to sink and fill with a minimum of disturbance;
- Empty the first bailer sample into a container in order to measure the volume of bailed water and to rinse the bailer with well water;
- Emptying the bailer through the bottom-emptying device (BED) collects the samples. The sample is discharged down the side of the sample bottle to minimise entry turbulence;
- Collect samples for volatile organics first, followed by semi-volatiles, other organics and then inorganics;
- The flow from the BED is adjusted so that a relatively low flow rate is maintained.

3.6 Low flow purging

Purging large volumes of water can be impractical, hazardous or may adversely affect the contaminant distribution in the sub-surface (e.g. through dilution). Low-flow purging involves minimal disturbance of the water column and aquifer and is preferable to the removal of a number of bore volumes. This method removes only small volumes of water, typically at rates of 0.1 to 1.0L/min, at a discrete depth within the bore.

Low-flow purging consists essentially of the following steps:

- The pump inlet is carefully and slowly placed in the middle or slightly above the middle of the screened interval at the point where the contaminant concentration is required (dedicated pumps, such as bladder pumps, are ideal for low-flow

sampling). Placement of the pump inlet too close to the bottom of the bore can cause increased entrainment of solids, which have collected in the bore over time.

- Purging begins, typically at a rate of 0.1 to 1.0L/min, although higher rates may be possible provident the rate of purging does not cause significant draw down in the bore.
- During purging, groundwater stabilisation parameters should be measured and recorded to determine when they stabilise.
- When parameters have stabilised, the sample may be collected, at a rate slower or equal to purge rate.

3.7 Labelling of water samples

The water samples are identified with the same information than soil samples. GW4/2 is the sample collected from well GW4, and 2 refers to the sample number from this well, i.e. second time the well is sampled.

3.8 Sampling containers

Water samples are generally collected in bottles and containers provided by the laboratory who will analyse the samples. These are generally plastic bottles for inorganic analysis, and amber glass bottles for organic analysis. Vials are used to collect samples to be analysed for volatile organics. Sampling containers have appropriate preservatives added.

The bottles are filled to overflowing so as to remove air bubbles as much as possible prior to firmly screwing on the container cap. When performing purge and trap analyses, the vials are filled to 100% of their capacity. For headspace analyses, the vials are filled to approximately 75% of their capacity.

3.9 Well surveying

If the survey for location and elevation of a groundwater well is required, it should be done by a licensed surveyor, or alternatively by an Aargus environmental engineer / scientist if the level of precision required can be obtained by the use of Aargus field equipment.

If the location is given by a licensed surveyor, it is generally given to the nearest 0.1m and referenced to the Australian Map Grid (AMG) coordinates.

If the elevation is given by a licensed surveyor, the top of the standpipe and the ground surface adjacent to the standpipe are generally given to the nearest 0.01m and may be

referenced to the Australian Height Datum (AHD). Relative levels (RLs) can be used if general contours are required.

4.0 SURFACE WATERS AND STORMWATER SAMPLING

4.1 Surface waters

Surface water samples are collected by hand, using automatic samplers, batch samplers or continuous samplers which can be installed to take samples at discrete time intervals or continuously. For well mixed surface water samples (up to 1m depth) a sample bottle is immersed by hand covered by a glove below the surface. Samples are also taken with sample poles that have extension arms so that more representative samples can be taken. For areas where access is difficult, samples can be collected using a retractable sample extension pole (sample bottle on the end) or in a bucket and transferred to sample bottles immediately following collection. Other methods such as pumping systems, depth samplers, automatic samplers, and integrating systems are all relatively similar with water samples being supplied to a discharge point where samples can be collected in appropriate bottles.

4.2 Stormwater

The monitoring of stormwater quality is generally required prior to reject waters into stormwater drains. Field measurements are generally carried out using a Hanna Multiprobe prior to the discharge of the water to stormwater. The water parameters measured include pH, electrical conductivity (EC, in mS/cm) and Total Dissolved Solids (TDS).

If sampling is required, samples to be analysed for inorganic compounds are collected in plastic bottles, and samples to be analysed for organic compounds are collected in amber glass bottles. The bottles are filled to overflowing so as to remove air bubbles as much as possible prior to firmly screwing on the container cap. Sample containers may have preservatives added, in accordance with the laboratory recommendations.

Vials are used for volatile organic analysis. When performing purge and trap analysis, the vials should be filled to 100% of their capacity, whereas for headspace measurements, the vials should be filled to approximately 75% of their capacity..

4.3 Filtration devices

Water filtration devices may be required to filter surface water before it is discharged to the stormwater network, in order to remove suspended solids in water. One of the most

simple and commonly used filtration device consists of between two to four retention sedimentation bays with a geotextile covering the inlet and outlet hoses.

Litter traps (wire or plastic grids or netting) may also be used to remove larger particles or debris. Other techniques to reduce the amount of suspended matter in water include wet basins, artificial wetlands, infiltration trenches and basins, sand filters and porous pavements. Some of these latter methods are also likely to reduce the bacterial levels in water.

The use of these filtration devices does not preclude carrying out monitoring of water quality following treatment and prior to discharge, particularly to the stormwater system.

5.0 FIELD TESTING

5.1 Field measurements

Field measurement of soils and groundwater parameters provides a rapid means of assessing certain aspects of soil and water quality. They are generally taken to:

- Ensure that formation water is being sampled
- Ensure screening of soils prepares samples for laboratory testing
- Provide on-site measurements for soil and water quality parameters that are sensitive to sampling and may change rapidly (e.g. temperature, pH, redox and dissolved oxygen (DO)).
- Compare with laboratory measurements of these parameters to assist in the interpretation of analytical results of other parameters (e.g. check for chemical changes due to holding time, preservation and transport).

Field measurements may be taken either in-situ or after groundwater has been extracted from a bore. Field measurements should be taken immediately before collecting each sample.

pH and dissolved oxygen meters need to be calibrated before every use, in accordance with the manufacturer's instructions. If field meters are to be used over several hours, periodic readings of a reference solution must be made to ensure calibration is stable.

5.2 PID Photo Ionisation Detector

Photo Ionisation Detector (PID) measurements are used to provide indicative field measurements of the amount of ionisable vapours released from a soil or water sample into the head space above the sample.

The procedure for field screening of samples using the PID is as follows:

- Prior to testing commencing, the PID is calibrated using standard laboratory calibration gas. The battery of the PID should also be sufficiently charged for the duration of the testing;
- The background concentrations of total ionisable compounds in the ambient air in the vicinity of the work area are established prior to the commencement of site activities. Background measurements are normally taken approximately 5 to 10m upwind of the work area. The readings are observed before and after each measurement of a sample to ensure that the PID is operating correctly. The maximums, fluctuations and other relevant comments are recorded.
- A glass sample jar is filled with the soil sample to be tested. The jar should not be filled more than 3/4 full;
- The jar is sealed with aluminium foil or plastic wrap and the lid is screwed;
- At least 20 minutes after placing the sample into the sampling jar, check that the PID reading is constant and similar to the background. Insert the top of the PID through the foil or plastic wrap in order to measure the ionisable vapour concentrations in the airspace above the sample;
- Monitor and record the PID readings noting fluctuations and maximum readings;
- Monitor the readings after returning the PID to a location with background concentrations. Interchangeable, clean, in-line filters for the PID probe are available to allow rapid decontamination of the unit in the field if background readings measured by the instrument are significantly greater than the background air concentration initially established;
- If perforations are present in the aluminium foil prior to analysis reseal the jar and test after having waited again for at least 20minutes.

An alternative acceptable method is to place the soil to be tested in a disposable zip loc plastic bag and test the sample by punching a hole in the bag with the PID tube to sample the gas from the bag.

6.0 ACID SULFATE SOILS

6.1 Desktop Classification

An initial review of Acid Sulphate Soils (ASS) Planning Maps is undertaken to identify the likelihood and risk of ASS being present at the site. The following geomorphic conditions of the site are also checked as an indication of the presence of ASS: sediments of recent geological age (Holocene) ~ 6000 to 10 000 years old; soil horizons less than 5m AHD (Australian Height Datum); marine or estuarine sediments and tidal lakes; coastal wetlands or back swamp areas; waterlogged or scalded areas; inter-dune swales or coastal sand dunes; areas where the dominant vegetation is mangroves, reeds, rushes and other swamp tolerant and marine vegetation; areas identified in geological descriptions or in maps bearing sulfide minerals, coal deposits or former marine shales/sediments; and deeper older estuarine sediments >10m below the ground surface.

6.2 Site Walkover

The presence on site of hydrogen sulphide odours, acid scalds, flocculated iron, monosulfidic sludges, salt crusts, stressed vegetation, corrosion of concrete and/or steel structures and water logged soils are noted as cues for the presence of ASS.

6.3 Visual Classification

Visual indicators taken into account for the presence of ASS are the presence of jarosite (pale yellow colour) horizons or mottling, unripe muds (waterlogged, soft, blue grey or dark greenish grey in colour), silty sands and sands (mid to dark grey in colour) and the presence of shells.

6.4 Sample Collection

Samples are collected to at least one metre below the depth of the proposed excavation or estimated drop in the water table, or two metres below ground level, whichever is deepest. Samples are collected from every soil horizon or every 0.25m. Large shells, stones and fragments of wood, charcoal and other matter are noted, but removed from the sample. Small roots are not removed from the sample. If laboratory analysis is required, samples are sent for laboratory testing within 24 hours of sampling.

6.5 Field Testing

The field pH peroxide test (pH_{FOX}) is used to obtain an indication of the presence of oxidisable sulphur in the soil. The procedure for this test is as follows:

- A small sample of soil (<100g) is collected in a glass jar and split into two sub-samples. One sub-sample is made into a 1:5 (soil : deionised water) solution in order to measure field soil pH and electrical conductivity (EC) analysis. If the resulting pH is less than 4 (pH_F<4), the sample is identified as actual acid sulphate soil (AASS)

- The second sub-sample is made into a 1:5 (soil : Hydrogen Peroxide) solution to measure pH of oxidised soil. Sodium Hydroxide (NaOH)-adjusted analytical (30%) grade Hydrogen Peroxide (H_2O_2) is used as the soil oxidising agent. A mobile electronic pH/EC probe is used to measure soil pH.

- The presence of oxidisable sulphides, organic matter or manganese in the sample, will trigger a chemical reaction. The type of effervescence and any colour change is noted with the final pH measured to give an indication of the potential change in pH should the soil remain exposed to oxygen. If the resulting pH is less than 3 (pH_{FOX}<3) or if pH_{FOX} is at least one unit less than the pH_F, this suggests that the soil tested is potential acid sulfate soil (PASS).

6.6 Laboratory Testing

When the field test suggests that the material tested contains ASS or PASS, this should be confirmed by laboratory analysis (POCAS/SPOCAS or TOS testing).

7.0 NOISE MONITORING

Measurements are taken at a range of times during the day in order to assess the trends in noise emission over time. Noise is measured using a hand-held Rion NA-29 Sound Level Meter with digital microphone. Some noise meters change and appropriate equioment which is calibrated is used for all monitoring. The reference level of the meter is checked before and after the measurements using a Rion NC-73 Sound Level Calibrator to ensure there is no significant drift. Noise measurements are made over a 15-minute interval using the “fast” response of the sound level meter. 5dB would be added if the noise is substantially tonal or impulsive in character. Measurements should be adapted to the type of noise being measured i.e. construction, occupation, club, etc.

8.0 DUST MONITORING

Sampling is conducted at locations of potential concern. The deposit gauge static sampler contains a glass funnel measuring approximately 150mm with the angle of the cones sides being 60 degrees, placed into a rubber stoppers in the mouth of a five-litre glass receptacle. The deposit gauge is placed in a stand so that the height of the funnel of the deposit gauge is between 1.8 and 2.2m above ground level. A quantity of 7.8g copper sulfate pentahydrate dissolved in water is placed in the glass receptacle in order to prevent algal growth.

Exposure periods vary depending on the purpose of the investigation but typically the period is 30 ±2 days. Samples are usually analysed for measured soils: total solids, insoluble solids, ash and combustible solids.

Dust can also be measured using a High Volume Air Sampler. Such sampler should be located at least 2 metre away from any structures so that an undisturbed sample can be collected. HVASs can be used indoors or outdoors.

9.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

9.1 Introduction

Inaccuracies in sampling and analytical programs can result from many causes, including collection of unrepresentative samples, unanticipated interferences between elements during laboratory analyses, equipment malfunctions and operator error. Inappropriate sampling, preservation, handling, storage and analytical techniques can also reduce the precision and accuracy of results.

The Australian Standard AS4482.1-2005 *Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-Volatile and Semi-Volatile Compounds* has documented procedures for quality assurance (QA) and quality control (QC) for sampling and analysis to ensure that the required degree of accuracy and precision is obtained. The Australian Standard also recommends the use of two laboratories for the implementation of a QA program for the analyses in addition to the QC procedures followed by the primary laboratory.

9.2 Field QAQC samples

General

Procedures for duplicate sampling should be identical to those used for routine sampling and duplicate samples will be despatched for analysis for the same parameters using the

same methods as the routine samples. No homogenisation of samples which may induce the loss of volatile compounds (such as BTEX) should occur. Whenever possible, the selection of samples for duplicate analyses should be biased towards samples believed to contain the contaminant of concern.

Intra-laboratory duplicates

Intra-laboratory duplicate samples, also referred to as Blind duplicates, are used to assess the variation in analyte concentration between samples collected from the same sampling point and / or also the repeatability of the laboratory analyses. Samples are split in the field to form a primary sample and a QC duplicate (intra-laboratory replicate) sample. The intra-laboratory duplicates are taken from a larger than normal quantity of soil collected from the same sampling point, removed from the ground in a single action, and divided into two vessels. These samples are submitted to the laboratory as two individual samples without any indication to the laboratory that they have been duplicated.

Intra-laboratory duplicate samples should be collected at a rate of approximately 1 in 20 soil samples and analysed for the full suite of analytes. At least one intra-laboratory duplicate sample should be included in each batch of samples.

Inter-laboratory duplicates

Inter-laboratory duplicate samples, also referred to as Split duplicates, provide a check on the analytical proficiency of the laboratories. The samples are taken from a larger than normal quantity of soil collected from the same sampling point, removed from the ground in a single action, and divided into two vessels. One sample from each set is submitted to a different laboratory for analysis. The same analytes should be determined by both laboratories using the same analytical methods.

Inter-laboratory duplicates should be collected at a rate of approximately 1 in 20 soil samples and analysed for the full suite of analytes. At least one inter-laboratory duplicate sample should be included in each batch of samples.

Blanks

<u>Rinsate Blanks</u>

Rinsate blank samples provide information on the potential for cross-contamination of substances from the sampling equipment used. Rinsate blanks are collected where cross-contamination of samples is likely to impact on the validity of the sampling and assessment process (e.g. when the investigation level of a contaminant is close to the detection limit for this contaminant). They are prepared in the field using empty bottles and the distilled water used during the final rinse of sampling equipment. After

completion of the decontamination process, fresh distilled water is poured over the sampling equipment and collected. The distilled water is exposed to the air for approximately the same time the sample would be exposed. The collected water is then transferred to an appropriate sample bottle and the proper preservative added, if required.

One rinsate blank par day and / or one per piece of sampling equipment are collected during the decontamination process, and analysed for the analytes of interest. At least one rinsate blank should be included in each batch of samples. One rinsate blank should be collected for every 50 samples collected and analysed for the full suite of analytes.

Trip Blanks / Spikes

Trip blanks / spikes are a check on the sample contamination originating or lost from sample transport, handling, and shipping. These are samples of soil or water prepared by the laboratory with a zero or known concentration of analytes.

Field Blanks

Field blanks are a check on sample contamination originating from sample transport, handling, shipping, site conditions or sample containers. These are similar to trip blanks except the water is transferred to sample containers on site.

9.3 Laboratory quality assurance / quality control

The laboratories undertake the analyses utilising their own internal procedures and their test methods (for which they are NATA, or equivalent, accredited) and in accordance with their own quality assurance system which forms part of their accreditation.

Laboratory duplicate samples

Laboratory duplicate samples measure precision. These samples are taken from one sample submitted for analytical testing in a batch. The rate of duplicate analysis will be according to the requirements of the laboratory's accreditation but should be at least one per batch. Precision is reported as standard deviation SD or Relative Percent Difference %RPD, being:

$$\%RPD = \frac{(D1 - D2)}{(D1 + D2)} \times 200$$

where: D1: sample concentration and D2: duplicate sample concentration

Replicate data for precision is expected to be less than 30% RPD at concentration levels greater than ten times the EQL, or less than 50% RPD at concentration levels less than ten times the EQL. Sample results with a RPD exceeding 100% require specific

discussion. Note that certain methods may allow for threshold limits outside of these limits.

Matrix Spiked Samples

Matrix spiked samples are used to monitor the performance of the analytical methods used, and to assess whether the sample matrix has an effect of on the extraction and analytical techniques. A sample is spiked by adding an aliquot of known concentration of the target analyte(s) to the sample matrix prior to sample extraction and analysis. These samples should be analysed at a rate of approximately 5% of all analyses, or at least one per batch. Matrix spikes are reported as a percent recovery %R, being:

$$\%R = \frac{(SSR-SR)}{SA} \times 100$$

where: SSR: spiked sample result, SR: sample result (blank) and SA: spike added

Recovery data for accuracy is described by control limits specified by the laboratory (generally ranging between 70% and 130%) and referenced to US EPA SW-846 method guidelines values.

Laboratory Blank

Laboratory blanks are used to correct for possible contamination resulting from the preparation or processing of the samples. These are usually an organic or aqueous solution that is as free as possible of analyte and contains all the reagents in the same volume as used in the processing of the samples. Laboratory blanks must be carried through the complete sample preparation procedure and contain the same reagent concentrations in the final solution as in the sample solution used for analysis. Laboratory blanks should be analysed at a rate of once per process batch, and typically at a rate of 5% of all analyses.

Laboratory Control Samples

Laboratory Control Samples, also referred to as Quality Control Check Samples, are used to assess the repeatability and long term accuracy of the laboratory analysis. These are externally prepared and supplied reference material containing representative analytes under investigation. Recovery check portions should be fortified at concentrations that are easily quantified but within the range of concentrations expected for real samples. Laboratory Control samples should be analysed at a rate of one per process batch, and typically at a rate of 5% of analyses. Laboratory control samples are reported as a percent recovery %R, being:

$$\%R = \frac{(SSR-SR)}{SA} \times 100$$

where: SSR: spiked sample result, SR: sample result (blank) and SA: spike added

Recovery data for accuracy is described by control limits specified by the laboratory and referenced to US EPA SW-846 method guidelines values. Ideally, all calculated recovery values should be within the acceptable limits. However, in the event that control limit outliers are reported, professional judgement is used to assess the extent to which such results may affect the overall usability of data.

Surrogates

Surrogates are used to provide a means of checking, for every analysis, that no gross errors have occurred at any stage of the procedure leading to significant analyte losses. Surrogate are quality control monitoring spikes, which are added to all fields and QAQC samples at the beginning of the sample extraction process in the laboratory. Surrogates are closely related to the sample analytes being measured (particularly with regard to extraction, recovery through cleanup procedures and response to chromatography) and are not normally found in the natural environment.

Surrogate spikes will not interfere with quantification of any analytes of interest and may be separately and independently quantified by virtue of, for example, chromatographic separation or production of different mass ions in a GC/MS system. Surrogates are measured as Percent Recovery %R expressed as:

$$\%R = \frac{(SSR)}{SA} \times 100$$

where: SSR: spiked sample result and SA: spike added

Recovery data for accuracy is described by control limits specified by the laboratory and referenced to US EPA SW-846 method guidelines values.

10.0 DATA QUALITY OBJECTIVES

10.1 General

Data Quality Objectives (DQOs) are defined to ensure that the data is sufficiently accurate and precise to be used for the purpose of the project works. DQOs are defined for a number of areas including:

- sampling methods;
- decontamination procedures;

- sample storage (including nature of the containers) and preservation;
- laboratory analysis, including PQL, recoveries (surrogates, spikes), duplicates;
- preparation of CoC forms;
- document and data completeness; and
- data comparability.

The NSW DEC Contaminated Sites Guidelines for the NSW Site Auditor Scheme (2nd Ed) 2006 also provide a seven step process for Data Quality Objectives (DQOs). These are as follows:

- State the problem
- Identify the decisions
- Identify inputs to the decision
- Define the study boundaries
- Develop a decision rule
- Specify limits on decision errors
- Optimise the design for obtaining data

DQOs must be adopted for all assessments and remediation programmes. The DQO process must be commenced before any investigative works begin on a project.

10.2 Field DQOs

The DQOs for sampling methods, decontamination procedures, sample storage (including nature of the containers) and preservation, preparation of CoC forms, and document and data completeness are the Aargus protocols which have been described in the previous sections of this document.

10.3 Assessment of RPD values for field duplicate samples

The criteria used to assess RPD values for field duplicate samples is based on discussion reported in AS4482.1 1997, a summary of which is presented below:

Table 1: RPD acceptance criteria

Sample type	Typical acceptable RPD
Intra-laboratory duplicate (blind duplicate)	30-50°% (*)
Inter-laboratory duplicate (split duplicate)	30-50% (*)

It is noted that other factors such as sampling technique, sample variability, absolute concentration relative to criteria and laboratory performance should also be considered when evaluating RPD values.

The Australian Standard also states that the variation can be expected to be higher for organic analytes than for inorganics, and for low concentrations of analytes (lower than five times the detection limit). Based on Aargus Pty Ltd experience, RPD up to 70% are considered to be acceptable for organic species. RPD of 100% or more are generally considered to demonstrate poor correlation and should be discussed.

10.4 Laboratory Data Quality Objectives (DQO)

General

Aargus also provides internal laboratory testing for a range of physical parameters. Aargus is NATA certified to conduct these tests.

SGS is the Aargus-preferred laboratory for the chemical analysis of primary samples. SGS is accredited by the National Association of Testing Authorities (NATA).

The laboratory generally used by Aargus for analysing inter-duplicate samples is Labmark.

Analytical methods including detection limits are provided on each laboratory report and are checked as part of the data review process.

Laboratory QA/QC

Specific to SGS, standard QA/QC data includes LCS, MB, CRM (CRM metals only), Laboratory Duplicate (1 in first 5-10 samples, then every tenth sample) and Spike sample (1 in first 5-20 samples, then every 20th sample), and surrogate recovery's (target

organics). All QA/QC is reviewed by a senior chemist prior to customer release and includes a DQO comment on final report. Additional QA/QC maybe performed on batches less than 10 samples; however additional charges shall apply at the appropriate analytical rate/sample.

Laboratory analyses DQOs

The following table summarises laboratory analyses DQOs.

Table 2: Laboratory Data Quality Objectives (DQOs)

Laboratory QA/QC Testing	Laboratory QA/QC Acceptance Criteria
Method Blanks	For all inorganic analytes the Method Blanks must be less than the LOR. For organics Method Blanks must contain levels less than or equal to LOR.
Surrogate Spikes	At least two of three routine level soil sample Surrogate Spike recoveries are to be within 70-130% where control charts have not been developed and within the estimated control limited for charted surrogates. Matrix effects may void this as an acceptance criteria. Any recoveries outside these limits will have comment. Water sample Surrogates Spike recoveries are to within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criteria. Any recoveries outside these limits will have comment.
Matrix Spikes	Sample Matrix Spike duplicate recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike.
Laboratory Control Samples	Control standards must be 80-120% of the accepted value. Control standard recoveries are to be within established control limits or as a default 60-140% unless compound specific limits apply.
Laboratory Duplicate Samples	For Inorganics laboratory duplicates RPD to be <15%. For Organics Laboratory duplicates must have a RPD <30%.
Calibration of Chromatography Equipment	The calibration check standards must be within +/-15%. The calibration check blanks must be less than the LOR.

Non-compliances

Exceedances of QAQC results outside the DQO should be thoroughly investigated and discussed with the laboratories concerned, and the outcomes of these investigations should be recorded in the project files.

11.0 USE AND CALCULATION OF THE 95% UCL FOR SITE VALIDATION PURPOSE

For environmental services, statistical analysis is performed on data. Validation of a site at the completion of remediation works should comply with the recommendations of the applicable guidelines. For a site to be considered uncontaminated or successfully remediated, the typical minimum requirement is that the 95% upper confidence limit (UCL) of the arithmetic average concentration of the contaminant(s) is less than an acceptable limit, eg the threshold value of an health-based investigation level.

The calculation of the 95% UCL of the arithmetic average concentration method requires that the probable average concentration and standard deviation of the contaminant be known. This method is most applicable for validation sampling, where the mean concentration and the standard deviation can be estimated from sampling results. The 95% UCL is calculated as follows:

$$95\%\ UCL = mean + t_{\alpha,n-1} \frac{STDEV}{\sqrt{n}}$$

where

mean	arithmetic average of all sample measurements
$t_{\alpha,n-1}$	A test statistic (Student's t at an α level of significance and n-1 degrees of freedom)
α	The probability (in that case chosen to be 0.05) that the 'true' average concentration of the sampling area might exceed the UCL average determined by the above equation
STDEV	Standard deviation of the sample measurements
n	number of samples measurements

12.0 COPYRIGHT

13.0 ABBREVIATIONS

ANZECC	Australian and New Zealand Environment and Conservation Council
ASS	Acid Sulfate Soil
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethyl benzene and Xylene
CoC	Chain of Custody
DEC	Department of Conservation (formerly EPA)
DIPNR	Department of Infrastructure Planning and Natural Resources
DQO	Data Quality Objective
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
HIL	Health-Based Soil Investigation Level
LGA	Local Government Area
NEHF	National Environmental Health Forum
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NHMRC	National Health and Medical Research Council
NSL	No Set Limit
OCP/OPP	Organochlorine Pesticides /Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbon
PASS	Potential Acid Sulfate Soil
PCB	Polychlorinated Biphenyl
PID	Photo Ionisation Detector
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance, Quality Control
RAC	Remediation Acceptance Criteria
RAP	Remediation Action Plan
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria
SVC	Site Validation Criteria
SWL	Standing Water Level
TCLP	Toxicity Characteristics Leaching Procedure
TESA	Targeted Environmental Site Assessment
TPH	Total Petroleum Hydrocarbons
UCL	Upper Confidence Limit
VHC	Volatile Halogenated Compounds
VOC	Volatile Organic Compounds

14.0 REFERENCES

- ANZECC (1992) – *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites.*
- ANZECC (1996) – *Drinking Water Guidelines.*
- ANZECC (2000) – *Guidelines for Fresh and Marine Waters.*
- Land and Biodiversity committee (2003) – *Minimum Construction requirements for water bores in Australia.*
- National Environment Protection Council (NEPC) (1999) – *National Environmental Protection (Assessment of Site Contamination) Measure.*
- Netherlands Ministry of Spatial Planning, Housing and the Environment (1994 rev. 2000) – *Environmental Quality Objectives in the Netherlands.*
- New South Wales Environment Protection Authority (1994) – *Guidelines for Assessing Service Station Sites.*
- New South Wales Environment Protection Authority (1995) – *Sampling Design Guidelines.*
- New South Wales Environment Protection Authority (1997) – *Guidelines for Consultants Reporting on Contaminated Sites.*
- New South Wales Environment Protection Authority (1998) – *Guidelines for the NSW Site Auditor Scheme.*
- New South Wales Department of Environment & Conservation (2006) – *Guidelines for the NSW Site Auditor Scheme (2nd Ed).*
- New South Wales Environment Protection Authority (1999) – *Guidelines on Significant Risk of Harm from contaminated land and the duty to report.*
- New South Wales Environment Protection Authority (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes.*
- New South Wales Environment Protection Authority (2005) – *Guidelines for assessing former orchards and market gardens.*
- QLD Department of Environment (DoE) (1998) – *Draft Guidelines for the Assessment & Management of Contaminated Land in Queensland.*
- QLD EPA – Waste Management Branch, Contaminated Land Section – *Details about investigation thresholds and sampling – sent to Aargus on 14 Nov 2000.*
- Standards Australia AS1726-1993 (1993) – *Geotechnical Site Investigations.*
- Standards Australia AS4482.1-1997 (1997) – *Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-Volatile and Semi-Volatile Compounds.*
- Standards Australia AS5667.11-1998 (1998) – *Water Quality Sampling: Guidance on the Sampling of Groundwaters.*
- Victorian EPA (2000) – *Groundwater Sampling Guidelines*

FIGURES

Figure 1 Typical Groundwater Monitoring Well Construction Details

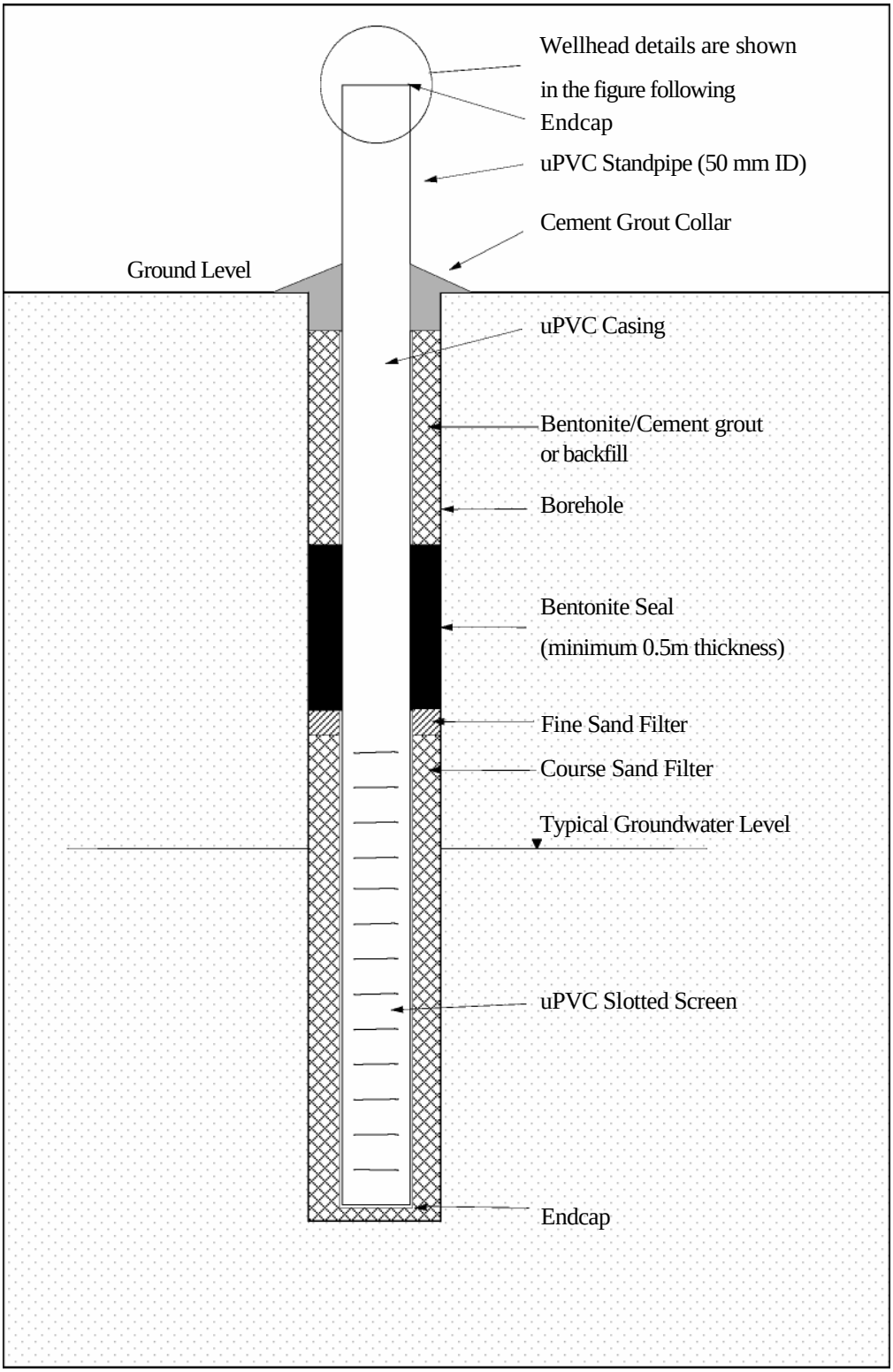
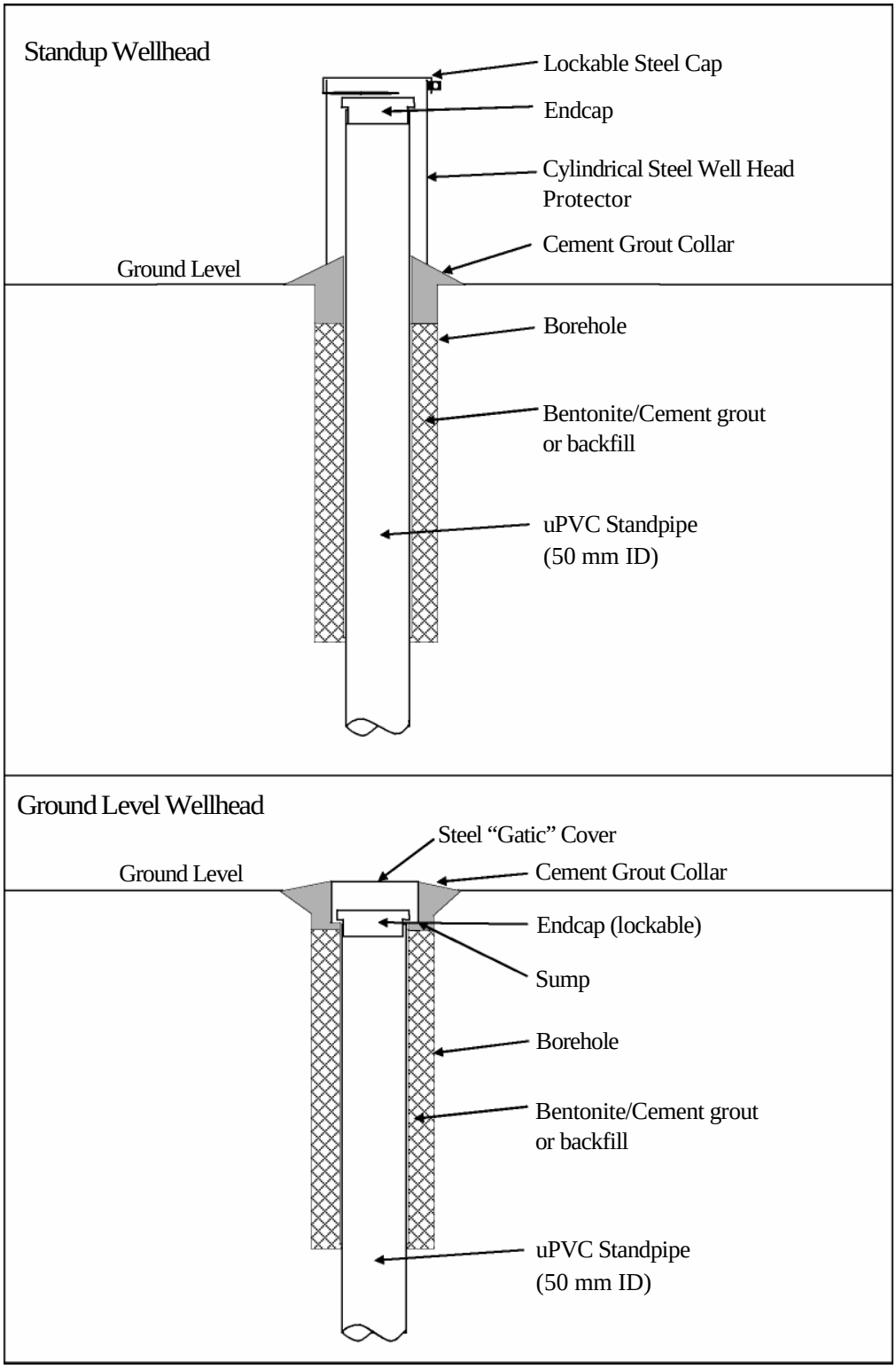


Figure 2 Groundwater Wellhead Construction Details



APPENDIX G

SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

Client	Mr Tony Khattar
Project	Environmental Site Assessment
Location	2-8 Vaughan Street & 1-15 Kerrs Road, Lidcombe NSW
Job No.	ES4703
Checked By	MK

Aargus
AUSTRALIA

Photograph Nº 1

View of the concrete car park
Looking South

Photograph Nº 2

View of the soil stockpile on the site

Photograph Nº 3

View of the single storey brick property and BH7
Looking South

Photograph Nº 4

View of the two storey brick building (rear) and concrete car park area
Looking East

Photograph Nº 5

View of the residential property on site
Looking South

Photograph Nº 6

View of the residential property on site
Looking South

APPENDIX H

RESUMES OF CLIENT TEAM

M i c h a e l S i l k

DATE OF BIRTH	9th January 1979
EDUCATION	Bachelor of Environmental Science, University of New England, Armidale, NSW, Australia.
ADDITIONAL COURSES	Certificate Three in Financial Services Operations QSCU Proud to be of Service Training QSCU CUNA Member Care Loan Insure Training St George Government Legislation Training St George Financial Services Trainee Program St George Customer Service Officer Module 1-3 Microsoft Office Level 1 Registered Fitness Leader Austswim Course Essentials Security License St John's Senior First Aid Army Reserve
FIELDS OF SPECIAL COMPETENCY	Indigenous Land Management, Impact Assessments, Ecology, Zoology, Catchment Management
EXPERIENCE	Michael has a strong scientific background in environmental science majoring in indigenous land management.

EXPERIENCE

2008-Present…….	Environmental Scientist *Aargus Pty Ltd*
2008……	Settlements Officer *Macquarie Bank*
2007	Loan Officer *Qantas Staff Credit Union*
2004……	Loans Support Officer *ING Bank*

2002……Customer Service Consultant
St George Bank

SELECTED PROJECTS

Virgin Excavated Natural Material (VENM)
This soil classification includes liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines. Areas where I have completed some of these include; Campbelltown, Coogee, Artamon, Dee Why, Norwest, Bankstown, Warrawee, Hurstville, Flinders

Soil Classification – Clovelly. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Soil Classification – Porters Creek. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Soil Classification - Tahmoor. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Soil Classification – Warriewood. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Soil Classification – Bonnyrigg. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Soil Classification – Hinchinbrook. The classifications included liaising with site personnel/ contractors, visual site inspections, sampling where applicable (including QA/QC), interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA (1999) – *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Wastes;* NSW DECC (2006, 2nd Edition) *Guidelines for the NSW Site Auditor Scheme* where suitability of fill was required for a particular land use.

Field Sampling and report preparation - Banksmeadow NSW. *W*ork included sampling, including QA/QC, interpretation of results and assessment against relevant guidelines and reporting. The classification of material was assessed with reference to NSW EPA Health based Investigation Levels

Groundwater Sampling – Mascot NSW. Fieldwork included groundwater well development, purging and sampling.

Historical Review – Title Search information – Included researching and collecting historical and cancelled land titles through computer and manual searches from the Department of Lands.

Acid Sulphate Soil Assessment – Bardwell Valley NSW – Development areas within potential Acid Sulphate Soil regions were assessed to determine the presence, absence or extent of potential or actual Acid Sulphate Soils. Duties included site surveys, soil sampling, chemical testing of soils, preparation of borehole logs, liaising with clients and regulatory authorities and report generation

Acid Sulphate Soil Assessment – Earlwood NSW – Development areas within potential Acid Sulphate Soil regions were assessed to determine the presence, absence or extent of potential or actual Acid Sulphate Soils. Duties included site surveys, soil sampling, chemical testing of soils, preparation of borehole logs, liaising with clients and regulatory authorities and report generation

Acid Sulphate Soil Assessment – Banksmeadow NSW – Development areas within potential Acid Sulphate Soil regions were assessed to determine the presence, absence or extent of potential or actual Acid Sulphate Soils. Duties included site surveys, soil sampling, chemical testing of soils, preparation of borehole logs, liaising with clients and regulatory authorities and report generation

Hazardous Materials Assessment – Bondi - Duties included hazardous materials assessments in commercial properties. Duties included surveying buildings for hazardous material such as asbestos (pipes, lagging, roofs, sheeting, electricity backing boards, lift brakes etc), lead and other substances known to be harmful to human health and the environment. Duties included liaising with contractors and regulatory authorities, identification of hazardous materials, sampling of potential hazardous materials and report writing.

Hazardous Materials Assessment – Kogarah - Duties included hazardous materials assessments in residential properties. Duties included surveying buildings for hazardous material such as asbestos (pipes, lagging, roofs, sheeting, electricity backing boards, lift brakes etc), lead and other substances known to be harmful to human health and the environment. Duties included liaising with contractors and regulatory authorities, identification of hazardous materials, sampling of potential hazardous materials and report writing.

Statement of Environmental Effects – St Marys NSW – The purpose of this report was to show the potential impact of the change in operations on the site and on the surrounding environment. Duties included; liaising with contractors and regulatory authorities, identification of production process and proposed development, identification of environmental issues, identification of legal issues, report writing, and a preliminary hazard analysis.

Preliminary Environmental Site Assessment (Phase 1) – Kogarah NSW. Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Preliminary Environmental Site Assessment (Phase 1) – Llandilo NSW. Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Preliminary Environmental Site Assessment (Phase 1) – Mascot NSW. Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Targeted Environmental Site Assessment – Dianella WA. Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of

results, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Targeted Environmental Site Assessment – Fremantle WA. Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of results, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Targeted Environmental Site Assessment – Kensington VIC
Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of results, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Targeted Environmental Site Assessment – St Marys NSW
Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of results, reporting within strict timeframes and recommendations for remedial works. Duties also included writing proposals for a number of projects.

Environmental Site Assessment (Phase 2) – Banksmeadow NSW
Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of results, reporting within strict timeframes and recommendations for remedial works. Remediation options and duties also included writing proposals for a number of projects.

Environmental Site Assessment (Phase 2) – Mascot NSW
Duties included historical searches, analysing aerial photographs liaising with authorities, identification of potential contaminants and areas of concern, sampling design, soil and groundwater sampling, preparation of borehole logs, decontamination and QA/QC procedures, analysis of results, reporting within strict timeframes and recommendations for remedial works. Remediation options and duties also included writing proposals for a number of projects.

M A R K K E L L Y

DATE OF BIRTH	25th October 1975
EDUCATIONAL QUALIFICATIONS	BAppSc (Geology) (Hons) University of New South Wales, Sydney, Australia Majoring in Soil and Groundwater Resources and Remediation
ADDITIONAL COURSES	Groundwater Hydrology Hydrogeochemistry Analysis and Interpretation of Hydrogeochemical Data Physical Aspects of Contaminated Groundwater Interpretation of Aeromagnetics Structural Interpretation and Analysis
PROFESSIONAL MEMBERSHIP	Geological Society of Australia (GSA)
PROFESSIONAL LICENCES	Senior First Aid Certificate (2006) X-ray Fluorescence (XRF) Metal Detector Operation License (EPA License No 24430) Energy Australia Passport (Service No. 7728)
PROFESSIONAL TRAINING	Asbestos Removal Course (TAFE NSW) XRF Training Course Energy Australia inductions, electrical safety rules, environmental training, safety training, first aid training, CPR training, low voltage release and rescue training and courses, substation entry & safely working near live power cables in EA network courses
FIELDS OF SPECIAL COMPETENCY	**Contaminated Land Assessment and Site Remediation –** management, technical advice, planning, data evaluation, coordinating and supervision of environmental/contaminated site assessments including preliminary and detailed assessments, contaminated site remediation and validation with particular reference to soil, water and groundwater. Acid sulphate soils, salinity and hazardous materials assessments.

EXPERIENCE:

2007 – Present	Senior Environmental Geologist – Aargus Pty Ltd
2006 - 2007	Senior Environmental Geologist – Geotechnique Pty Ltd
1999 – 2006	Environmental Geologist – Geotechnique Pty Ltd

PRACTICAL EXPERIENCE (Office)

- Project management, scheduling laboratory chemical analysis, data evaluation and reporting on environmental/contaminated site investigations including preliminary, detailed assessments, remediation and validation
- Preparation of waste classification, including biosolids from sewage treatment plants
- Salinity Assessments
- Preparation of proposals
- Occupational Health & Safety Issues
- Environmental Management Plans
- Coordinating and corresponding with Principal/Senior Environmental Engineers, Environmental Engineers, field staff, management, clients and contractors
- Liaising and negotiating with relevant government departments, statutory authorities
- Basic Turbocad skills

PRACTICAL EXPERIENCE (Field)

- Site inspections
- Soil and water sampling
- Installation of groundwater monitoring wells
- Assessing the contamination status of land/water
- Site remediation and validation
- Site management including remediation, asbestos removal
- PID calibration and use
- Hazardous material assessment
- Salinity indicators
- Service station works including underground storage tank removal
- Gas monitoring

SITES

Investigations have been carried out on a number of sites across the Sydney Metropolitan area, the greater Sydney area, rural NSW and interstate. The types of sites assessed include:

- Rural residential properties including active and former agricultural (market gardens, orchards, nursery, poultry) lands, farming lands, vacant lands etc
- Residential Properties including residential, townhouse and units
- Commercial / Industrial including activities such as tanneries, printing, tyre storage and manufacture, paint storage and manufacture, metal works, foundries, wheat processing and storage, scrap metal yards, metal recyclers etc

- Service Station Sites including small scale operations to larger sites operated by BP, Caltex etc.
- Schools including pre-development, re-development, refurbishing, hazardous materials assessment.
- Childcare Facilities
- Energy Australia facilities including active sites and decommissioning of sites.
- Sewage Treatment Plants including the assessment of biosolids, installation works and initialization of site management plans and inspections.

PROJECT EXPERTISE

Air Quality Monitoring – Levels of volatile gases were monitored to determine Occupational Health and Safety (OH&S) compliance within an enclosed work environment.

Acid Sulphate Soil Assessment – Development areas within potential Acid Sulphate Soil regions were assessed to determine the presence, absence or extent of Acid Sulphate Soils. Duties included site surveys, soil sampling, chemical testing of soils, preparation of borehole logs, liaising with clients and regulatory authorities and report generation.

Asbestos Monitoring – Dust emissions from the demolition of a building and excavation of soil with known asbestos contamination were monitored in order to measure effects on the neighbouring properties. Duties included the use of technical equipment, liaising with site personnel, analysis of data and report generation.

Asbestos Removal – Work involved monitoring the removal and delineating the extent of contamination of bonded asbestos waste from an excavation site.

Buried Chicken Carcass Removal – Work involved monitoring the removal and delineating the extent of buried of chicken carcasses within an existing poultry farm.

Classification of Excavation Material, NSW – Involvement in classifying excavated material from development sites for removal to an appropriate landfill or assessing suitability for use within a proposed development. Duties included liaising with site personnel / contractors, soil sampling and descriptions, QA/QC and report generation.

Dilapidation Assessment –The assessment entailed a site visit and a written and photographic documentation of all structural cracks on walls, ceilings, pavements, grates and road surfaces in the vicinity of the site. The purpose is to establish the pre-existing condition of the buildings so that any claim made for defects that occur during or after construction can be validated. Duties included liaising with site personnel / contractors, site inspection and report generation.

Due Diligence Reports – Carried out in relation to property acquisition and due diligence. Duties varied from report reviews, comments, costing, desktop studies, sampling and assessment, and reporting.

Dust Monitoring – Dust emissions from construction sites were collected over a period of time in order to assess the specific amount of particulate matter escaping the construction area onto neighbouring properties.

Effluent Disposal – Work was undertaken to assess the suitability of soil material for the construction of an effluent treatment and disposal system. Duties included soil sampling, preparation of borehole logs, calculation of permeability and flow rates and report generation.

Environmental Management Plans – Preparation of how the earthworks program are to be undertaken during the development works, the environmental procedures to be followed during operation and includes an Occupation Health & Safety (OH&S) plan.

Ground Water Well Monitoring – Work involved instructing contractors on where to drill monitoring wells, construction and interpretation of survey data of the wells, measurements of groundwater levels, measurement of the rate of groundwater infiltration, sampling of groundwater, QA/QC, determining groundwater flow direction and report generation

Hazardous Materials Assessment – Structures proposed for demolition were surveyed for hazardous material such as asbestos, lead and other substances known to be harmful to human health and the environment. Duties included liaising with contractors and regulatory authorities, identification of hazardous materials, sampling of potential hazardous materials and report generation.

Lead Assessment – Buildings were surveyed for lead paint, dust and soils and assessed to determine if they were harmful to human health and the environment. Duties included liaising with government, regulatory authorities, identification of lead based materials, sampling of these materials and report generation.

Phase 1 Environmental Site Assessments (desktop) – Duties included historical searches, analysing aerial photographs, liaising with authorities (WorkCover, Council's, EPA etc), identification of potential contaminants and report generation.

Phase 2 Environmental Site Assessments – Duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

Remedial Action Plans – Options for the remediation of known contaminated sites were prepared in order to determine the most efficient methods of remediation. Duties included reviewing of previous environmental assessments, data analysis, design and costing of potential remedial options.

Remediation Validation – The collection of data to assess the efficacy of remediation works in decontaminating sites. Duties included liaising with clients, contractors and regulatory authorities, field sampling, QA/QC, data analysis and report generation.

Salinity Assessments – Duties included historical searches, analysing aerial photographs, liaising with authorities, identification of potential contaminants, sampling and analysis design, soil sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

Sampling and Testing Plans – Preparation of sampling location, sampling density and testing program for ESA's and RemVal's that are sent to the Site Auditor for approval.

Site Audit Responses – replying to comments made by NSW Site Auditors on selected jobs to meet final requirements for a full clearance of a site after remedial works have taken place.

Site Based Management Plans – includes detailed management practices, and procedures for all identified environmental issues for every environmentally relevant activity (ERA) within the site. The plans provide the environmental procedures to be followed during operation and are to safeguard the way in which waste is managed.

Soil Vapour Survey – Soil vapours originating from beneath an apartment block development containing known contamination were monitored to assess the affects on human health. Duties included operation of technical equipment, sampling of soil vapours, QA/QC, analysis of data and report generation.

Targeted Environmental Site Assessments – Duties included historical searches, analysing aerial photographs, liaising with authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

Underground Storage Tank Removal – Removal of underground storage tanks in order to satisfy regulatory requirements for the redevelopment of sites. Duties included historical searches, liaising with contractors and regulatory authorities, sampling and analysis design, soil and groundwater sampling, decontamination, QA/QC, data analysis and report generation.

MAJOR PROJECTS

- Auburn Hospital - Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

- Australian Defence Industries site, St Marys – Former defence force lands. An extensive sampling program was managed and the results of soil analysis were reviewed with respect to human heath risk and potential ecological impact. Reports endorsed by accredited site auditor.

- Auburn Catholic Club - Sampling and soil classification of soils, followed by onsite management of the disposal of the soils to licensed landfills.

- Barter & Sons - Former poultry farm, scheduled for industrial / commercial development. Responsible for cost estimating, project management and co-

ordination of site investigation works. Included a review of available site history, and contamination assessment of soils, targeting heavy metals, pesticides and asbestos. Remediation recommended landfill disposal (industrial and solid waste category).

- Brown Consulting (NSW) Group - Newbury Estate, Stanhope Gardens - Former market garden and grazing site developed for low density residential purposes. Responsible for cost estimating, project management and co-ordination of site investigation works, remediation and validation. Included review of site history information, contamination assessment of soils waters and sediment. Remediation recommendations included Landfill disposal and land farming. Reported on site investigations, remediation options (Remediation Action Plan), and validation. Reports endorsed by accredited site auditor.

- Columban Mission Institute, North Turramurra - Duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

- Cronulla Sewage Treatment Plant – Classification of biosolids for disposal off site to other land uses or to landfills.

- Deicorp Pty Ltd – Coulson Street, Erskineville – Former clothing factory and workshops with a UST to be redeveloped into a number of multi-storey residential apartment blocks. The collection of data to assess the efficacy of remediation works in decontaminating the site. Duties included liaising with clients, contractors and regulatory authorities, field sampling, QA/QC, data analysis and report generation. Reports endorsed by accredited site auditor.

- Department of Commerce – Assessment of a number of Department of Housing sites for potential hazardous materials within active housing commission units.

- Department of Housing – Lilyfield - Development of a residential area. Duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

- Department of Lands – Redfern - Development of a major residential area. Duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

- Duffy Kennedy Constructions – Cronulla – A former service station site. Sampling and soil classification of soils, followed by onsite management of the disposal of the soils to licensed landfills.

- EG Property Group / Funds Management –Port Adelaide, SA, Summer Hill and Five Dock, NSW –Active transport company, wheat production plant and silos, former bowling greens, former railway lines, land filling activities, land reclamation. Reports for due diligence and full environmental site assessments, duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil and groundwater sampling, preparation of borehole logs, decontamination, QA/QC and report generation.

- Energy Australia Substations - Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

- Event Project Management - Bundaleer Street, Belrose – An active nursery to be redeveloped as part of extension works to the Covenant Christian School. A Phase 1 and Phase 2 contaminated land investigation with recommendations for remediation techniques and costs.

- Exceland Property Group (NSW) Pty Ltd – The Castellorizian Club at Kingsford. Duties included historical searches, analysing aerial photographs, liaising with authorities (WorkCover, Council's, EPA etc), identification of potential contaminants and report generation.

- Glasson Family Group – Wolli Creek – A large development site comprising a number of industrial properties including factories, warehouses, car yards etc. Conducting sampling and reporting on ASS/PASS and potential management techniques during future development.

- Glenbrook Sewer Installation - Environmental Representative for sewer installation contracts in Glenbrook. Responsible for the preparation of Environmental Management Plans (EMP) and work method statements. Monitored the works undertaken by the contractor, ensuring adequate environmental safeguards are in place and maintained. Prepared inspection reports and EMP status reports for Sydney Water.

- Granville Boys High School – assessment of soils and supervision of remedial works within an existing playing field. Remedial works included removal of soils contaminated with asbestos to an EPA licensed landfill.

- Group Development Services – Carrying out full assessments, from Stage 1 to Stage 4, on numerous rural residential sites in north western Sydney.

- International Speedway, Granville – Assessment of an existing spectator mound for asbestos and other soils analytes and recommendations for capping on-site.

- IWD Pty Ltd - Lyons Road, Drummoyne – A former service station with numerous UST's. The assessment included tank and line tests, gross pollution review, soil

sampling, groundwater sampling, historical review and final data interpretation. Remediation of contaminated soils after the tanks were removed, soil classification and final validating of site surfaces. Reports endorsed by accredited site auditor.

- JK Williams Contracting Pty Ltd - Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

- John Morony Correctional Complex, Berkshire Park – assessment of soils and preparation of remedial costs prior to extension works to the existing prison.

- Landcom - Archbold Road, Eastern Creek and McIver Avenue, Middleton Grange – Former farming lands purchased by Landcom for residential subdivision, school developments, parklands and town centre (shopping facilities etc). Responsible for cost estimating, project management and co-ordination of site investigation works. Preparation of a preliminary RAP and recommendations in remediation techniques and costs.

- Liverpool City Council – Former park lands. Duties included historical searches, analysing aerial photographs, liaising with authorities (WorkCover, Council's, EPA etc), identification of potential contaminants and report generation.

- Mann Group - Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

- Manson Group – Kogarah – Former glass factory with an UST. Preparation of a Remedial Action Plan (RAP), followed by remediation and validation of the site including project management, liaising with contractors and clients, sampling, soil classification and assessment, and final report generation.

- Narwee Boys High School – Preparation of a hazardous materials (HAZMAT) assessment. Analysis involved identifying asbestos materials from lagging, roofing guttering, floor tiles, electricity backing boards, mercury switches, mercury/cadmium lamps, synthetic mineral fibres, lead paint etc.

- Parramatta City Council - Sampling and soil classification of soils, followed by onsite management of the disposal of the soils to licensed landfills.

- Paynter Dixon Constructions Pty Ltd – Homebush – Teachers Credit Union site. Duties included historical searches, analysing aerial photographs, liaising with authorities (WorkCover, Council's, EPA etc), identification of potential contaminants and report generation.

- Penrith City Council - Claremont Meadows Stage 2 – South Western Precinct – Masterplan. Full environmental and salinity assessments were carried out to address the Claremont Meadows Stage 2 DCP - Performance Standards for which is currently under consideration by the Council for the Stage 1 Subdivision Plan of the properties provides for creation of residential allotments, dedication of a Public

Reserve, construction and dedication of new roads and creation of residue lots for future development.

- Proust & Gardner Consulting - Carrying out full assessments, from Stage 1 to Stage 4, on numerous rural residential and residential sites in both the local Sydney and Central Coast regions. Sites included vacant lands, farming lands, market gardens, poultry farms, residential properties and schools.

- Reefway Waste Services – Alexandria and Auburn – Active waste receivers and recyclers. Management of soil quality by analysing soils for reuse. Discussion with DECC on providing a 'gateway' mechanism for removing bona fide resource recovery from the waste regulatory framework.

- Richard Crookes Constructions Pty Ltd – Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

- Robert Moore & Asscoiates - Carrying out full assessments, from Stage 1 to Stage 4, on numerous rural residential and residential sites across Sydney. Sites included vacant lands, farming lands, market gardens and residential properties.

- Royal Botanical Gardens, Sydney – Former works depot. Managing removal of UST's and associated pipelines, sampling and soil classification of soils to an EPA inert and solid waste licensed landfill.

- Sam the Paving Man - Sampling and soil classification of soils, followed by onsite management of the disposal of the soils to licensed landfills.

- Stocklands Mall, Merrylands - Former carpark area. Sampling and soil classification of soils, followed by onsite management of the disposal of the soils to licensed landfills.

- SPAD Pty Ltd – Former chemical factory. Report for full environmental site assessment, duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil sampling, preparation of borehole logs, decontamination, QA/QC and report generation. Preparation of a RAP, managing remedial works and issuing final validation report.

- Sydney Airport Corporation – Soil classification and leachate management for an EPA solid licensed landfill.

- Telstra Depot, Rooty Hill - Report for full environmental site assessment, duties included desktop study, liaising with clients, contractors and regulatory authorities, identification of potential contaminants, sampling and analysis design, soil sampling, preparation of borehole logs, decontamination, QA/QC and report

generation. Preparation of a RAP, managing remedial works and issuing final validation report.

- THG Resource – Kingston, QLD –Active scraps metal and car recycler. Duties included detailing management practices, outlining procedures for all identified environmental issues and providing a plan during operation to safeguard the way in which waste is managed.

- University of Sydney - Various soil classifications and leachate management for an EPA inert and solid licensed landfill.

APPENDIX I

DAILY WORKSHEETS

Aargus Pty Ltd

Sampling & Monitoring Details for Individual Determinants

Location/Address: 2-8 Vaughan St & 1-15 Kerr Rd Lidcombe
Name of Officer Responsible: Michael Silk
Title of Officer Responsible: Environmental Scientist
Phone: _____ Fax: _____
Mobile: 0423 344 390 Other: _____

Other persons involved in inspection & monitoring (including laboratories, passed on information, electronic readings, etc) _____
MGT LabMark Dags Location Services
SGS
American Core Drilling, Angus Wythes

Date of Inspection: 8/11/11 Time of Start: 7.00am Finish: 1pm
Description of Weather: Fine Wind Direction: —
Wind Speed: — Rainfall(mm): — Humidity: —

Odours present Y/(N) Location: _____ Time: _____
Odours spraying Y/(N) Location: _____ Time: _____
Environmental &/or other accidents/concerns:(details) _____

Actions:
Nine borehole location
Soil sampling +
QA/QC

Stormwater controls Y/N Location(s): Time:
Dust suppression Y/N Location(s): Time:
Traffic control Y/N Location(s): Time:
Equipment on site:
Hand Augers QA/QC box
Crow Bar
Concrete Corer
Esky
Ice

Truck movement tally: N/A

Field Measurements

Location	PID level	Location	PID level	Location	PID level	Location	PID level
BH1	<1ppm	BH6	<1ppm				
Location	PID level	Location	PID level	Location	PID level	Location	PID level
BH2	<1ppm	BH7	<1ppm				
Location	PID level	Location	PID level	Location	PID level	Location	PID level
BH3	<1ppm	BH8	<1ppm				
Location	PID level	Location	PID level	Location	PID level	Location	PID level
BH4	<1ppm	BH9	<1ppm				
Location	PID level	Location	PID level	Location	PID level	Location	PID level
BH5	<1ppm						
Location	Other	Location	Other	Location	Other	Location	Other
Location	Other	Location	Other	Location	Other	Location	Other
Location	Other	Location	Other	Location	Other	Location	Other
Location	Other	Location	Other	Location	Other	Location	Other

APPENDIX J

OEH SEARCH

Office of Environment & Heritage

You are here: Home > Contaminated land > Record of notices

Search results

Your search for: LGA: Auburn Council

Matched 58 notices relating to 12 sites.

Search Again | Refine Search

Suburb	Address	Site Name	Notices related to this site
Auburn	Short and Junction Streets	Ajax Chemical Factory	2 former
Homebush Bay	Olympic Boulevard	Aquatic Centre Car Park	1 current and 8 former
Homebush Bay	Bennelong Road	Bicentennial Park	1 current and 2 former
Homebush Bay	Hill Road	Haslams Creek South Area 3	1 current and 3 former
Homebush Bay	Kevin Coombs Avenue	Haslams Creek South Areas 1 and 2	1 current and 13 former
Homebush Bay	No specific Street	Homebush Bay General Area	2 former
Homebush Bay	Australia Avenue	State Sports Centre	1 current and 6 former
Homebush Bay	25 Bennelong Road	Timber Treatment Plant	4 former
Newington	Bennelong Road	Landfill - North Newington	2 current and 3 former
Silverwater	Jamieson Street	Auburn Landfill	2 current and 2 former
Silverwater	Jamieson Street	Silverwater Transport Unit	1 former
Silverwater	Silverwater Road	Wilson Park	4 current and 6 former

Page 1 of 1

28 November 2011

APPENDIX K

LAND TITLE INFORMATION

Aargus

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
1/SP438	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
5	30/3/2004

No. 02

Search certified to:
21/11/2011 11:46 AM

LAND

LOT 1 IN STRATA PLAN 438
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (2 NOTIFICATIONS)

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1 INTERESTS RECORDED ON REGISTER FOLIO CP/SP438
2 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 09

Search certified to: 21/11/2011 11:54AM

Computer Folio Reference: 1/SP438

Prior Title(s): VOL 9556 FOL 60

Recorded	Number	Type of Instrument	C.T. Issue
28/4/1986		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
3/11/1986		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
6/12/1988	Y5202	DISCHARGE OF MORTGAGE	
6/12/1988	Y5203	MORTGAGE	EDITION 1
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 2
3/2/1993	I88880	MORTGAGE	EDITION 3
20/1/1999	5537618	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 4
30/3/2004	AA529879	MORTGAGE	EDITION 5

*** END OF SEARCH ***

C. 4

NEW SOUTH WALES

(For Grant and title reference prior to first edition see Strata Plan.)

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900, as amended.

TORRENS TITLE

Register Book

CANCELLED

Vol. 9556 Fol. 60

1st Edition Issued 30-10-1963

Fol. 60 Vol. 9556 (Page 1)

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

Registrar-General.

ESTATE AND LAND REFERRED TO

(For location of the lot referred to, see Strata Plan filed in the Land Titles Office)

Estate in Fee Simple in Lot 1 in Strata Plan 438 and 10 undivided 1/145th shares in the common property therein at Lidcombe in the Municipality of Auburn Parish of Liberty Plains and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~THE DANCERS CLUB LIMITED.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Interests notified on the Strata Plan and any amendments to lots or common property notified thereon by virtue of the provisions of the Conveyancing (Strata Titles) Act, 1961.
2. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Strata Plan.
3. ~~Mortgage No. J336342 to Commonwealth Trading Bank of Australia. Entered 18-6-1963.~~ discharged T 3 5908

Registrar General.

As from the commencement of the Strata Titles Act, 1973—

* this folio is cancelled in respect of the abovementioned share in the common property, and
* the said lot is subject to any affecting interests recorded on the folio of the Register comprising the common property.

Vol. 9556 Fol. 60

70847 1.82 ST 1609 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
~~A. B. MacDonald Pty. Limited~~	~~Transfer~~	~~T53999~~	~~19-12-1968~~	~~6-1-1964~~	
~~The Dorset Club Limited~~	~~Transfer~~	~~L55276~~	~~2-4-1970~~	~~12-5-70~~	
~~Emile Kobersi and Alek Hoses by as joint tenants by Transfer S695433. Registered 22-9-1981.~~					
The Australian Mid-Eastern Club Limited by Transfer W250735. Registered 25-3-1986					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
~~mortgage~~	~~I54939~~	~~28-11-1963~~	~~To Commonwealth Trading Bank of Australia~~	~~6-1-1964~~		Discharged	L832275	
~~Mortgage~~	~~M44085~~	~~2-4-1969~~	~~To Jacksells Pty. limited~~	~~3-11-1970~~		Discharged	N222755	
~~Mortgage~~	~~M150414~~	~~23-11-1970~~	~~To The Commercial Bank of Australia Limited~~	~~11-5-1971~~		Discharged	S695431	
~~I4020016 Mortgage to John Lionel Lavender and Greta Eileen Lavender as joint tenants. Registered 9-2-1983.~~						Discharged	V396355	
W250737 Mortgage to Westpac Banking Corporation. Registered 25-3-1986								

(Page 2 of 2 pages)

FORM No. 181A

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

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 10

Search certified to: 21/11/2011 11:56AM

Computer Folio Reference: C/416771

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

Prior Title(s): VOL 8045 FOL 244

Recorded	Number	Type of Instrument	C.T. Issue
31/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
8/8/2003	9860846	DISCHARGE OF MORTGAGE	
8/8/2003	9860847	APPLN FOR REPLACEMENT CT	EDITION 1
10/12/2003	AA238944	TRANSFER	
10/12/2003	AA238945	MORTGAGE	EDITION 2

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
C/416771	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
2	10/12/2003

No. 03

Search certified to:

21/11/2011 11:45 AM

LAND

LOT C IN DEPOSITED PLAN 416771
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP416771

FIRST SCHEDULE

TONY KHATTAR (T AA238944)

SECOND SCHEDULE (5 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C591057 EASEMENT FOR PIPE DRAIN AFFECTING THE PART OF THE LAND SHOWN SO BURDENED IN VOL 8045 FOL 244
3 H153437 EASEMENT FOR PIPE DRAIN AFFECTING THE PART OF THE LAND SHOWN IN THE TITLE DIAGRAM
4 A803663 COVENANT
5 AA238945 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

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

END OF PAGE 1 - CONTINUED OVER

NSW GOVERNMENT | Land & Property Information

A division of the Department of **Finance & Services**

TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
C/416771	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
2	10/12/2003

No. 03

Search certified to:
21/11/2011 11:45 AM

NOTATIONS (CONTINUED)

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 11

Search certified to: 21/11/2011 11:56AM

Computer Folio Reference: D/416771

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

Prior Title(s): VOL 8497 FOL 176

Recorded	Number	Type of Instrument	C.T. Issue
30/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

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

TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
D/416771	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 04

Search certified to:
21/11/2011 11:45 AM

LAND

LOT D IN DEPOSITED PLAN 416771
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP416771

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (4 NOTIFICATIONS)
---
1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A803663 COVENANT
3 C591057 H153437 EASEMENT FOR PIPE DRAIN APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF THE LAND SHOWN SO BURDENED IN VOL 8497 FOL 176

END OF PAGE 1 - CONTINUED OVER

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
D/416771	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 04

Search certified to:

21/11/2011 11:45 AM

SECOND SCHEDULE (4 NOTIFICATIONS) (CONTINUED)

---

4 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 12

Search certified to: 21/11/2011 11:54AM

Computer Folio Reference: A/432751

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

Prior Title(s): VOL 5874 FOL 236

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
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
A/432751	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 05

Search certified to:

21/11/2011 11:45 AM

LAND

LOT A IN DEPOSITED PLAN 432751

LOCAL GOVERNMENT AREA AUBURN

PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND

TITLE DIAGRAM DP432751

FIRST SCHEDULE

TONY KHATTAR

IN 1/4 SHARE

RAYMOND KHATTAR

IN 1/4 SHARE

GEORGE KHATTAR

IN 1/5 SHARE

JOSEPH KHATTAR

IN 1/10 SHARE

ROBERT KHATTAR

IN 1/10 SHARE

PETER KHATTAR

IN 1/10 SHARE

AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (2 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

END OF PAGE 1 - CONTINUED OVER

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
A/432751	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 05

Search certified to:
21/11/2011 11:45 AM

NOTATIONS (CONTINUED)

*** END OF SEARCH ***

doccop4

PRINTED ON 21/11/2011 05

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HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 13

Search certified to: 21/11/2011 11:57AM

Computer Folio Reference: B/432751

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

Prior Title(s): VOL 5875 FOL 8

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
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
B/432751	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 06

Search certified to:
21/11/2011 11:44 AM

LAND

LOT B IN DEPOSITED PLAN 432751
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP432751

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (2 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

END OF PAGE 1 - CONTINUED OVER

NSW GOVERNMENT | Land & Property Information

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TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
B/432751	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
4	30/3/2004

No. 06

Search certified to:

21/11/2011 11:44 AM

NOTATIONS (CONTINUED)

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

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HISTORICAL TITLE SEARCH

Certificate issued under Section 96G
of the Real Property Act 1900

No. 14

Search certified to: 21/11/2011 11:57AM

Computer Folio Reference: 6/8/3424

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

Prior Title(s): VOL 6388 FOL 23

Recorded	Number	Type of Instrument	C.T. Issue
9/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
16/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
5/7/1995	O357847	DISCHARGE OF MORTGAGE	EDITION 1
12/8/2003	9873747	TRANSFER	
12/8/2003	9873748	MORTGAGE	EDITION 2

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
6/8/3424	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
2	12/8/2003

No. 07

Search certified to:
21/11/2011 2:44 PM

LAND

LOT 6 OF SECTION 8 IN DEPOSITED PLAN 3424
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP3424

FIRST SCHEDULE

PETER KHATTAR

(T 9873747)

SECOND SCHEDULE (2 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 9873748 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

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

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

HISTORICAL TITLE SEARCH

Certificate issued under Section 96G of the Real Property Act 1900

No. 15

Search certified to: 21/11/2011 11:56AM

Computer Folio Reference: 5/8/3424

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

Prior Title(s): VOL 6379 FOL 179

Recorded	Number	Type of Instrument	C.T. Issue
9/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
16/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
28/10/1993	I754171	TRANSMISSION APPLICATION	EDITION 1
6/10/1994	U679942	TRANSFER	
6/10/1994	U679943	MORTGAGE	EDITION 2
28/6/1999	5932527	DISCHARGE OF MORTGAGE	
28/6/1999	5932528	TRANSFER	
28/6/1999	5932529	MORTGAGE	EDITION 3
19/8/2003	9887461	DISCHARGE OF MORTGAGE	
19/8/2003	9887462	TRANSFER	
19/8/2003	9887463	MORTGAGE	EDITION 4
3/4/2007	AC951029	TRANSFER	
3/4/2007	AC951030	MORTGAGE	EDITION 5

*** END OF SEARCH ***

NSW GOVERNMENT | Land & Property Information

A division of the Department of Finance & Services

TITLE SEARCH

Computer Folio Certificate issued under Section 96D of the Real Property Act 1900

COMPUTER FOLIO REFERENCE	
5/8/3424	
EDITION No. & DATE OF CURRENT CERTIFICATE OF TITLE	
5	3/4/2007

No. 74

Search certified to:

21/11/2011 2:58 PM

LAND

LOT 5 OF SECTION 8 IN DEPOSITED PLAN 3424

LOCAL GOVERNMENT AREA AUBURN

PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND

TITLE DIAGRAM DP3424

FIRST SCHEDULE

CARLA KHATTAR (T AC951029)

SECOND SCHEDULE (3 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

2 9887463 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

3 AC951030 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Form: 01T
Licence: 10V/0096/96
Edition: 0011

(1)

TRANSFER

New South Wales
Real Property Act 1900

9887462G

PRIVACY NOTE: this information is legally required and will

STAMP DUTY Office of State Revenue use only

NEW SOUTH WALES DUTY
29-05-2003 0001423174-001
SECTION 18(2)
DUTY $ **********2.00

(A) **TORRENS TITLE** If appropriate, specify the part transferred **Folio Identifier: 5 / 8 /3424**

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
	National Australia Bank Limited Box 45A Reference (optional): XR0702	T TW (Sheriff)

(C) **TRANSFEROR** IHSAN DOGAN & NERIMAN DOGAN

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ ...$600,000.00..... 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): 1. ..... 2. ..... 3. .....

(H) **TRANSFEREE** ~~Tony~~ ~~RAYMOND KHATTAR~~ RAYmonD KHATTAR

(I) **TENANCY:**

DATE ...../...../.....
dd mm yyyy

(J) I certify that the transferor, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this transfer in my presence.

Signature of witness:

Name of witness: Hakki Sayer

Address of witness: 26 Auburn Rd, Auburn

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

Signature of transferor:

x

x

I certify that the transferee, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this transfer in my presence.

Signature of witness:

Name of witness:

Address of witness:

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

Signature of transferee:

for FRANK BOSSI
of 22 ARMSTRONG AVENUE

If signed on the transferee's behalf by a solicitor or licensed conveyancer, insert the signatory's full name and capacity below:

Solicitor for

All handwriting must be in block capitals.

A set of notes on this form (01T-2) is available from Land and Property Information NSW.

Form: 97-01T
Licence: 10V/0096/95
Printed: 0897LTO

TRANSFER

New South Wales
Real Property Act 1900

5932528E

Instructions for filling out this form are available from the Land Titles Office

Office of State Revenue use only

OFFICE OF STATE REVENUE (N.S.W. TREASURY) 1996/97 PAS ALTERATION NOTED

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

Folio Identifier 5/8/~~3426~~ 3424

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone
23L	CSB Reference (15 character maximum): 213764-506

(C) **TRANSFEROR** DAVINDER SINGH PASSI AND ANITA PASSI

(D) acknowledges receipt of the consideration of $240,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple.

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

(F) **TRANSFEREE**

T TS (s713 LGA) TW (Sheriff)	IHSAN DOGAN AND NERIMAN DOGAN BOTH OF 32 VICTORIA ST., LIDCOMBE

(G) **TENANCY:** JOINT

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE** 22/6/99

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

Signature of Witness

RAYMOND JOHN HUME
Name of Witness (BLOCK LETTERS)

12-14 AUBURN ROAD, AUBURN
Address of Witness

SOLICITOR

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

Signature of Transferee

Solicitor for FRANK BASSI

If signed on the transferee's behalf by a solicitor or licensed conveyancer, show the signatory's full name in block letters.

Checked by (LTO use) .....

97-01 T

TRANSFER

Real Property Act, 1900

Land Titles Office use only

U 679942 C

Office

$2.00 190894 1122 04 20083903S/03

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

FOLIO IDENTIFIER 5/8/3424

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
46X	M. J. ARMSTRONG LAW STATIONER 147A KING ST., SYDNEY PHONE 231 2511 DX 599 SYDNEY DELIVERY BOX NO. 46X FAX (02) 233 7047

REFERENCE (maximum 20 characters): AUS 94 4477 MH.

(C) **TRANSFEROR** ERIC DAGG AND NOELINE MARIE TURNER

(D) acknowledges receipt of the consideration of $150,000.00

and as regards the land specified above transfers to the Transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. ..... 2. ..... 3. .....

(F) **TRANSFEREE**

T

DAVINDER SINGH PASSI AND ANITA PASSI

(G) **TENANCY:** JOINT TENANTS

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATED** 29-9-94

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

(1) Joy Fong (2) Adrian Williams

Signature of Witness

JOY FONG

Name of Witness (BLOCK LETTERS)

1 CASTLEREAGH ST SYDNEY

Address of Witness

(1) Eric Dagg (2) Marlene Turner

Signature of Transferor

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

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Signature of Transferee

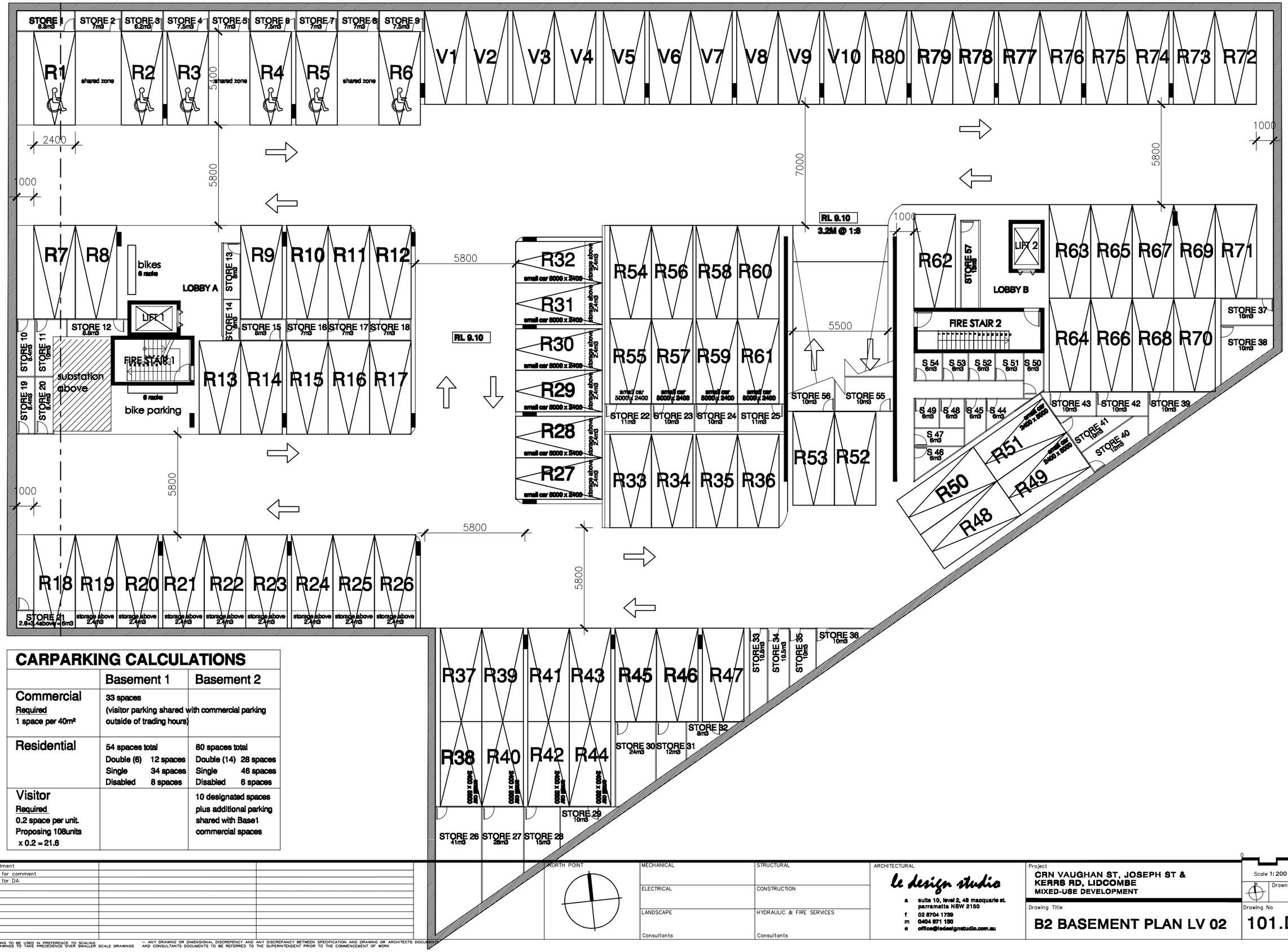
YOUNG ANDREWS, SOLICITOR FOR

INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE

CHECKED BY (office use only)

APPENDIX L

PROPOSED DEVELOPMENT PLANS



CARPARKING CALCULATIONS

	Basement 1	Basement 2
Commercial Required 1 space per 40m²	33 spaces (visitor parking shared with commercial parking outside of trading hours)	
Residential	54 spaces total Double (6) 12 spaces Single 34 spaces Disabled 8 spaces	80 spaces total Double (14) 28 spaces Single 46 spaces Disabled 6 spaces
Visitor Required 0.2 space per unit. Proposing 108units x 0.2 = 21.6		10 designated spaces plus additional parking shared with Base1 commercial spaces

Rev	Date	Amendment
A	07.07.11	Issue for comment
B	15.08.11	Issue for DA

NOTES: – FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING – LARGE SCALE DRAWINGS TO TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS – ANY DRAWING OR DIMENSIONAL DISCREPENCY AND ANY DISCREPANCY BETWEEN SPECIFICATION AND DRAWING OR ARCHITECTS DOCUMENTS AND CONSULTANTS DOCUMENTS TO BE REFERRED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK

NORTH POINT

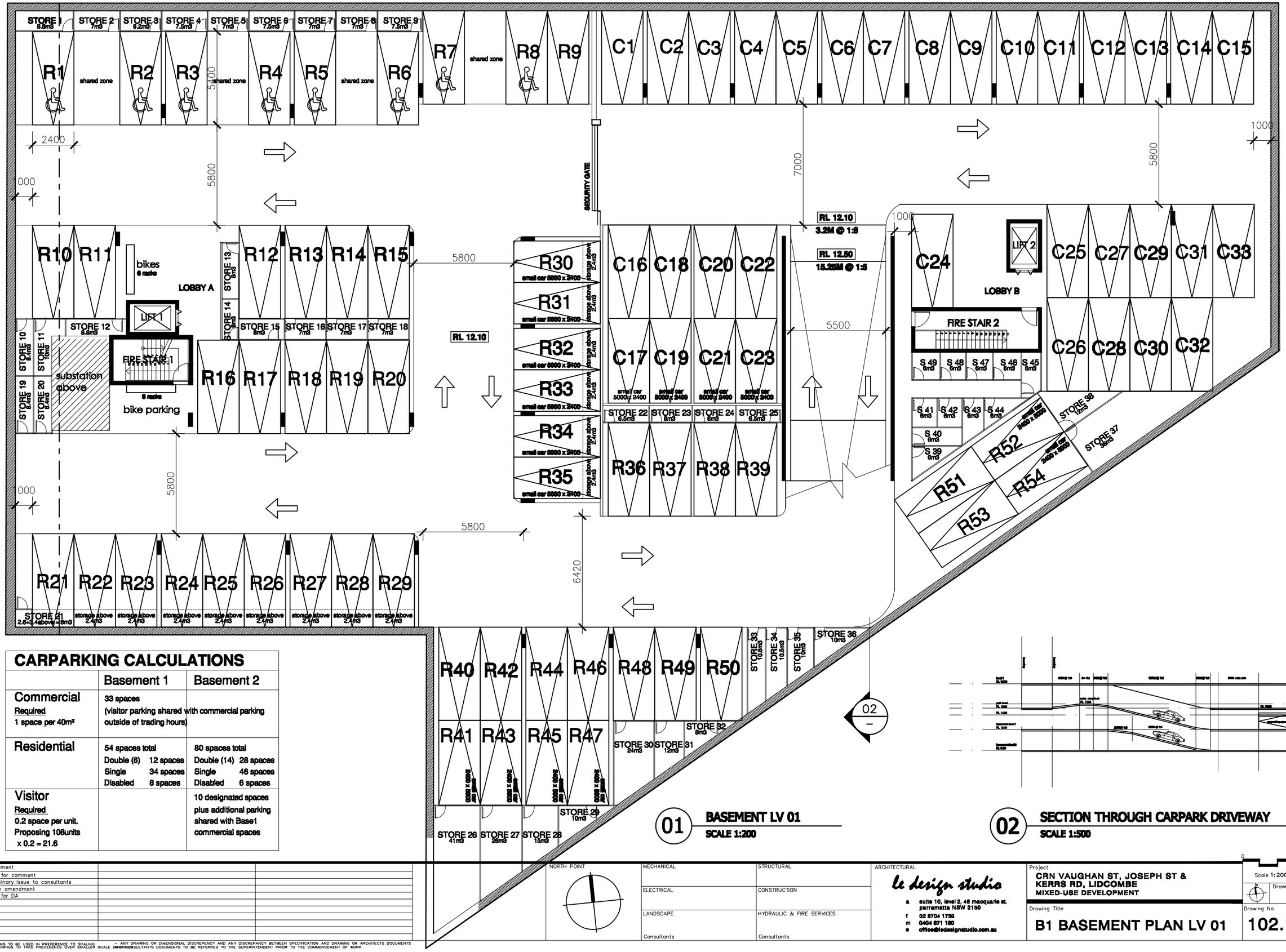
MECHANICAL	STRUCTURAL
ELECTRICAL	CONSTRUCTION
LANDSCAPE Consultants	HYDRAULIC & FIRE SERVICES Consultants

ARCHITECTURAL
le design studio
a suite 10, level 2, 48 macquarie st. parramatta NSW 2150
t 02 8704 1739
m 0404 871 130
e office@ledesignstudio.com.au

Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
B2 BASEMENT PLAN LV 02

0 6m
Scale 1:200 @ A3 | AUG 2011
N | Drawn | Checked | Approved LE
Drawing No 101.DA
Revision B



CARPARKING CALCULATIONS		
	Basement 1	Basement 2
Commercial Required 1 space per 40m²	33 spaces (visitor parking shared with commercial parking outside of trading hours)	
Residential	54 spaces total Double (6) 12 spaces Single 34 spaces Disabled 8 spaces	80 spaces total Double (14) 28 spaces Single 46 spaces Disabled 6 spaces
Visitor Required 0.2 space per unit. Proposing 108units x 0.2 = 21.6		10 designated spaces plus additional parking shared with Base1 commercial spaces

01 BASEMENT LV 01
SCALE 1:200

02 SECTION THROUGH CARPARK DRIVEWAY
SCALE 1:500

Rev	Date	Amendment
A	29.04.11	Issue for comment
B	31.05.11	Prelimnary Issue to consultants
C	07.07.11	design amendment
D	15.08.11	Issue for DA

NOTES: – FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING – ANY DRAWING OR DIMENSIONAL DISCREPENCY AND ANY DISCREPANCY BETWEEN SPECIFICATION AND DRAWING OR ARCHITECTS DOCUMENTS
– LARGE SCALE DRAWINGS TO TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS – CONSULTANTS DOCUMENTS TO BE REFERRED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK

NORTH POINT

MECHANICAL	STRUCTURAL
ELECTRICAL	CONSTRUCTION
LANDSCAPE Consultants	HYDRAULIC & FIRE SERVICES Consultants

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Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
B1 BASEMENT PLAN LV 01

0 6m
Scale 1: 200 @ A3 | AUG 2011
Drawn | Checked | Approved LE
Drawing No 102.DA
Revision D

R.L 14.60

MAIN SITE ENTRY

ramp 1:14

R.L 15.20

line of building above

SHOP 5
R.L. 15.20
area 40sqm

SHOP 6
R.L. 15.20
area 40sqm

SHOP 7
R.L. 15.20
area 68sqm

SHOP 4
R.L. 15.20
area 94sqm

PROPOSED NEW LANE FOR SERVICE VEHICLE ACCESS

RES WASTE BLD A
R.L. 15.20

FOYER 1
R.L. 15.20
area 68sqm

LIFT 1

clear zone 5300 x 3500

substation 1700 x 2400

FIRE STAIR 1

PLANT ROOM
R.L. 15.20

SHOP 3
R.L. 15.20
area 80sqm

COMM WASTE
R.L. 15.20

SHOP 2
R.L. 15.20
area 100 sqm

LOADING ZONE
R.L. 15.10

SHOP 1
R.L. 15.20
area 37sqm

R.L 15.10

R.L 15.20

12000

8000

2000

2000

OPEN COURT AREA
R.L. 15.20
area 55sqm

ramp 1:14
6300
R.L. 15.70
1:20
R.L. 15.80

ramp 1:14

R.L. 15.30

planter

letterboxes

R.L. 14.70

R.L. 15.20

ramp 1:14

R.L. 15.20

line of building above

SHOP 8
R.L. 15.20
area 49sqm

SHOP 9
R.L. 15.20
area 36sqm

SHOP 10
R.L. 15.20
area 32sqm

PLANT/SWITCH ROOM
R.L. 16.40
2.1M CEILING HEIGHT

R.L. 15.20

R.L. 16.40

Female

Male

Dis

SHOP 15
R.L. 15.20
area 50sqm

FOYER 3
R.L. 15.20

LIFT 3

STAIR 3

RES WASTE BLD B

15.80

15.25

SHOP 16
R.L. 15.20
area 143sqm

SHOP 11
R.L. 15.20
area 45sqm

SHOP 12
R.L. 15.20
area 61sqm

FOYER 2
R.L. 15.20

SHOP 13
R.L. 15.20
area 330sqm

LIFT 2

RES WASTE BLD B

FIRE STAIR 2

6100

SHOP 14
R.L. 15.80
area 59sqm

FIRE EGRESS
R.L. 15.80

R.L. 15.30

DRIVEWAY
2.0M FLAT
R.L. 15.80

15.80

6788

6854

R.L. 15.20

LANE

KERRS ROAD

Rev	Date	Amendment
A	29.04.11	Issue for comment
B	31.05.11	Preliminary Issue to consultants
C	14.06.11	Design amendment
D	15.08.11	Issue for DA

NORTH POINT

MECHANICAL	STRUCTURAL
ELECTRICAL	CONSTRUCTION
LANDSCAPE	HYDRAULIC & FIRE SERVICES
Consultants	Consultants

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Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
GROUND FLOOR PLAN

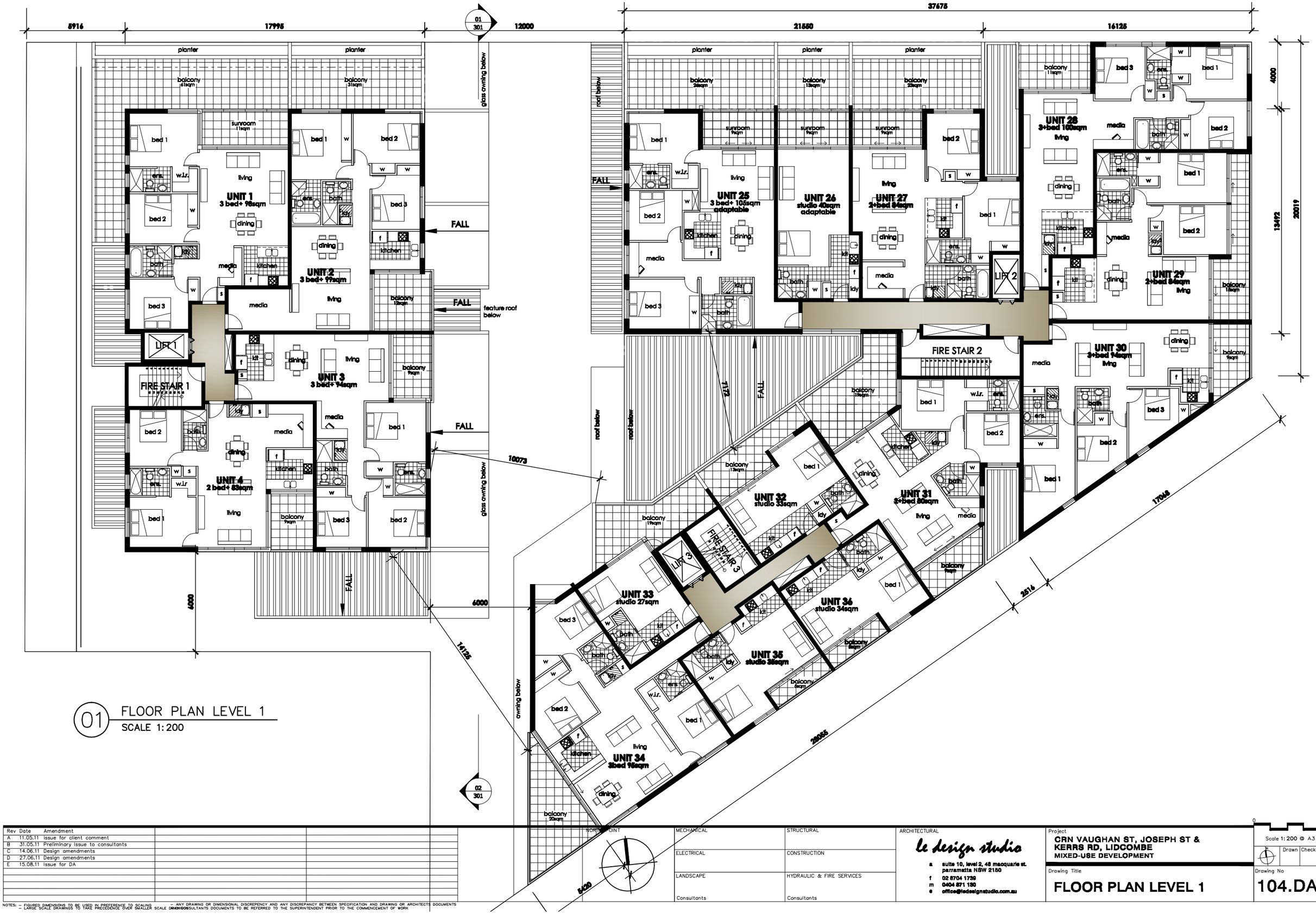
0 6m

Scale 1:200 @ A3 | AUG 2011

Drawn	Checked	Approved
		LE

Drawing No 103.DA

Revision D



01 FLOOR PLAN LEVEL 1
SCALE 1:200

Rev	Date	Amendment
A	11.05.11	issue for client comment
B	31.05.11	Prelimnary Issue to consultants
C	14.06.11	Design amendments
D	27.06.11	Design amendments
E	15.08.11	Issue for DA

NOTES: – FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING – LARGE SCALE DRAWINGS TO TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS – ANY DRAWING OR DIMENSIONAL DISCREPENCY AND ANY DISCREPANCY BETWEEN SPECIFICATION AND DRAWING OR ARCHITECTS DOCUMENTS & CONSULTANTS DOCUMENTS TO BE REFERRED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK

NORTH POINT

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ELECTRICAL	CONSTRUCTION
LANDSCAPE	HYDRAULIC & FIRE SERVICES
Consultants	Consultants

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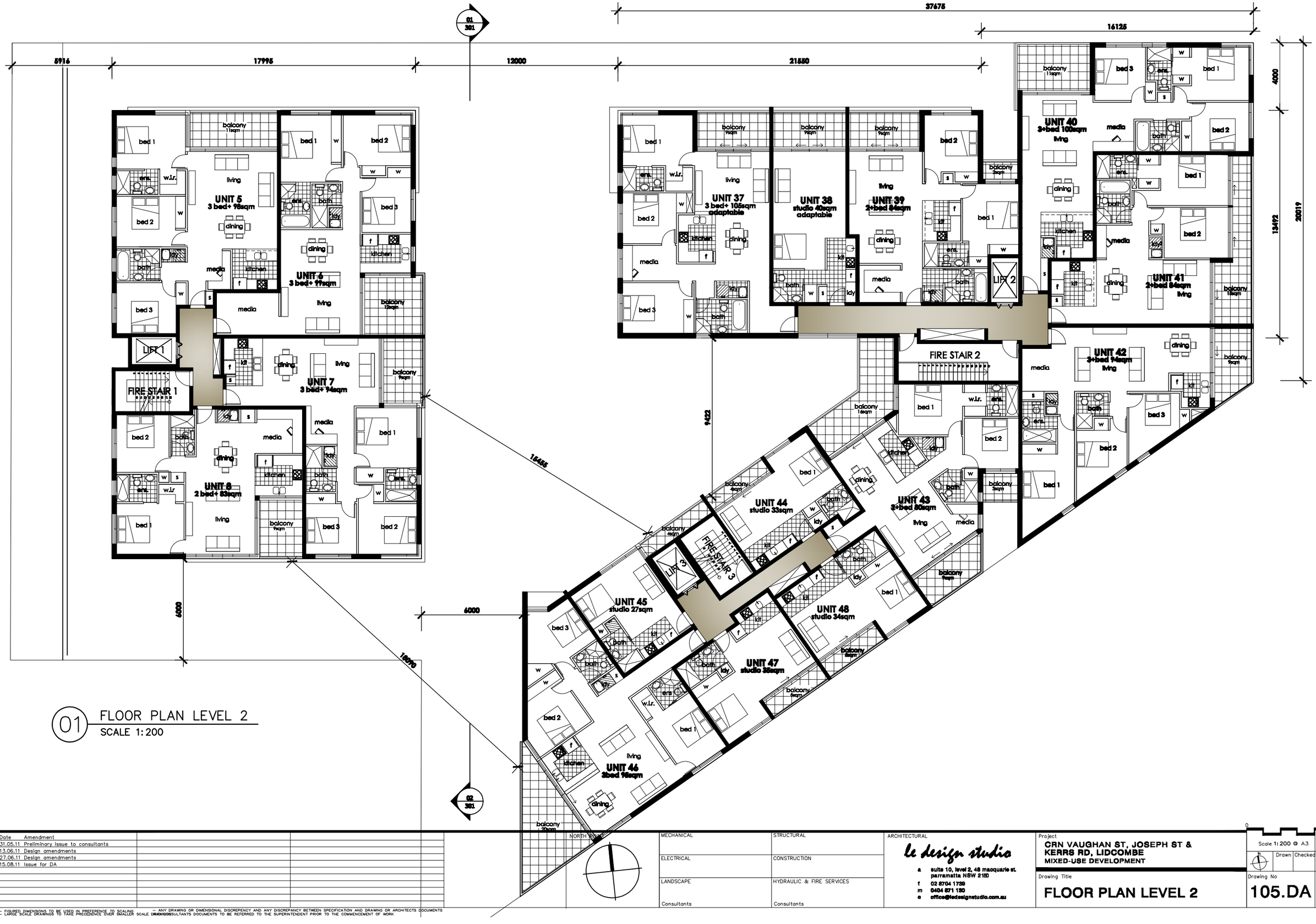
Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
FLOOR PLAN LEVEL 1

0 6m
Scale 1:200 @ A3 | AUG 2011
Drawn | Checked | Approved LE
Drawing No 104.DA
Revision E



01 FLOOR PLAN LEVEL 2
SCALE 1:200

Rev	Date	Amendment
A	31.05.11	Preliminary Issue to consultants
B	13.06.11	Design amendments
C	27.06.11	Design amendments
D	15.08.11	Issue for DA

NOTES: – FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING – ANY DRAWING OR DIMENSIONAL DISCREPENCY AND ANY DISCREPANCY BETWEEN SPECIFICATION AND DRAWING OR ARCHITECTS DOCUMENTS – LARGE SCALE DRAWINGS TO TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS CONSULTANTS DOCUMENTS TO BE REFERRED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK

NORTH

MECHANICAL	STRUCTURAL
ELECTRICAL	CONSTRUCTION
LANDSCAPE	HYDRAULIC & FIRE SERVICES
Consultants	Consultants

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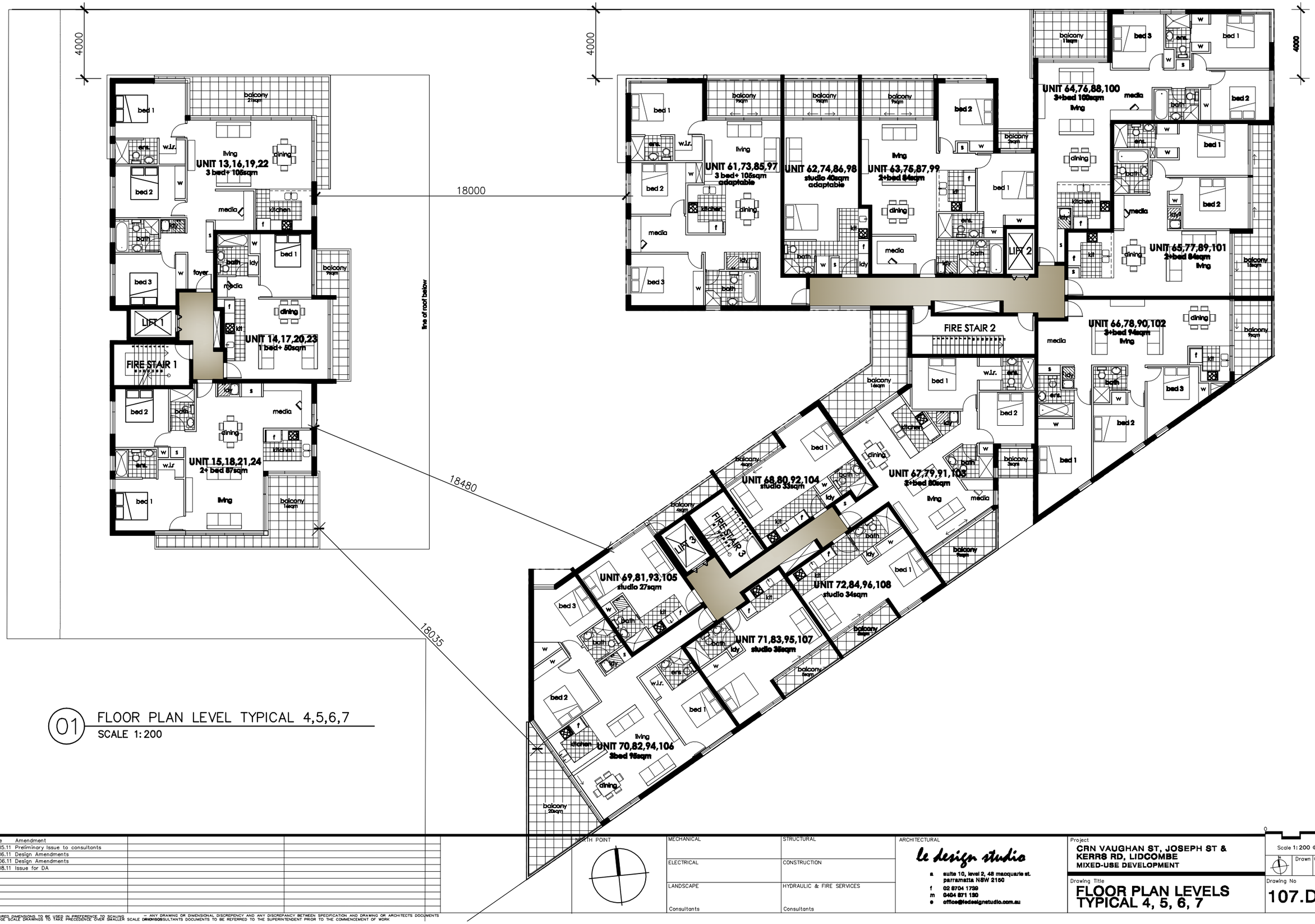
Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
FLOOR PLAN LEVEL 2

0 6m
Scale 1:200 @ A3 | AUG 2011
Drawn | Checked | Approved LE
Drawing No 105.DA
Revision D



01 FLOOR PLAN LEVEL TYPICAL 4,5,6,7
SCALE 1:200

Rev	Date	Amendment
A	31.05.11	Preliminary Issue to consultants
B	13.06.11	Design Amendments
C	27.06.11	Design Amendments
D	15.08.11	Issue for DA

NORTH POINT

MECHANICAL	STRUCTURAL
ELECTRICAL	CONSTRUCTION
LANDSCAPE	HYDRAULIC & FIRE SERVICES
Consultants	Consultants

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Project
CRN VAUGHAN ST, JOSEPH ST & KERRS RD, LIDCOMBE
MIXED-USE DEVELOPMENT

Drawing Title
FLOOR PLAN LEVELS TYPICAL 4, 5, 6, 7

0 6m
Scale 1:200 @ A3 | AUG 2011
Drawn | Checked | Approved LE
Drawing No 107.DA
Revision D

NOTES: – FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING – ANY DRAWING OR DIMENSIONAL DISCREPENCY AND ANY DISCREPANCY BETWEEN SPECIFICATION AND DRAWING OR ARCHITECTS DOCUMENTS
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MGA
1
PROPOSED CONSOLIDATION
CARPARK
CONCRETE FOOTPATH
6
DP 217872
112
111
TWO STOREY BRICK COMMERCIAL BUILDING
DP
220296
KERB LINE
VAUGHAN (20.115 WIDE) STREET
BENCH MARK BOLT IN LINTEL RL 14.41 AHD
TELECOM
POWER POLE
VC
RETAINING WALL
VERANDAH
SINGLE STOREY W/BOARD COTTAGE No.8 FFL 15.32
SINGLE STOREY W/BOARD COTTAGE No.6 FFL 15.45
AREA INACCESSIBLE
A
B
C
DP432751
(Y)
(X)
SINGLE STOREY BRICK BUILDING FFL 15.17
SP438
TWO STOREY BRICK BUILDING FFL 15.39
CONCRETE SLAB UNKNOWN SERVICE UNDER
SINGLE STOREY BRICK BUILDING
MANHOLE
TOTAL AREA: 2736 m²
DP416771
D
1&2 STOREY CLAD COTTAGE No.12
TWO STOREY BRICK COTTAGE No.10
8
7
DP
3424
SHED
GARDEN BED
STOP VALVE
GAS
JOSEPH (20.115 WIDE) STREET
FOOTPATH
PARK
EDGE OF BITUMEN
LANE (6.095 WIDE)
26
DP3424
COVERED AREA
1 STOREY FIBRO
GARAGE
TWO STOREY BRICK SHOPS No.17
TWO STOREY BRICK SHOPS No.19-21
TWO STOREY BRICK SHOPS No.23-25
21
22
23
24
25
ROAD
KERRS
(20.115 WIDE)
BENCH MARK CUT IN KERB RL 15.37 AHD
SINGLE STOREY BRICK SHOP No.2-4
SINGLE STOREY CONCRETE SHOP No.6
A
B
DP
326128
19
SEC 2
DP 3424
ARMSTRONG LANE
LANE (6.095 WIDE)

LEGEND:-

VC denotes VEHICLE CROSSING
TK denotes TOP OF KERB

NOTES:-

1. ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITION IS DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

   H-- DENOTES HEIGHT OF TREE

2. CONTOUR INTERVAL 0.5 m.
3. THE ORIENTATION OF THIS PLAN IS BASED ON PM68095 AND SSM118707

WARNING:-

THIS PLAN IS INCOMPLETE AS SOME AREAS OF THE LAND WERE INACCESSIBLE AT THE TIME OF SURVEY.

4. (X) THE LAND IS AFFECTED BY A DRAINAGE EASEMENT 3.05 WIDE CREATED BY J 393979
5. (Y) THE LAND IS AFFECTED AND BURDENED BY AN EASEMENT FOR PIPE DRAIN (THIS EASEMENT MAY BE EXTINGUISHED UPON CONSOLIDATION OF SITE)
6. PART OF THE LAND IS AFFECTED BY A COVENANT IN A 803663

DISCLAIMERS

1. THE BOUNDARIES OF THE LAND HAVE NOT BEEN SURVEYED AND THE FEATURES SHOWN ON THIS PLAN HAVE BEEN PLOTTED IN RELATION TO THE OCCUPATIONS.
2. THE BOUNDARY DIMENSIONS AND ORIENTATION OF NORTH HAVE BEEN COMPILED FROM:

   DP3424

   AND HAVE NOT BEEN VERIFIED BY SURVEY.
3. ONLY VISIBLE SERVICES HAVE BEEN LOCATED AND THE RELEVANT AUTHORITIES SHOULD BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES.

GARY EDWARDS and ASSOCIATES Pty Ltd
CONSULTING SURVEYORS
ABN 28 093 448 867

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P.O.Box 2572
NORTH PARRAMATTA 1750
E-mail: Surveyor@SpatialData.com.au

DWG REF.	1970	SCALE	1:250	DETAIL SURVEY
DATUM	AHD	DATE	05-11-2002	2-8 VAUGHAN STREET
BM	PM68095	DRAWN/ CHECKED	MA/GE	LIDCOMBE
RL	15.012	SHEET	1 OF 1	

APPENDIX M

PREVIOUS REPORT

Environmental Investigations
Contamination Assessment Management & Geotechnical

MR TONY KHATTAR

STAGE 1 ENVIRONMENTAL SITE ASSESSMENT

2-8 VAUGHAN STREET AND 1-15 KERRS ROAD, LIDCOMBE, NSW

Environmental Investigations

Report No. E1367.1

31st May, 2011

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Environmental Investigations
Contamination Assessment Management & Geotechnical

Report Distribution

STAGE 1 ENVIRONMENTAL SITE ASSESSMENT
2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe, NSW

EI Report No. *E1367.1 AA*
Date: *31st May, 2011*

Copies:	**Recipient:**
1 Soft Copy (PDF – Secured, issued by email) 3 Hard Copies (sent by Express Courier)	Mr Tony Khattar 26 Tulong Avenue OATLANDS NSW 2117.
1 Original (Saved to Digital Archives)	Environmental Investigations Pty Ltd Unit 17 / 1A Coulson Street ERSKINEVILLE NSW 2043

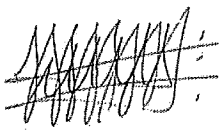
Author:	**Technical Reviewer:**
	
TONY GUIRGUIS Project Manager	DR VAGNER JORDEN Principal Environmental Hydrogeologist

TABLE OF CONTENTS

1.0 INTRODUCTION

Environmental Investigations was engaged by Mr Tony Khattar to conduct a Stage 1 Environmental Site Assessment (ESA1) for 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe, NSW (henceforth referred to as 'the site').

The site is also identified as Lot C and D in DP 416771; Lots A and B in DP 432751; Lots 5 and 6, Section 8 in DP 3424; and SP438 and is situated within the local government authority of Auburn City Council, Parish of Liberty Plains and the County of Cumberland as shown in the site locality plan presented as Figure 1.

At the time of this assessment the site was occupied by two, single-storey residential dwellings at the north-western part; a single storey retail building at the central northern end; a two-storey commercial building at the eastern end; and a concrete paved car park building which occupied the central part of the site. The purpose of this assessment is to evaluate the potential for site contamination prior to the proposed mixed commercial and residential redevelopment of the site.

This report documents the findings of a detailed site walkover inspection and a desk study involving a review of site history and includes a discussion of the potential areas of environmental concern.

The work reported herein followed standard environmental procedures generally in accordance with the *Guidelines on Data Collection, Sample Design and Reporting* published by the National Environmental Protection Council (NEPC), and the *Guidelines for Consultants Reporting on Contaminated Sites*, published by the NSW Environment Protection Authority (EPA).

2.0 PROJECT OBJECTIVES AND SCOPE OF WORKS

The objective of this assessment was to appraise the site for potential contamination resulting from any past and/or present land uses. In keeping the project cost-effective and defensible for Council requirements, the following scope of works was conducted:

- detailed site walkover inspection across the site;
- search of historical aerial photographs archived at the Land and Property Management Authority for the identification of changes to the site and operational, land-use history;
- review of historical ownership of the site through existing land titles records;
- a search of Auburn City Council records pertaining to previous site use and/or relevant environmental incidents;
- search through the EPA/OEH Land Information database to confirm that there are no statutory notices current on the site under the *Unhealthy Building Land Act* (1990), or the *Contaminated Land Management Act* (1997);
- data interpretation and reporting.

3.0 SITE DESCRIPTION

3.1 PROPERTY IDENTIFICATION, PHYSICAL SETTING AND LOCAL LAND USE

With the street address of 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe, NSW the site is further identified as Lot C and D in DP 416771; Lots A and B in DP 432751; Lots 5 and 6, Section 8 in DP 3424; and SP438 which falls within the Local Government Authority of Auburn City Council, Parish of Liberty Plains and County of Cumberland.

The site is an irregular-shaped block, covering a total area of approximately 2,800m^2. The site is bound by Vaughan Street to the north, Joseph Street to the east, Kerrs Road to the south-east and residential apartments and vacant land to the west.

The nearest watercourse is Haslams Creek located approximately 1.4km north of the site, which flows into Homebush Bay.

3.2 REGIONAL GEOLOGICAL & HYDROGEOLOGICAL CONDITIONS

Geology

Information on regional sub-surface conditions, referenced from the Department of Mineral Resources geological map *Sydney 1:100,000 Geological Series Sheet 9130* (DMR, 1983), indicated that the site overlies Ashfield Shale (*Rwa*) of the Wianamatta Group. Ashfield shale is characterised by black to dark-grey shale and laminate.

The Soil Conservation Service of NSW *Soil Landscapes of the Sydney 1:100,000 Sheet* (Chapman and Murphy, 1989), indicated that the site overlies a *Fluvial Landscape – Birrong* (*bg*). According to Chapman and Murphy, this landscape type includes level to gently undulating alluvial floodplain draining Wianamatta Group shales. Land use is mostly recreational with landfill occurring in many areas.

Local relief is <5m with slopes gradients <3% and broad concave valleys. Most drainage lines have been converted to lined concrete and brick channels. Vegetation is extensively cleared.

Soils are identified as deep (>250cm) yellow podzolic soils and yellow solodic soils on older alluvial (terraces) while solodic soils and yellow solonetzic soils exist on current floodplain.

Limitations of this landscape are localised flooding, high soil erosion hazard, saline subsoil, seasonal water logging and very low soil fertility.

Hydrogeology

A search of registered groundwater bores through the NSW Natural Resource Atlas (NRAtlas - the water bore database accessed through the *NSW Government WaterInfo* website http://www.waterinfo.nsw.gov.au/gw/) revealed that no, registered, water supply bores, have been constructed within 1km of the site (*Ref.* Appendix A).

4.0 SITE CONTAMINATION APPRAISAL

4.1 HISTORICAL AERIAL PHOTOGRAPHY REVIEW

The site history review included a search of historical aerial photographs sourced from the Land and Property Management Authority. The inspected photographs were as follows:

1. 6 March 1930, Sydney – Run 4, print 1276, NSW 3424
2. May 1951, Sydney – Run 12, print 133, NSW 467
3. 1961, Cumberland – Run 34, print 5109, NSW 1050
4. 9 August 1982, Sydney – Run 22, print 150, NSW 3241
5. 24 August 1991, Sydney – Run 10, print 127, NSW 4029
6. 4 May 1999, Sydney – Run 4, print 53, NSW 4702

1930

The 1930 aerial photograph revealed the site to be occupied by a large single-storey structure covering the eastern part of the site with smaller structures at the southern end and northern parts and appeared to be commercial or residential in nature. A residential dwelling was located at the north- western corner of the site while the north-western part (to the east of the dwelling) was vacant land. The surrounding properties (beyond street frontages) to the north appeared to be vacant / commercial; to the south-east was retail / residential; the west was commercial / residential; and to the east was a park.

1951

The 1951 aerial photograph revealed eastern part of the site to be covered by a two-storey commercial structure, replacing the previous structure. The central part appeared to be a yard area with machinery or equipment while the south-western corner was occupied by a shop as part of row of retail stores extending to the west. The north-western parts of the site were generally unchanged. The properties appeared to be relatively unchanged

1961

The 1961 aerial photograph showed the site to be relatively unchanged with the exception of two structures at the central part, likely to have been of commercial use and a residential dwelling occupying the previously vacant area at the north-western part. The surrounding properties appeared to be relatively unchanged.

1982

The 1986 aerial photograph revealed little or no changes to the site as compared to the 1961 photograph. The surrounding properties also had little or no changes.

1991

The 1991 aerial photograph revealed the south-western corner as well as the central northern end to be vacant and concrete paved and used as a car park. The remainder of the site had little or no changes to the site as compared to the 1982 photograph. The surrounding properties also had little or no changes with the exception of the property to the north which appeared to be a service station.

1999

The 1999 aerial photograph revealed little or no changes. The surrounding properties also had little or no changes.

In summary, the site appeared to have been occupied by a structure covering the eastern part of the site before being replaced by a two-storey structure (1930-1951); the central part was occupied by structures of commercial use including a shop at the south-western corner which were demolished (1980s) before being concrete paved for use as a car park; The north-western corner was occupied by a residential dwelling. The area adjacent to the east of the dwelling was vacant before being occupied by a residential dwelling (1950s)

The surrounding properties (beyond street frontages) to the north appeared to be vacant / commercial and later was partially a service station; to the south-east was retail / residential; the west was commercial / residential; and to the east was a park.

4.2 LAND TITLES INFORMATION

A historical land titles search was conducted through Service First Registration Pty Ltd. Copies of relevant documents resulting from this search are presented in Appendix B.

A summary of owners is compiled in Tables 1a to 1e.

Table 1a. Summary of Owners – SP 438

Date of Acquisition	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
04.11.1905	William Barkley (Butcher)	Vol 1648 Fol 148
13.10.1925	Carrington Jubilee Barkley (Produce Merchant) Clementine Garnett Barkley (Butcher) (Transmission Application not investigated)	Vol 1648 Fol 148
30.03.1954	Clementine Garnett Barkley (Butcher)	Vol 1648 Fol 148
30.10.1953	Clementine Garnett Barkley (Butcher) Nellie Doreen McOnie (Married Woman)	Vol 1648 Fol 148
29.04.1963	Lidcombe Project Developers Pty Limited	Vol 1648 Fol 148
01.05.1963	The Dancers Club Limited	Vol 1648 Fol 148
21.10.1963	The Owners – Strata Plan 438	CP/SP 438

Table 1b. Summary of Owners – Lots C & D D.P. 416771

Date of Acquisition	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
As regards the whole of Lots C & D		
22.03.1910	Hugh John Epthorp (Teacher)	Vol 2045 Fol 179
27.04.1921	Annie Caroline Epthorp (Widow)	Vol 2045 Fol 179
28.03.1922	Alick Robert Shepherd (Wharf Laborer)	Vol 245 Fol 179 now Vol 3308 Fol 82
16.01.1930	Walter Corrick (Baker)	Vol 3308 Fol 82 (as regards the part marked (A) also Vol 5649 Fol 134 (as regards the part marked (B) on the said cadastre
As regards the part of Lot C marked (A) on the attached cadastre		
23.10.1937	Henry Sneesby (Bootmaker now Spray Painter)	Vol 3308 Fol 82 now Vol 8045 Fol 244
As regards the part of Lot C and the whole of Lot D marked (B) on the attached cadastre		
28.02.1959	Clive Walter Corrick (Clerk) (Section 94 Application not investigated)	Vol 3308 Fol 82 now Vol 5659 Fol 134 (as regards the part Lot C marked (B)) Also Vol 8497 Folio 176 (as regards Lot D)
13.12.1958	Henry Sneesby (Bootmaker now Spray Painter)	Vol 5659 Fol 134 now Vol 8045 Fol 244 (as regards the part of Lot C)
As regards the whole of Lot C		
09.09.1968	Lillian Sneesby (Widow) (Section 94 Application not investigated)	Vol 8045 Fol 244
18.06.1976	Levik Pty Limited	Vol 8045 Fol 244 now C/416771
10.12.2003	Tony Khattar	C/416771
As regards the whole of Lot D		
15.08.1967	The Dancers Club Limited	Vol 8497 Fol 176
22.09.1981	Emil Koborsi Alek Moses	Vol 8497 Fol 176
25.03.1986	The Australian Mid-Eastern Club Limited	Vol 8497 Fol 176 now D/416771
14.10.1991	Tony Khattar Raymond Khattar George Khattar Joseph Khattar Robert Khattar Peter Khattar	D/416771

Table 1c. Summary of Owners – Lots A & B D.P. 432751

Date of Acquisition	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
22.03.1910	Hugh John Epthorp (Teacher)	Vol 2045 Fol 179
27.04.1921	Annie Caroline Epthorp (Widow)	Vol 2045 Fol 179
08.06.1921	Walter Corrick (Baker)	Vol 2045 Fol 179 now Vol 3204 Fol 91
As regards Lot A D.P. 432751		
20.12.1946	Stewart Geddes (Master Baker) James Geddes (Master Baker)	Vol 3204 Fol 91 now Vol 5874 Fol 236
18.06.1954	Edward Francis Pettit (Master Baker)	Vol 5874 Fol 236
24.01.1958	Amanut (Australasia) Pty Limited	Vol 5874 Fol 236
20.02.1959	Otto Simon Weissman (Company Director) Hedy Weissman (Married Woman)	Vol 5874 Fol 236
26.06.1966	The Dancers Club Limited	Vol 5874 Fol 236
22.09.1981	Emil Koborsi Alek Moses	Vol 11596 Fol 165 now 18/C/1560
25.03.1986	The Australian Mid-Eastern Club Limited	Vol 5874 Fol 236 now A/432751
14.10.1991	Tony Khattar, Raymond Khattar George Khattar, Joseph Khattar Robert Khattar, Peter Khattar	A/432751
As regards Lot B D.P. 432751		
11.03.1948	Rainsford Edward Dennis (Insurance Agent)	Vol 3204 Fol 91 now Vol 5875 Fol 8
15.09.1948	James Gibray (Rubber Worker)	Vol 5875 Fol 8
27.01.1955	Eric Winton (Manufacturer) Elsa Rosa Winton (Married Woman)	Vol 5875 Fol 8
27.09.1960	Daphne June Greentree (Married Woman) Erol Margaret Faux (Married Woman)	Vol 5875 Fol 8
29.06.1979	Daphne June Greentree (Married Woman)	Vol 5875 Fol 8
12.12.1979	Ian David Gowanloch (Motor Cycle Mechanic)	Vol 5875 Fol 8
15.10.1984	Emil Koborsi Alek Moses	Vol 5875 Fol 8
25.03.1986	The Australian Mid-Eastern Club Limited	Vol 5875 Fol 8 now B/432751
14.10.1991	Tony Khattar, Raymond Khattar George Khattar, Joseph Khattar Robert Khattar, Peter Khattar	B/432751

Table 1d. Summary of Owners – Lot 5 Section 8 D.P. 3424

Date of Acquisition	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
17.11.1916	Frederick Henry McGrady (Farmer)	Vol 2716 Fol 81
22.11.1923	War Service Homes Commissioner	Vol 2716 Fol 81
03.07.1951	Louis Sylvester Turner (Clerk) Hazel Mary Turner (Married Woman)	Vol 2716 Fol 81 now Vol 6379 Fol 179
03.0.1972	Hazel Mary Turner (Widow)	Vol 6379 Fol 179 now 5/8/3424
28.10.1993	Eric Dagg Noeline Marie Turner (Executors of the Will of Hazel Mary Turner)	5/8/3424
06.10.1994	Davinder Singh Passi Anita Passi	5/8/3424
28.06.1999	Ihsan Dogan Meriman Dogan	5/8/3424
19.08.2003	Raymond Khattar	5/8/3424
03.04.2007	Carla Khattar	5/8/3424

Table 1e. Summary of Owners – Lot 6 Section 8 D.P. 3424

Date of Acquisition	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
17.11.1916	Frederick Henry McGrady (Farmer)	Vol 2716 Fol 81
22.11.1923	War Service Homes Commissioner	Vol 2716 Fol 81
07.08.1951	Letitia Keren Cameron (Married Woman)	Vol 2716 Fol 81 now Vol 6388 Fol 23
11.12.1973	William Bagan (Machinist) Mona Bagan (Married Woman)	Vol 6388 Fol 23
09.06.1978	Rafet Sima (Machine Operator) Naime Sima (Married Woman)	Vol 6388 Fol 23
15.07.1986	Dinh Vu Thi Yen Vu	Vol 6388 Fol 23 now 6/8/3424
12.08.2003	Peter Khattar	6/8/3424

The title search revealed the site to be divided into seven lots. The eastern part of the site, which formed the largest lot, was owned by a family of butchers from 1905 until 1963 when The Dancers Club acquired the property and created a strata plan.

Two lots were located to the west of the strata plan (forming the eastern-central part) divided into northern (Lot C) and southern (Lot D) with the boundary between the two

adjusted in 1930. The two lots were owned by individuals followed by a baker from 1930 to 1937/1958 when the northern lot was transferred to a spray painter in 1937 with the southern lot also transferred to the same person in 1958. The northern lot was then divested in 1968 to an individual followed by Levik Pty Ltd from 1976 to 2003 then again to an individual. The southern lot was transferred to The Dancers Club (1967-1981) with The Australian Mid-Eastern Club acquiring this lot in 1986 and then transferred to a family in 1991.

Similarly, the adjoining lots further to the west (forming the western-central part) divided into northern (Lot A) and southern (Lot B). The two lots were owned by individuals followed by a baker from 1921 to 1946/1948 when the northern lot was transferred to a master baker (1946-1958), a company / company director (1958-1966), The Dancers Club (1966-1981) before being transferred to individuals (1981-1986). The southern lot was occupied by individuals including a rubber worker (1948-1955), manufacturer (1955-1960), a motor cycle mechanic (1979-1984) before being transferred to individual (1984-1986). Bothe northern and southern lots were transferred to The Australian Mid-Eastern Club (1986-1991) and then transferred to a family in 1991.

The two lots at the north-western corner of the site (Lots 5 and 6) were owned by a farmer (1916-1923) and War Service Homes Commissioner (1923-1951) after which the two lots were conveyed to different parties, mainly individuals and likely as residential use.

4.3 COUNCIL INFORMATION

A search of site history records held by Auburn City Council was initiated on 6th May, 2011. The search was processed and EI received attended Council to inspect the available records on 24th May, 2011.

The council files included records dating back to 1976 relating to the following uses, development applications and /or complaints as detailed in Table 2

Table 2. Council Records Search

DATE	REFERENCE	DESCRIPTION
2-4 Vaughan Street		
May, 1976	DA64/76	No. 2: Demolition of existing cottage and construct new building – approved
November, 1976	DA190/76	No. 2: Use part of newly constructed building as dental surgery – approved
May, 1982	DA97/82	No. 4: Construction of car park – approved
November, 1984	DA283/84	Construction of car park and licensed club – approved
December, 1984	BA640/84	Construction of club
1991	DA317/91	Change of use from club to function centre – approved

Council records data indicated use of the eastern part of the site and central northern part to have been used as a club and later as a function centre with a car park.

No records relating to the southern and north-western parts of the site were available.

4.4 HAZARDOUS CHEMICALS AND REGULATORY COMPLIANCE

On 9th May, 2011 an on-line search of the *Contaminated Land – Record of EPA Notices* was conducted, this being a database that is maintained by the Department of Environment, Climate Change and Water (DECCW NSW). This search confirmed that the DECCW NSW has no current involvement, or regulation, under Section 58 of the *Contaminated Land Management Act 1997* (CLM Act) for the property identified as 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe, NSW.

Section 58 of the *CLM Act 1997* relates to the investigation, remediation and management of sites where contamination poses a significant risk of harm, and includes Sections 35 and 36 of the *Environmentally Hazardous Chemicals Act 1985*.

4.5 SITE WALKOVER INSPECTION

Mr Tony Guirguis (EI, Project Manager) made the following observations during an inspection of the site on 11th May, 2011:

1. The site was an irregular-shaped block of land with a two-storey commercial brick building at the eastern end, a small single-storey commercial building adjacent to the west, two residential dwellings at the north-western end and concrete paved car parking at the central part

2. The two-storey commercial building at the eastern end appeared to be disused or used on a limited basis as a church as indicated by signage on the façade. A single-storey commercial building was located adjacent to the north-western side and appeared to be abandoned or vacant.

3. Two single-storey residential dwellings were located at the north-western corner with one being constructed of brick and fibro with tile roofing and the other timber with tile roofing. A fibro and tiled roof garage was located at the rear of each dwelling.

4. The central part of the site comprised of a concrete paved car park which was found to be in good condition with minimal cracking or oil staining.

5. The local topography was sloping gently downwards to the west to south-west.

4.6 AREAS AND CONTAMINANTS OF ENVIRONMENTAL CONCERN

On the basis of site history information collected during the assessment and the site walkover inspection, potential Areas of Environmental Concern (AEC) and Contaminants of Concern were identified as summarised in Table 3.

Table 3. Summary of Potential Areas and Chemicals of Environmental Concern

AEC	*Potential AECs*	*Potentially contaminating activity*	*Contaminants of Concern*	*Likelihood of Contamination**
1	Central and eastern end of the site where a car park and commercial activities were previously conducted	Potentially contaminated soil from commercial activities	Total Petroleum Hydrocarbons (TPHs), Heavy Metals, Monocyclic Aromatics (BTEX), Polyaromatic Hydrocarbons (PAHs), Volatile Organic Compounds (VOCs) and phenols	Low
2	Imported fill or demolition rubble across the site for levelling purposes	Potentially contaminated filling previously imported onto the site	Heavy Metals, TPH, BTEX, Polycyclic Aromatic Hydrocarbons (PAHs), Polychlroinated Biphenyls (PCBs), OCPs; OPPs and asbestos	Low

Notes: * The likelihood of contamination is based on a qualitative probability of contamination being detected, based on the nature and distribution of contaminations

5.0 CONCLUSIONS AND RECOMMENDATIONS

The property located at 2-8 Vaughan Street and 1-15 Kerrs Road, Lidcombe, NSW, was the subject of a Stage 1 Environmental Site Assessment (ESA 1) in order to determine the potential for site contamination resulting from past site activities and present a baseline of contamination conditions for assessment of the site's suitability for the proposed mixed commercial and residential development.

Based on the review of historical information for the site, the predominant land uses of the site have been mainly commercial across the central and eastern parts of the site and included car parking, club and function centre operations. The north-western part was identified as mainly residential with two dwellings covering two separate lots..

In view of the historical activities and site walkover inspection, areas of environmental concern (AECs) were subject to potential soil contamination. These areas comprised of the central and eastern part of the site where a car park and commercial activities were conducted (AEC 1); and the entire site where demolition rubble or fill of unknown origin may have been imported for the purposes of levelling (AEC 2).

The likelihood of contamination at all three AECs were considered to be low to medium.

It is therefore recommended that a field-based investigation be conducted aiming the identified Areas of Environmental Concern, prior to the development of the site. It is recommended that such an assessment includes laboratory analysis of site fill soils and natural soils for the identified chemicals of concern. The results of such testing should be interpreted in relation to the soil criteria appropriate for the intended land use.

Given that no evident sources of mobile contamination could be visually identified on site, it is considered that contaminants associated with past land uses, even if present, would be confined to the upper surficial material and the associated impact would be minimal.

Furthermore, it is considered that there would be no major difficulties in remediating the site, should it be required.

Should site soils require excavation and disposal from the site, then these soils should be classified in accordance with the DECCW (2009) *Waste Classification Guidelines* and disposed to an approved landfill facility. Any soils to be imported onto the site for the purpose of back-filling excavated areas will also require validation testing following the EPA (1995) Sampling Design Guidelines to confirm their suitability for the proposed land use.

6.0 STATEMENT OF LIMITATIONS

This Stage 1 Environmental Site Assessment evaluated the likelihood of site contamination resulting from previous known uses of the site. This appraisal was limited to visual inspection of ground level conditions and a review of anecdotal and historical information and archived data provided by local and state government authorities. It is assumed that this information was accurate and complete. Sampling and laboratory analysis of site materials were not conducted as part of this assessment. Although this methodology is consistent with current industry practice for such appraisal assessments, no warranty or guarantee of site conditions is given or intended.

This report has been prepared by Environmental Investigations for the sole use of Mr Tony Khattar. No responsibility is accepted for the use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

This report remains the property of EI subject to payment of all fees due for the assessment. The report shall not be reproduced except in full and with prior written permission by EI.

Should you have any queries regarding this report, please do not hesitate to contact the undersigned.

For and on behalf of,
ENVIRONMENTAL INVESTIGATIONS

TONY GIURGUIS
Project Manager

DR VAGNER JORDEN
Principal
Environmental Hydrologist

REFERENCES

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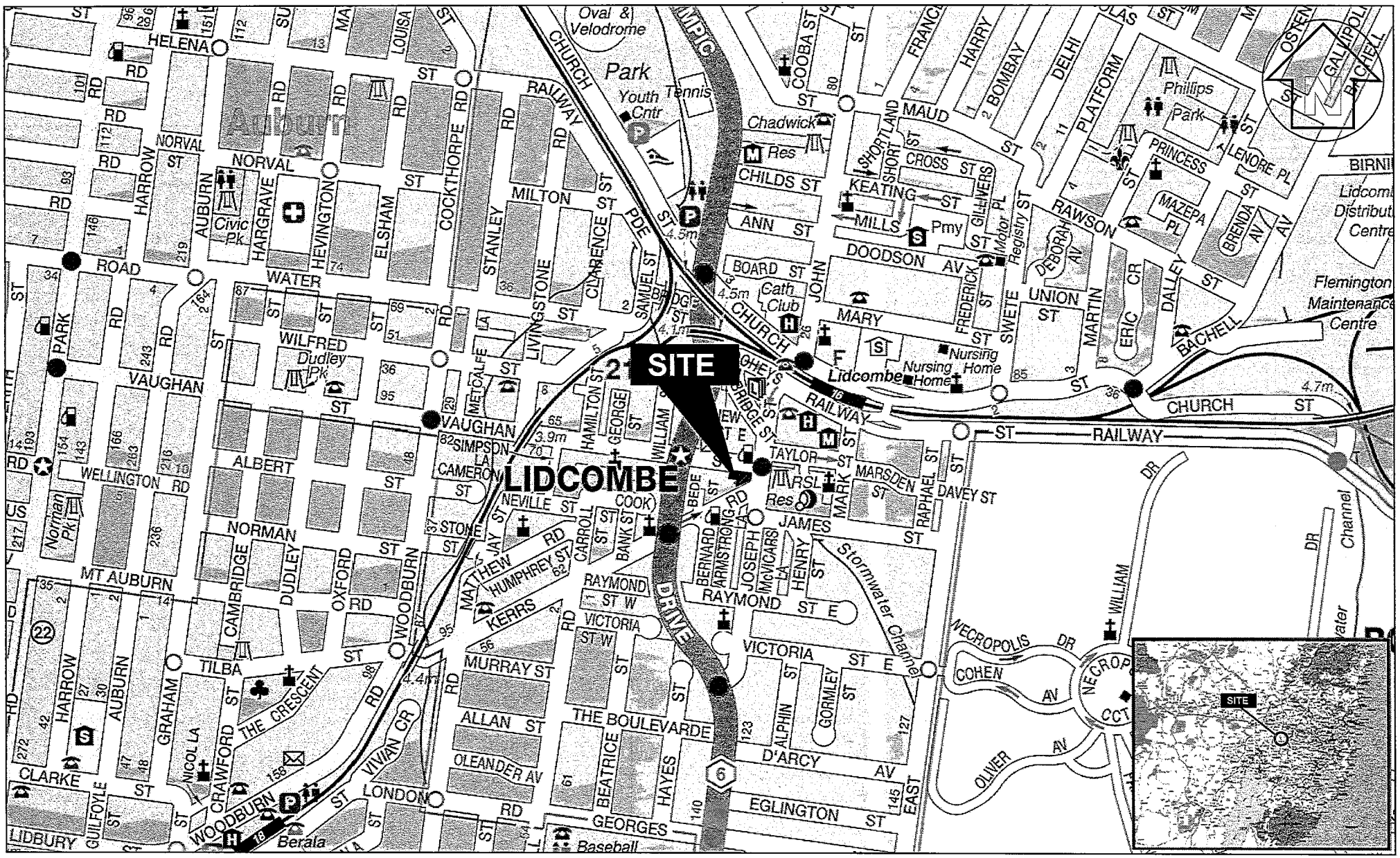
NEPC (1999) Schedule B(2) Guidelines on Data Collection, Sample Design and Reporting, National Environment Protection (Assessment of Site Contamination) Measure, National Environment Protection Council, 69pp.

ABBREVIATIONS

AAS	Atomic Absorption Spectrometry
AHD	Australian Height Datum
AST	Aboveground Storage Tank
ANZECC	Australian and New Zealand Environment Conservation Council
BAP	Benzo(a)pyrene
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethyl benzene, Xylene
COC	Chain of Custody documentation, or Contaminant of Concern (subject to context)
DAC	Data Acceptance Criteria
DEC	NSW Department of Environment and Conservation (now DECC)
DECC	NSW Department of Environment and Climate Change (now DECCW)
DECCW	NSW Department of Environment, Climate Change and Water
DP	Deposited Plan
DQO	Data Quality Objective
EI	Environmental Investigations
EIL	Ecological Investigation Level
EPA NSW	Environment Protection Authority, New South Wales
ESA	Environmental Site Assessment
GC-ECD	Gas Chromatograph-Electron Capture Detector
GC-FID	Gas Chromatograph-Flame Ionisation Detector
GC-MS	Gas Chromatograph-Mass Spectrometer
HDPE	High Density Polyethylene
HIL	Health Based Investigation Level
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
OCPs	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photo-ionisation Detector
PIL	Phytotoxicity-based Investigation Levels
PQL	Practical Quantitation Limit (laboratory instrument detection limit)
QA/QC	Quality Assurance / Quality Control
RAC	Remediation Acceptance Criteria
RAP	Remediation Action Plan
RPD	Relative Percentage Difference
SIL	Soil Investigation Level
SWL	Standing Water Level (a measurement to current groundwater level)
TOC	Top of bore Casing (water levels are generally measured relative to TOC)
TPHs	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
UCL	Upper Confidence Limit

FIGURES



Drawn:	T.G
Approved:	V.J
Date:	06-05-11
Approx Scale:	N.T.S

Environmental Investigations
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Mr Tony Khattar

Stage 1 Environmental Site Assessment

Cnr Joseph St, Vaughan St & Kerrs Rd, Lidcombe, NSW

Site Locality Plan

Figure: 1

Project: E1367.1

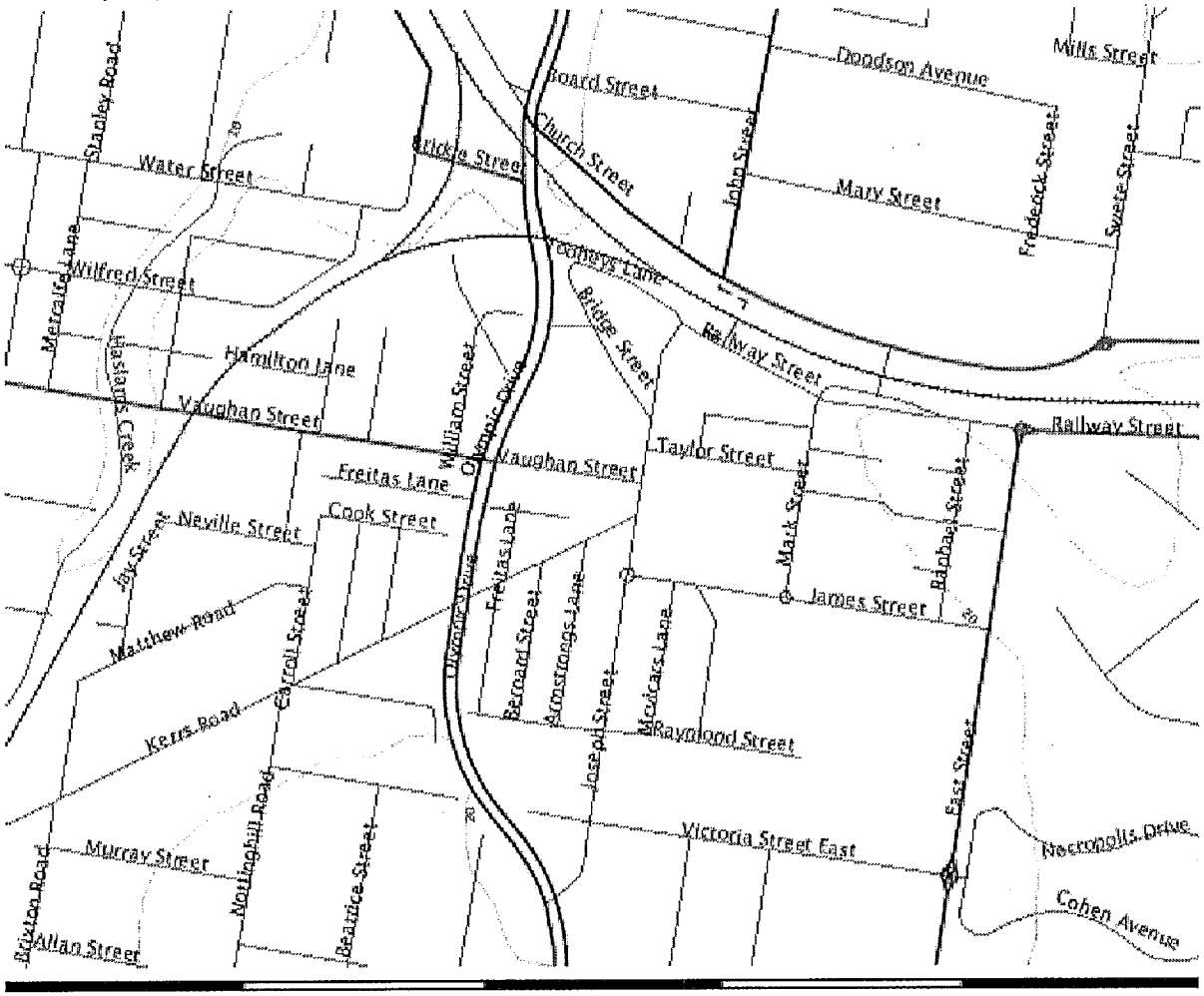
APPENDIX A

GROUNDWATER BORE RECORDS SEARCH

E1367.1 - Lidcombe

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

Wednesday, May 11, 2011



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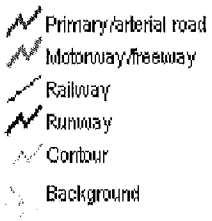
Legend

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	
	Topographic base map	



APPENDIX B

LAND TITLES INFORMATION EXTRACT

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Fax: 9233 2878
Suite 102, Level 1, 64 Castlereagh Street
Sydney 2000
PO Box 1539 Sydney 2000
DX 189 Sydney

Summary of Owners Report

LPMA Sydney

Re: Vaughan & Joseph Streets and Kerrs Road, Lidcombe

Description: - Lots C & D D.P. 416771, Lots A & B D.P. 432751
Also
Lots 5 & 6 Section 8 D.P. 3424 and the Common Property Strata Plan 438

As regards the Common Property for Strata Plan 438

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
04.11.1905 (1905 to 1925)	William Barkley (Butcher)	Vol 1648 Fol 148
13.10.1925 (1925 to 1954)	Carrington Jubilee Barkley (Produce Merchant) Clementine Garnett Barkley (Butcher) (Transmission Application not investigated)	Vol 1648 Fol 148
30.03.1954? (1954 to 1954)	Clementine Garnett Barkley (Butcher)	Vol 1648 Fol 148
30.10.1953 (1953 to 1963)	Clementine Garnett Barkley (Butcher) Nellie Doreen McOnie (Married Woman)	Vol 1648 Fol 148
29.04.1963 (1963 to 1963)	Lidcombe Project Developers Pty Limited	Vol 1648 Fol 148
01.05.1963 (1963 to 1963)	The Dancers Club Limited	Vol 1648 Fol 148
21.10.1963 (1963 to date)	The Owners – Strata Plan 438	CP/SP 438

# Denotes Current Registered Proprietor

Leases: - NIL

Easements: - J 393979. Easement for Drainage

As regards Lots C & D D.P. 416771

As regards the whole of Lots C & D

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
22.03.1910 (1910 to 1921)	Hugh John Epthorp (Teacher)	Vol 2045 Fol 179
27.04.1921 (1921 to 1922)	Annie Caroline Epthorp (Widow)	Vol 2045 Fol 179
28.03.1922 (1922 to 1930)	Alick Robert Shepherd (Wharf Laborer)	Vol 245 Fol 179 now Vol 3308 Fol 82
16.01.1930 (1930 to 1937 - as regards the part marked A on the attached cadastre) (1930 to 1959 – as regards the part marked (B) on the attached cadastre)	Walter Corrick (Baker)	Vol 3308 Fol 82 (as regards the part marked (A) also Vol 5649 Fol 134 (as regards the part marked (B) on the said cadastre

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Search continued as regards the part of Lot C marked (A) on the attached cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.10.1937 (1937 to 1968)	Henry Sneesby (Bootmaker now Spray Painter)	Vol 3308 Fol 82 now Vol 8045 Fol 244

Search continued as regards the part of Lot C and the whole of Lot D marked (B) on the attached cadastre

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
28.02.1959? (1959 to 1959 - as regards the part of Lot C) (1959 to 1967 – as regards Lot D)	Clive Walter Corrick (Clerk) (Section 94 Application not investigated)	Vol 3308 Fol 82 now Vol 5659 Fol 134 (as regards the part Lot C marked (B)) Also Vol 8497 Folio 176 (as regards Lot D)
13.12.1958 (1958 to 1968 – as regards part Lot C)	Henry Sneesby (Bootmaker now Spray Painter)	Vol 5659 Fol 134 now Vol 8045 Fol 244 (as regards the part of Lot C)

Search continued as regards the whole of Lot C

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
09.09.1968 (1968 to 1976)	Lillian Sneesby (Widow) (Section 94 Application not investigated)	Vol 8045 Fol 244
18.06.1976 (1976 to 2003)	Levik Pty Limited	Vol 8045 Fol 244 now C/416771
10.12.2003 (2003 to date)	# Tony Khattar	C/416771

# Denotes Current Registered Proprietor

Leases: - NIL

Easements: - 23.10.1937. Easement for Pipe Drain (C591057)
03.11.1960. Easement for Pipe Drain (H 153437)

Search continued as regards the whole of Lot D

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
15.08.1967 (1967 to 1981)	The Dancers Club Limited	Vol 8497 Fol 176
22.09.1981 (1981 to 1986)	Emil Koborsi Alek Moses	Vol 8497 Fol 176
25.03.1986 (1986 to 1991)	The Australian Mid-Eastern Club Limited	Vol 8497 Fol 176 now D/416771
14.10.1991 (1991 to Date)	# Tony Khattar # Raymond Khattar # George Khattar # Joseph Khattar # Robert Khattar # Peter Khattar	D/416771

# Denotes Current Registered Proprietors

Leases & Easements: - NIL

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As regards Lots A & B D.P. 432751

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
22.03.1910 (1910 to 1921)	Hugh John Epthorp (Teacher)	Vol 2045 Fol 179
27.04.1921 (1921 to 1921)	Annie Caroline Epthorp (Widow)	Vol 2045 Fol 179
08.06.1921 (1921 to 1946 - as regards Lot A) (l921 to 1948 – as regards Lot B)	Walter Corrick (Baker)	Vol 2045 Fol 179 now Vol 3204 Fol 91

Leases: - 02.03.1922. To Florence Lamb (Married Woman) & Reginald Arthur Cowell (Cabinet Maker), as to part. Expired prior to 1948

07.04.1922. To William Sands (Fruiterer), as to part. Expired prior to 1948

Search continued as regards Lot A D.P. 432751

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
20.12.1946 (1946 to 1954)	Stewart Geddes (Master Baker) James Geddes (Master Baker)	Vol 3204 Fol 91 now Vol 5874 Fol 236
18.06.1954 (1954 to 1958)	Edward Francis Pettit (Master Baker)	Vol 5874 Fol 236
24.01.1958 (1958 to 1959)	Amanut (Australasia) Pty Limited	Vol 5874 Fol 236
20.02.1959 (1959 to 1966)	Otto Simon Weissman (Company Director) Hedy Weissman (Married Woman)	Vol 5874 Fol 236
26.06.1966 (1966 to 1981)	The Dancers Club Limited	Vol 5874 Fol 236
22.09.1981 (1981 to 1986)	Emil Koborsi Alek Moses	Vol 11596 Fol 165 now 18/C/1560
25.03.1986 (1986 to 1991)	The Australian Mid-Eastern Club Limited	Vol 5874 Fol 236 now A/432751
14.10.1991 (1991 to Date)	# Tony Khattar # Raymond Khattar # George Khattar # Joseph Khattar # Robert Khattar # Peter Khattar	A/432751

# Denotes Current Registered Proprietors

Leases & Easements: - NIL

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Search continued as regards Lot B D.P. 432751

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
11.03.1948 (1948 to 1948)	Rainsford Edward Dennis (Insurance Agent)	Vol 3204 Fol 91 now Vol 5875 Fol 8
15.09.1948 (1948 to 1955)	James Gibray (Rubber Worker)	Vol 5875 Fol 8
27.01.1955 (1955 to 1960)	Eric Winton (Manufacturer) Elsa Rosa Winton (Married Woman)	Vol 5875 Fol 8
27.09.1960 (1960 to 1979)	Daphne June Greentree (Married Woman) Erol Margaret Faux (Married Woman)	Vol 5875 Fol 8
29.06.1979 (1979 to 1979)	Daphne June Greentree (Married Woman)	Vol 5875 Fol 8
12.12.1979 (1979 to 1984)	Ian David Gowanloch (Motor Cycle Mechanic)	Vol 5875 Fol 8
15.10.1984 !984 to 1986)	Emil Koborsi Alek Moses	Vol 5875 Fol 8
25.03.1986 (1986 to 1991)	The Australian Mid-Eastern Club Limited	Vol 5875 Fol 8 now B/432751
14.10.1991 (1991 to Date)	# Tony Khattar # Raymond Khattar # George Khattar # Joseph Khattar # Robert Khattar # Peter Khattar	B/432751

# Denotes Current Registered Proprietors

Leases & Easements: - NIL

As regards Lot 5 Section 8 D.P. 3424

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
17.11.1916 (1916 to 1923)	Frederick Henry McGrady (Farmer)	Vol 2716 Fol 81
22.11.1923 (1923 to 1951)	War Service Homes Commissioner	Vol 2716 Fol 81
03.07.1951 (1951 to 1972)	Louis Sylvester Turner (Clerk) Hazel Mary Turner (Married Woman)	Vol 2716 Fol 81 now Vol 6379 Fol 179
03.0.1972 (1972 to 1993)	Hazel Mary Turner (Widow)	Vol 6379 Fol 179 now 5/8/3424
28.10.1993 (1993 to 1994)	Eric Dagg Noeline Marie Turner (Executors of the Will of Hazel Mary Turner)	5/8/3424
06.10.1994 (1994 to 1999)	Davinder Singh Passi Anita Passi	5/8/3424
28.06.1999 (1999 to 2003)	Ihsan Dogan Meriman Dogan	5/8/3424
19.08.2003 (2003 to 2007)	Raymond Khattar	5/8/3424
03.04.2007 (2007 to Date)	# Carla Khattar	5/8/3424

# Denotes Current Registered Proprietors

Leases & Easements: - NIL

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Sydney 2000
PO Box 1539 Sydney 2000
DX 189 Sydney

As regards Lot 6 Section 8 D.P. 3424

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
17.11.1916 (1916 to 1923)	Frederick Henry McGrady (Farmer)	Vol 2716 Fol 81
22.11.1923 (1923 to 1951)	War Service Homes Commissioner	Vol 2716 Fol 81
07.08.1951 (1951 to 1973)	Letitia Keren Cameron (Married Woman)	Vol 2716 Fol 81 now Vol 6388 Fol 23
11.12.1973 (1973 to 1978)	William Bagan (Machinist) Mona Bagan (Married Woman)	Vol 6388 Fol 23
09.06.1978 (1978 to 1986)	Rafet Sima (Machine Operator) Naime Sima (Married Woman)	Vol 6388 Fol 23
15.07.1986 (1986 to 2003)	Dinh Vu Thi Yen Vu	Vol 6388 Fol 23 now 6/8/3424
12.08.2003 (2003 to Date)	# Peter Khattar	6/8/3424

# Denotes Current Registered Proprietors

Leases & Easements: - NIL

Yours Sincerely
Mark Groll
3 June 2011
(Ph: 0412 199 304)

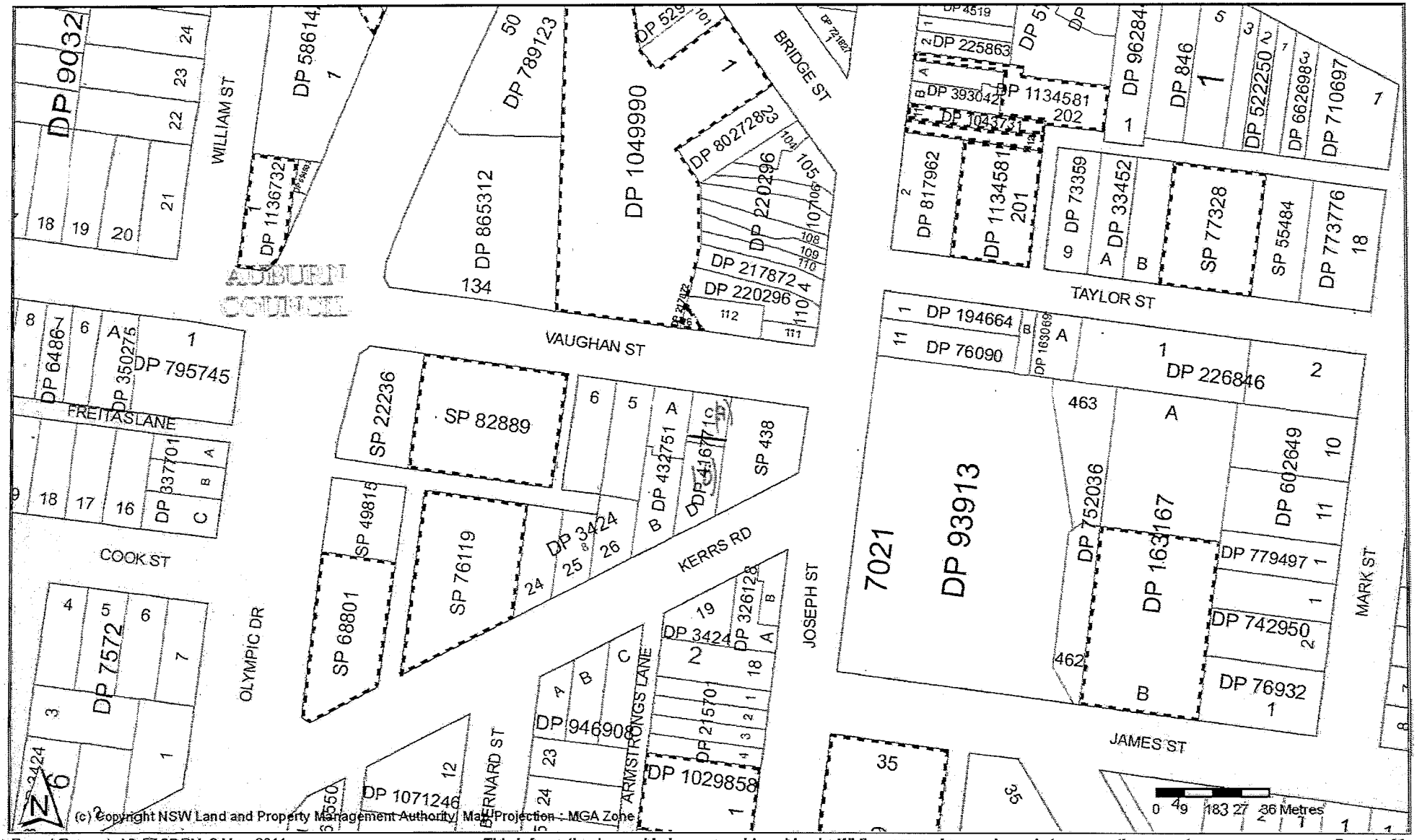
Land & Property Management Authority
Land & Property Information

Cadastral Records Enquiry Report

Ref : surv:scim-grollm

Requested Parcel : Lot C DP 416771 **Identified Parcel :** Lot C DP 416771

Locality : LIDCOMBE **LGA :** CITY OF AUBURN **Parish :** LIBERTY PLAINS **County :** CUMBERLAND



Form 1 — STRATA PLAN — OFFICE USE ONLY (3)

Mun./~~Shire/City~~ of Auburn

Locality Lidcombe

Reference to Title Vol. 1648 Fol. 148

Parcel comprises(a) whole of (b) Lots 1 & 2 Sec. 8 D.P. 3424

Parish of Liberty Plains County of Cumberland

The address for service of notices on the body corporate is:- The Proprietors - Strata Plan No 438, Cnr. Kerrs Rd. Joseph St. & Vaughan St. LIDCOMBE

Strata Plan 438 (E)

Registered: 21.10.1963

C.A.: 33/63 of 1.5.1963

Ref. Map: Lidcombe sht. 8

Last Plan: D.P. 3424

(a) State if whole or part.

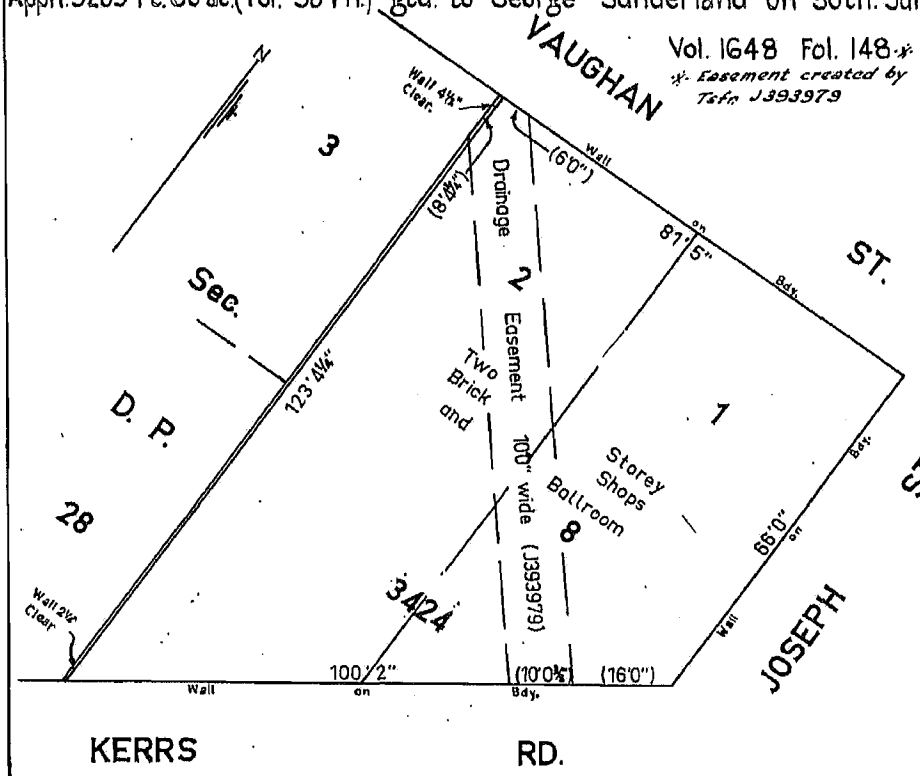
(b) Refer to number of Lot, Allotment, or Portion and to the Deposited Plan, Town, or as the case may be.

External surface boundaries of the parcel and location of the building in relation thereto to be delineated in space opposite

Appn. 9289 Pt. 60 ac. (Por. 38 Ph.) gtd. to George Sunderland on 30th. June 1823

Vol. 1648 Fol. 148 *

* Easement created by Tsfn J393979



Schedule of Unit Entitlement		OFFICE USE ONLY Current C's of T.
Lot No.	Unit Entitlement	Vol. Fol.
1	10	9556 - 60
2	9	9556 - 61
3	10	9556 - 62
4	7	9556 - 63
5	9	9556 - 64
6	100	9556 - 65
AGGREGATE	145	

I, John Henry Forshaw of 25 Albyn St., BEXLEY a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that:

(1) the building erected on the parcel described above is within the external boundaries of the parcel ~~(c) subject to clause (2) of this certificate~~

(c) (2) eaves or guttering of the building project beyond ~~such~~ external boundaries and an appropriate ~~easement~~ has been granted as an appurtenance of the ~~parcel by registered Transfer No.~~

Dated 10th April 1963

Signature J.H. Forshaw

(c) Delete if inappropriate

Approved by the Council for the purposes of the Conveyancing (Strata Titles) Act, 1961.

Date 1st May, 1963

Subdivision No. 33/63

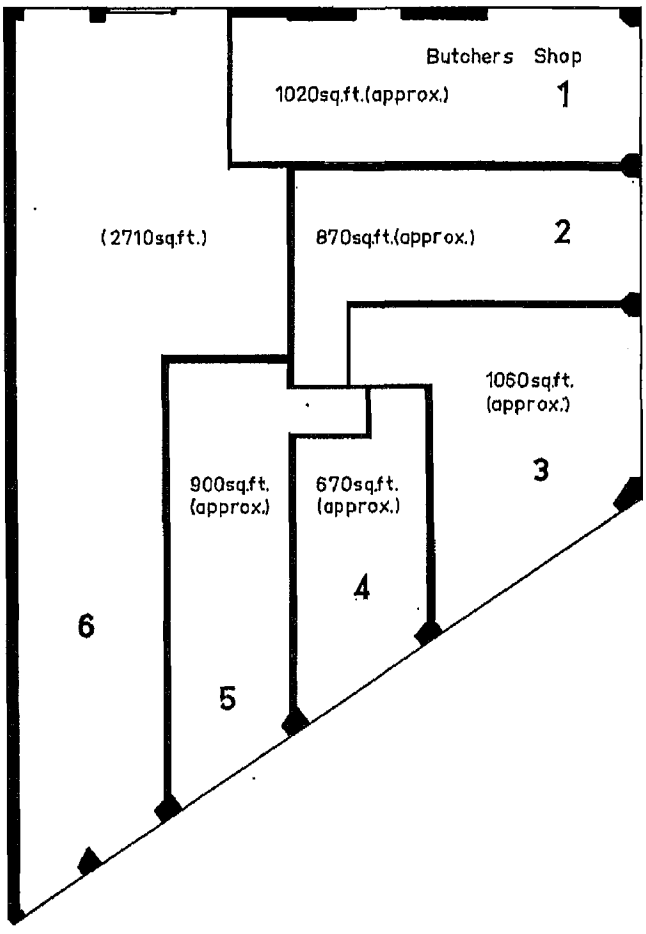
Council Clerk

STRATA PLAN No. 438

SHEET No. 2 OF 3 SHEETS

N

GROUND FLOOR



CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

STRATA PLAN 438

FEET	INCHES	METRES
-	2 1/4	0.055
-	4 1/2	0.115
6	-	1.83
8	4 3/4	2.56
10	-	3.05
10	0 3/8	3.055
16	-	4.875
66	-	20.115
81	5	24.815
100	2	30.53
123	4 1/4	37.6

SQ FT	SQ M
670	62.2
870	80.8
900	83.6
1020	94.8
1060	98.5
2710	251.8
7280	676.3
9990	928.1

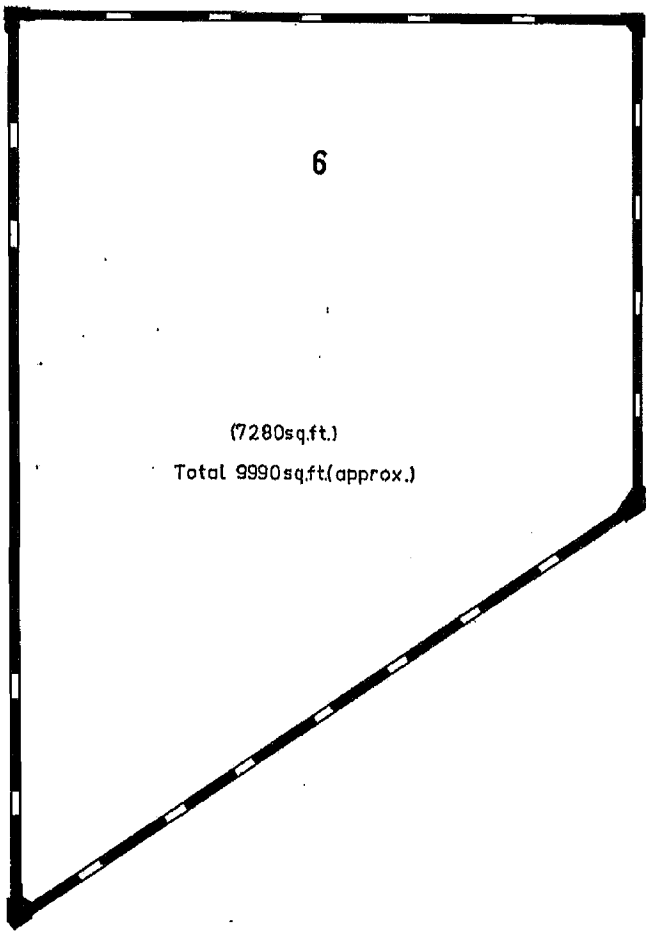
Council Clerk.

STRATA PLAN No. 438

SHEET No. 3 OF 3 SHEETS

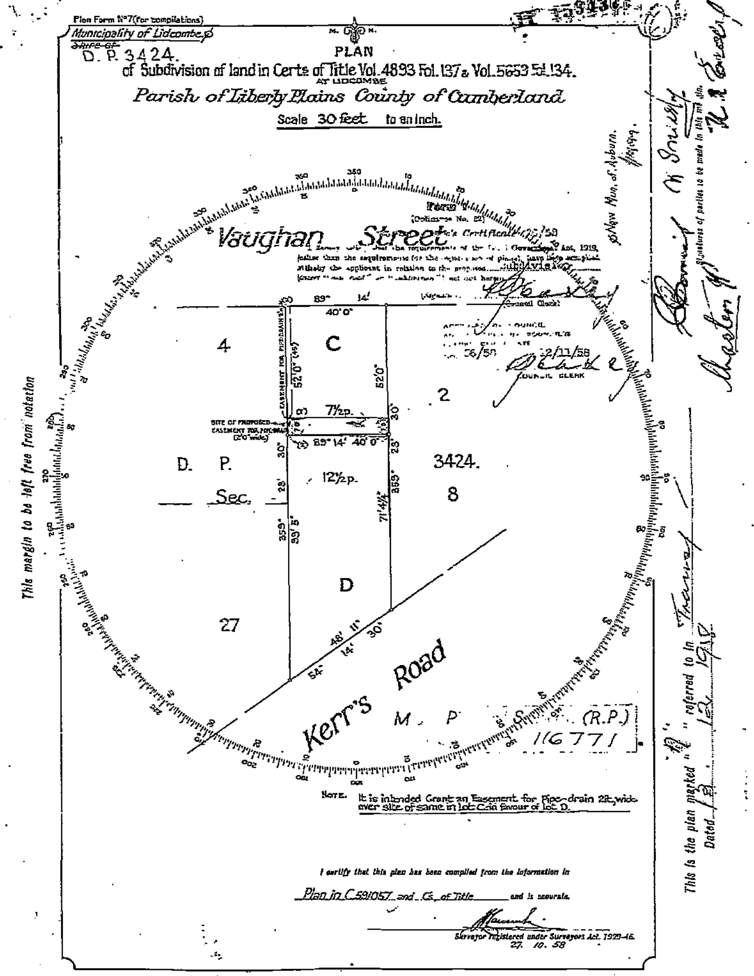
N

FIRST FLOOR



Council Clerk.

F.P. 416771



Plan Form N°7 (for compilations)
Municipality of Lidcombe
D. P. 3424.
PLAN
of Subdivision of land in Certs of Title Vol. 4893 Fol. 137 & Vol. 5653 Fol. 134.
AT LIDCOMBE
Parish of Liberty Plains County of Cumberland
Scale 30 feet to an inch.
Vaughan Street
Kerr's Road
4
C
2
D. P. 3424.
Sec. 8
D
27
7½p.
12½p.
89° 14'
40'0"
52'0"
EASEMENT FOR PIPE-DRAIN
SITE OF PROPOSED EASEMENT FOR PIPE-DRAIN (2'0" wide)
89° 14' 40'0"
359° 25' 30'
71'4½"
39'5"
54° 48' 11" 14' 30"
M. P. S. (R.P.) 116771
Note. It is intended Grant an Easement for Pipe-drain 2ft. wide over site of same in Lot C in favour of Lot D.
I certify that this plan has been compiled from the information in Plan in C591057 and Cs. of Title and is accurate.
Surveyor registered under Surveyors Act. 1929-46.
27. 10. 58
This margin to be left free from notation
This is the plan marked "E" referred to in
Signatures of parties to be made in this margin.

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 416771

FEET	INCHES	METRES
-	2	0.051
2	-	0.610
7	-	2.134
40	-	12.192
45	-	13.716
48	11	14.910
52	-	15.850
71	4 1/4	21.749
99	5	30.302
400	-	121.920
450	-	137.160
520	-	158.496

AC	RD	P	SQ M
-	-	7 1/2	189.7
-	-	12 1/2	316.2

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

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 2nd day of June, 1980

AMENDMENTS AND/OR ADDITIONS NOT TO BE MADE ON THIS PLAN IN REGISTRAR GENERAL'S OFFICE

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 10th day of June, 1980

1

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 432751

FEET	INCHES	METRES
-	1/4	0.006
-	1/4	0.032
-	1/2	0.038
-	2	0.051
-	3 1/4	0.083
-	3 1/2	0.089
-	3 3/4	0.095
-	4	0.102
-	4 1/2	0.114
-	4 3/4	0.121
-	5	0.127
-	5 1/4	0.133
-	8	0.203
-	8 1/2	0.216
-	9	0.229
1	8	0.508
4	-	1.219
7	3/4	2.153
9	2	2.794
10	1/2	3.061
11	9	3.581
12	-	3.658
12	1/4	3.664
12	1/2	3.670
12	3/4	3.677
12	1	3.683
13	6 1/4	4.121
13	6 1/2	4.128
14	8	4.470
32	11 1/4	10.039
39	9	12.116
40	-	12.192
43	11 1/4	13.392
44	7	13.589
48	11	14.910
48	11 1/2	14.923
48	11 3/4	14.929
62	6	19.050
66	-	20.117
71	8	21.844
76	9	23.393
78	-	23.774
79	9	24.308
80	6	24.536
93	5	28.473
93	8	28.550
100	1/2	30.493
116	11 1/2	35.649

AC	RD	P	SQ M
-	-	10 1/4	259.3
-	-	14	354.1

D630774

F.P. 432751

Negative filed 3942

Plan Form No.2 (For townships, towns, etc.)

Municipality of Lidcombe / Shire of

PLAN

D630774

of subdivision of the land in Cert. of Title Vol. 3204 Fol. 91

Parish of Liberty Plains County of Cumberland

Scale 30 feet to an inch

VAUGHAN ST

JOSEPH ST

KERRS RD

VAUGHAN ST

KERRS RD

Sec. 3

Diagram Not to scale

This margin to the left free from notation

FOR EVIDENCE OF COUNCIL'S APPROVAL SEE DEALING CA. 201 of 1-5-1946

Approved by Council and covered by Council Clerk's Certificate

No. ..... of .....

Council Clerk

Subscribed and declared before me at Sydney this 30th day of January A.D. 1946

Datum Line of Azimuth AB.

I Alec Lachlan Busby of Sydney a Surveyor registered under the Surveyors Act, 1929, do hereby solemnly and sincerely declare (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented, (c) that all physical adjacent indicated actually exist in the positions shown, (d) that the whole of the material facts in relation to the land are correctly represented, (e) that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1933 *(1) by me (2) under my supervision the boundaries and extent of which are correctly represented in the Survey Practice Regulations, 1933, and was completed on 1st January, 1946 and the reference marks have been placed as shown hereon.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act, 1900

(Signature) Alec L. Busby.

Surveyor registered under the Surveyors Act, 1929.

*Strike out either (1) or (2). †Insert date of Survey.

DP3424

~~ROOKWOOD~~

PLAN

shewing subdivision of

ELPHIN ESTATE

AT

ROOKWOOD

PARISH OF LIBERTY PLAINS. COUNTY OF CUMBERLAND

Scale 60 feet to an inch

1 Part of 60 ac Grant to George Sunderland 30th June 1823.
2 " 100 ac " " John Sunderland 30th June 1823.
Vol: 1141 fo: 56
" 1232 " 105

3424

GREAT WESTERN RAILWAY

RAILWAY ST.

BRIDGE ST.

Aligned

VAUGHAN ST

66ft wide.

SEC 7

SEC 8

LANE 20 FT WIDE

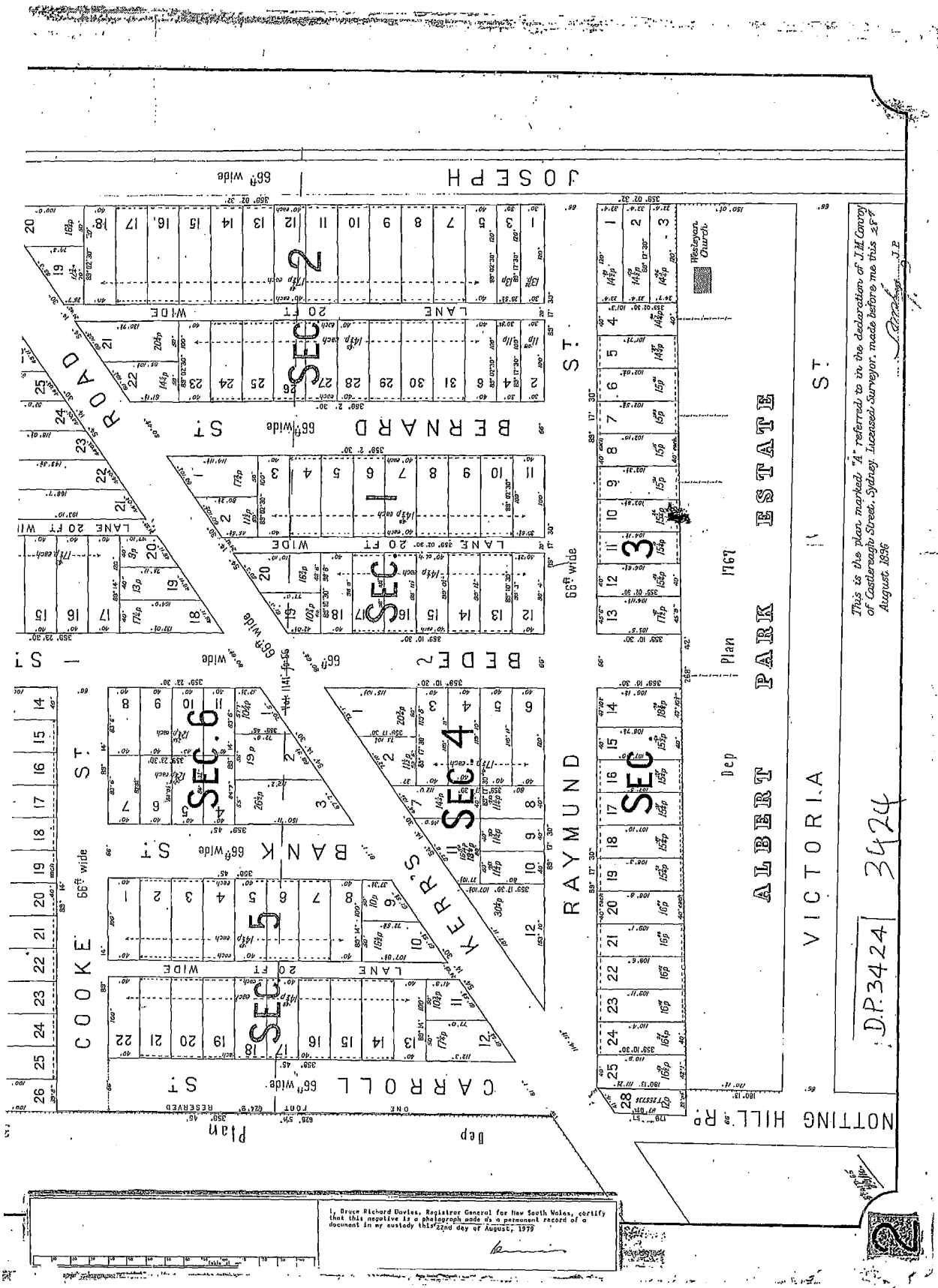
COOKE ST

66ft wide

I ST.

ROAD

3431



Req:R153565 /Doc:DP 0003424 P /Rev:24-Jul-1992 /Sts:OK.OK /Prt:11-May-2011 07:40 /Pgs:ALL /Seq:2 of 3
Ref:inp /Src:M

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 3424

FEET	INCHES	METRES
6	7 1/4	2.015
20	-	6.095
24	4 1/4	7.425
24	5 1/2	7.455
24	6 7/8	7.49
25	7	7.8
25	10 1/2	7.885
27	10 1/2	8.495
29	5 3/4	8.985
30	-	9.145
30	5 1/4	9.275
32	-	9.755
32	3 1/2	9.84
33	0 1/2	10.07
33	4	10.16
34	7	10.54
36	-	10.975
37	3 1/2	11.365
38	11	11.86
39	-	11.885
39	6 3/4	12.06
39	8	12.09
40	-	12.19
40	2 1/2	12.255
41	4	12.6
41	5	12.625
41	9	12.725
42	0 1/2	12.815
42	1	12.825
44	0 1/4	13.415
45	5 1/2	13.855
47	6 3/8	14.485
47	10	14.58
48	6	14.635
48	10 1/4	14.89
48	11	14.91
50	-	15.24
51	3	15.62
55	-	16.765
56	-	17.07
57	1	17.4
59	3	18.06
59	5 1/2	18.125
59	8	18.185
60	-	18.29
60	10 3/4	18.56
61	-	18.595
61	1 1/2	18.63
61	5 1/8	18.725
63	4 1/4	19.31
66	-	20.115
67	6	20.575
67	7	20.6
68	9 1/2	20.97
70	-	21.335
70	8	21.465
71	5	21.77
72	5 3/4	22.09
72	8	22.15
72	10 3/8	22.21
73	1	22.275
73	10 1/4	22.51
74	3	22.63
75	11	23.14
77	-	23.47
80	-	24.385
80	2 1/2	24.445
80	4 1/2	24.5
80	6 1/4	24.545
80	8 1/2	24.6
81	1	24.715
84	-	25.605
85	3	25.985
87	6	26.67
87	9 1/2	26.76
91	5	27.865
92	9	28.27

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 3424 CONTINUED

FEET	INCHES	METRES
95	4	29.06
95	10 1/2	29.225
97	8	29.77
97	10	29.82
98	8	30.075
98	9	30.1
98	10 1/4	30.13
98	11 1/2	30.16
99	0 1/2	30.19
99	1 3/4	30.22
99	3	30.25
99	4	30.275
99	5 1/2	30.315
100	-	30.48
101	3	30.86
101	7 1/2	30.975
102	0 3/4	31.11
102	5 3/4	31.235
102	10	31.345
103	3 1/2	31.485
103	8 1/2	31.61
104	-	31.7
104	1 1/2	31.735
104	6 1/2	31.865
104	11 1/2	31.99
105	5	32.13
105	1 1/4	32.34
106	7 1/4	32.495
107	-	32.615
107	5	32.74
107	8 1/2	32.83
107	10	32.87
107	10 1/2	32.88
108	3	32.995
108	8	33.12
109	-	33.225
109	1	33.25
109	6	33.375
109	11	33.505
110	10	33.78
111	2 1/2	33.895
112	-	34.14
112	2	34.19
112	3	34.215
114	11 1/2	35.04
115	10 1/2	35.32
116	0 1/2	35.98
119	8	36.475
119	9	36.5
119	10	36.525
119	11	36.55
120	-	36.575
120	1 1/2	36.615
123	4 1/4	37.6
130	7 1/2	39.815
132	0 1/2	40.245
143	3 3/4	43.68
150	0 1/2	45.735
150	11	46
150	11 3/8	46.01
153	10	46.89
166	11 3/4	50.9
168	7	51.38
176	10 1/2	53.91
179	6 1/4	54.72
187	11	57.28
193	10	59.08
438	5	133.63
625	5 1/4	190.63

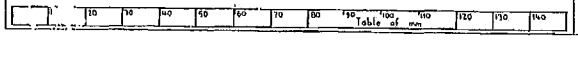
LINKS	METRES
60	12.07
95.33	19.175

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 3424 CONTINUED

AC	RO	P	SQ M
-	-	8 3/4	221.3
-	-	9	227.6
-	-	10	252.9
-	-	10 1/2	265.6
-	-	10 3/4	271.9
-	-	11	278.2
-	-	11 1/4	284.5
-	-	11 1/2	290.9
-	-	11 3/4	297.2
-	-	12	303.5
-	-	12 1/4	309.8
-	-	12 1/2	316.2
-	-	12 3/4	322.5
-	-	13	328.8
-	-	13 3/4	347.8
-	-	14	354.1
-	-	14 1/4	360.4
-	-	14 1/2	366.7
-	-	14 3/4	373.1
-	-	15	379.4
-	-	15 1/4	385.7
-	-	15 1/2	392
-	-	15 3/4	398.4
-	-	16	404.7
-	-	16 1/4	411
-	-	16 1/2	417.3
-	-	16 3/4	423.7
-	-	17 1/4	436.3
-	-	17 1/2	442.6
-	-	17 3/4	448.9
-	-	18	455.3
-	-	19	480.6
-	-	20 1/2	518.5
-	-	20 3/4	524.8
-	-	23 3/4	600.7
-	-	26 1/2	670.3
-	-	30 1/4	765.1

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 22nd day of August, 1979



NEW SOUTH WALES

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

TORRENS TITLE CANCELLED

Register See new edition

Vol. 8499 Fol. 188

Issued 1-7-1974

Fol. 188

(Page 1) Vol. 8499

I certify that The Proprietors—Strata Plan No. 438 is the registered proprietor of an Estate in Fee Simple in the common property in the Strata Plan so numbered subject nevertheless to the exceptions, encumbrances and interests recorded hereon.

Registrar General.

ADDRESS FOR SERVICE OF NOTICES: See Strata Plan above referred to.

EXCEPTIONS ENCUMBRANCES AND INTERESTS REFERRED TO

1. Reservations and conditions, if any, contained in the Crown grant of the land comprised in the Strata Plan above referred to.
2. Easements, if any, benefiting or burdening the parcel and restrictions as to user, if any, burdening the parcel and other interests notified on the Strata Plan above referred to by virtue of the provisions of the Conveyancing (Strata Titles) Act, 1961.

SCHEDULE OF UNIT ENTITLEMENT: See Strata Plan above referred to.

Registrar General.

CANCELLED

See new edition issued 9.1.1975

Vol 8499 Fol 188

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

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

TORRENS TITLE

CANCELLED

Vol. 8499 Fol. 188

Appln. No. 9289 05

Prior Title Vol. 1648 Fol. 148

SEE AUTO FOLIO

Edition Issued 9-1-1975.

8499 Fol. 188

(Page 1) Vol.

I certify that The Proprietors - Strata Plan No. 438 is the registered proprietor of an Estate in Fee Simple in the common property in the strata scheme relating to the Strata Plan so numbered, within the land herein described; subject nevertheless to the exceptions encumbrances and interests recorded hereon and to the reservations and conditions, if any, contained in the Crown grant.

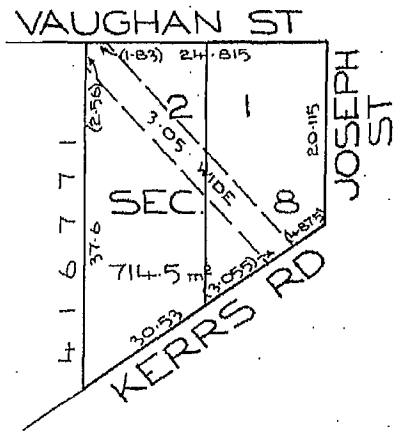
S

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

REDUCTION RATIO 1:500



ADDRESS FOR SERVICE OF NOTICES

CORNER KERRS RD, JOSEPH ST., AND VAUGHAN ST., LIDCOMBE. 2141

LAND REFERRED TO

Lots 1 and 2 of Section 8 in Deposited Plan 3424 at Lidcombe in the Municipality of Auburn Parish of Liberty Plains and County of Cumberland being part of Portion 38 granted to George Sunderland on 30-6-1823.

GRY EXCEPTIONS ENCUMBRANCES AND INTERESTS REFERRED TO

ED(S8). Easement for Drainage created by Transfer No.J393979 affecting part of the land above described 3.05 metres wide shown in the plan hereon.

SCHEDULE OF UNIT ENTITLEMENT

Aggregate unit entitlement: 145

Lot No.	Strata Plan No.	Unit Entitlement
1	438	10
2	"	9
3	"	10
4	"	7
5	"	9
6	"	100

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.

Historical Title

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: CP/SP438

First Title(s): OLD SYSTEM
Prior Title(s): VOL 8499 FOL 188

Recorded	Number	Type of Instrument	C.T. Issue
28/4/1986		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
29/5/1986		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
19/10/2006	AC679767	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Title Search

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: CP/SP438

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:40 AM	-	-

VOL 8499 FOL 188 IS THE CURRENT CERTIFICATE OF TITLE

LAND

THE COMMON PROPERTY IN THE STRATA SCHEME BASED ON STRATA PLAN 438 WITHIN THE PARCEL SHOWN IN THE TITLE DIAGRAM

AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM SHEET 1 SP438

FIRST SCHEDULE

THE OWNERS - STRATA PLAN NO. 438
ADDRESS FOR SERVICE OF NOTICES:
CORNER KERRS RD, JOSEPH ST, AND VAUGHAN ST
LIDCOMBE 2141

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
* 2 ATTENTION IS DIRECTED TO BY-LAWS SET OUT IN SCHEDULE 1 STRATA SCHEMES MANAGEMENT ACT 1996
3 J393979 EASEMENT FOR DRAINAGE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

SCHEDULE OF UNIT ENTITLEMENT (AGGREGATE: 145)

STRATA PLAN 438

LOT	ENT	LOT	ENT	LOT	ENT	LOT	ENT
1	10	2	9	3	10	4	7
5	9	6	100				

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

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

Historical Title

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: C/416771

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 8045 FOL 244

Recorded	Number	Type of Instrument	C.T. Issue
31/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
8/8/2003	9860846	DISCHARGE OF MORTGAGE	
8/8/2003	9860847	APPLN FOR REPLACEMENT CT	EDITION 1
10/12/2003	AA238944	TRANSFER	
10/12/2003	AA238945	MORTGAGE	EDITION 2

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Title Search

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: C/416771

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:40 AM	2	10/12/2003

LAND

LOT C IN DEPOSITED PLAN 416771
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP416771

FIRST SCHEDULE

TONY KHATTAR (T AA238944)

SECOND SCHEDULE (5 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 C591057 EASEMENT FOR PIPE DRAIN AFFECTING THE PART OF THE LAND SHOWN SO BURDENED IN VOL 8045 FOL 244
3 H153437 EASEMENT FOR PIPE DRAIN AFFECTING THE PART OF THE LAND SHOWN IN THE TITLE DIAGRAM
4 A803663 COVENANT
5 AA238945 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

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

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Historical Title

LEAP Searching
An Approved LPMA NSW
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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: D/416771

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 8497 FOL 176

Recorded	Number	Type of Instrument	C.T. Issue
30/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
26/10/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

mg

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Title Search

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: D/416771

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:40 AM	4	30/3/2004

LAND

LOT D IN DEPOSITED PLAN 416771
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP416771

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A803663 COVENANT
3 C591057 H153437 EASEMENT FOR PIPE DRAIN APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF THE LAND SHOWN SO BURDENED IN VOL 8497 FOL 176
4 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Historical Title

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: A/432751

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 5874 FOL 236

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
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

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Title Search

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: A/432751

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:40 AM	4	30/3/2004

LAND

LOT A IN DEPOSITED PLAN 432751
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP432751

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Historical Title

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: B/432751

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 5875 FOL 8

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
13/11/1990	Z311786	CAVEAT	
24/1/1991	Z427342	WITHDRAWAL OF CAVEAT	
14/10/1991	Z984113	DISCHARGE OF MORTGAGE	
14/10/1991	Z984114	TRANSFER	EDITION 1
3/2/1993	I88880	MORTGAGE	EDITION 2
5/8/1999	6069260	DEPARTMENTAL DEALING	
23/7/2003	9814619	DISCHARGE OF MORTGAGE	EDITION 3
30/3/2004	AA529879	MORTGAGE	EDITION 4

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: B/432751

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:41 AM	4	30/3/2004

LAND

LOT B IN DEPOSITED PLAN 432751
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP432751

FIRST SCHEDULE

TONY KHATTAR
IN 1/4 SHARE
RAYMOND KHATTAR
IN 1/4 SHARE
GEORGE KHATTAR
IN 1/5 SHARE
JOSEPH KHATTAR
IN 1/10 SHARE
ROBERT KHATTAR
IN 1/10 SHARE
PETER KHATTAR
IN 1/10 SHARE
AS TENANTS IN COMMON (T Z984114)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AA529879 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Historical Title

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

SEARCH DATE
11/5/2011 7:41AM

FOLIO: 5/8/3424

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 6379 FOL 179

Recorded	Number	Type of Instrument	C.T. Issue
9/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
16/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
28/10/1993	I754171	TRANSMISSION APPLICATION	EDITION 1
6/10/1994	U679942	TRANSFER	
6/10/1994	U679943	MORTGAGE	EDITION 2
28/6/1999	5932527	DISCHARGE OF MORTGAGE	
28/6/1999	5932528	TRANSFER	
28/6/1999	5932529	MORTGAGE	EDITION 3
19/8/2003	9887461	DISCHARGE OF MORTGAGE	
19/8/2003	9887462	TRANSFER	
19/8/2003	9887463	MORTGAGE	EDITION 4
3/4/2007	AC951029	TRANSFER	
3/4/2007	AC951030	MORTGAGE	EDITION 5

*** END OF SEARCH ***

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Title Search

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 5/8/3424

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:41 AM	5	3/4/2007

LAND

LOT 5 OF SECTION 8 IN DEPOSITED PLAN 3424
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP3424

FIRST SCHEDULE

CARLA KHATTAR (T AC951029)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 9887463 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED
3 AC951030 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Historical Title

LEAP Searching
An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
11/5/2011 7:41AM

FOLIO: 6/8/3424

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 6388 FOL 23

Recorded	Number	Type of Instrument	C.T. Issue
9/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
16/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
5/7/1995	O357847	DISCHARGE OF MORTGAGE	EDITION 1
12/8/2003	9873747	TRANSFER	
12/8/2003	9873748	MORTGAGE	EDITION 2

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

Title Search

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An Approved LPMA NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 6/8/3424

SEARCH DATE	TIME	EDITION NO	DATE
11/5/2011	7:41 AM	2	12/8/2003

LAND

LOT 6 OF SECTION 8 IN DEPOSITED PLAN 3424
AT LIDCOMBE
LOCAL GOVERNMENT AREA AUBURN
PARISH OF LIBERTY PLAINS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP3424

FIRST SCHEDULE

PETER KHATTAR (T 9873747)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 9873748 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

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

*** END OF SEARCH ***

mg PRINTED ON 11/5/2011

RP3

[redacted]

TRANSMISSIO APPLICATIOI

I 754171 M

Section 93 Real Property Act 190X

Office of State Revenue use only

(A) LAND
Show no more than 20 References to Title.

VOL. 6379 FOL. 179
NOW BEING 5/8/3424

(B) REGISTERED DEALING
If applicable.

(C) LODGED BY

L.T.O. Box	Name, Address or DX and Telephone
49	HALL TUCKFIELD RICHARDSON SOLICITORS DX 652 SYDNEY REFERENCE (max. 15 characters):

(D) DECEASED REGISTERED PROPRIETOR
....HAZEL MARY TURNER.....

(E) APPLICANT
TA ERIC DAGG and NOELINE MARIE TURNER

(F) I, the Applicant, being entitled as ....executors.....of the ~~will/estate~~ of the Deceased Registered Proprietor (who died on ..7..July..... 199 3...) pursuant to ~~Probate/Letters of Administration~~ No. ..113595/93..... granted on ..1..October..... 199 3.... to ....Eric..Dagg..and..Noeline..Marie..Turner....., apply to be registered as proprietor of the estate or interest of the Deceased Registered Proprietor in the ~~Land/Registered Dealing~~ specified above.

(G) Certified correct for the purposes of the Real property Act 1900. DATE ...21 October.....1993....
Signed in my presence by the Applicant who is personally known to me.

.....
Signature of Witness

.....A.J.O.RICHARDSON.....
Name of Witness (BLOCK LETTERS)

/Copthorne Sc Sydney
Address of Witness

Noeline Turner
Eric R Dagg
Signature of Applicant

EVIDENCE SIGHTED & RETURNED (office use only) PAC

CHECKED BY (office use only) 12

(H)

CONSENT OF EXECUTOR OR ADMINISTRATOR

I, ... **Executor of the will /Administrator of the estate**

of the Deceased Registered Proprietor, hereby consent to this application.

.....
Signature of Witness

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

.....
Address of Witness

.....
Signature of Executor/Administrator

INSTRUCTIONS FOR COMPLETION

STAMP DUTY: If the Applicant is a devisee, beneficiary, next-of-kin or otherwise beneficially entitled or if the Deceased Registered Proprietor died prior to 31 December 1981 the application must be presented to the Office of State Revenue prior to lodgment at the Land Titles Office.

1. The Application must be completed clearly and legibly in permanent, dense, black or dark blue non-copying ink. If using a dot-matrix printer the print must be letter-quality.
2. Do not use an eraser or correction fluid to make alterations: rule through rejected material. Initial each alteration in the lefthand margin.
3. If the space provided at any point is insufficient, you may annex additional pages. These must be the same size as the form; paper quality, colour. etc, must conform to the requirements set out in Land Titles Office Information Bulletin No. 19. All pages of any annexure must be signed by the person executing the Application and any attesting witness.
4. The following instructions relate to the marginal letters on the application.

(A) LAND
Show the relevant Reference to Title. If there are more than 20 show none in this panel. Place ALL of them on an annexure (see 3 above) with 20 per sheet.

(B) REGISTERED DEALING
Show the registration number of any lease, mortgage or charge in regard to which the Applicant is applying to be registered as a proprietor.

(C) LODGED BY
This section relates to the person or firm lodging the Application at the Land Titles Office.
Reference (max. 15 characters) This is optional. Any slashes, dots, blank spaces, etc, will be counted as characters.

(D) DECEASED REGISTERED PROPRIETOR
Show the name in full. Address and occupation need not be shown.

(E) APPLICANT
Show the name in full. Address and occupation need not be shown.

(F) WILL/ESTATE, etc
Amend "will/estate", "Probate/Letters of Administation" and "Land/Registered Dealing" as appropriate.
In the relevant spaces show the capacity (executor, devisee, etc) in which the Applicant is entitled to apply, the number and date of grant of the Probate or Letters of Administration pursuant to which the application is made, and the name of the person to whom the grant was made.

(G) EXECUTION
General The application must be executed by or on behalf of the Applicant.
By the Applicant Personally The application must be signed in the presence of an adult witness who is not an Applicant and who knows the party executing personally. The witness should complete the appropriate section of the application.
By the Applicant's Attorney The Power of Attorney must be registered in the General Register of Deeds at the Land Titles Office. The execution should take the form, "AB by her attorney XY *[full name]* pursuant to Power of Attorney Book 1234 Number 567".
Under Authority If the application is made pursuant to any statutory, judicial or other authority, except a Power of Attorney (see above), the nature of the authority should be disclosed.
By a Corporation under Seal The execution should include a statement that the seal has been properly affixed, for example, "... pursuant to a resolution of the board of directors ...". Alternatively, all those attesting the affixing of the seal must state their position in the corporation.

(H) CONSENT OF EXECUTOR OR ADMINISTRATOR
This is required only where the Applicant claims to be entitled other than as executor, administrator or trustee.

The completed Application must be lodged by hand at the LAND TITLES OFFICE, Queen's Square, Sydney, together with the Certificate of Title, the probate or letters of administration (or a copy thereof certified by a solicitor to be a true copy) and a completed Notice of Sale.

If you have any questions about filling out the form, please call 228-6666 and ask for our Customer Services Branch.

Form: 97-01T
Licence: 10V/0096/95
Printed: 0897LTO

Instructions for filling out this form are available from the Land Titles Office

TRANSFER

New South Wales
Real Property Act 1900

5932528E

Office of State Revenue use only

OFFICE OF STATE REVENUE (N.S.W. TREASURY) 1996/97 P4S ALTERATION NOTED

$2.00 0080699 4525 04 20158904040/03 STAMP DUTY "M"S"N

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

Folio Identifier 5/8/~~3426~~ 3424

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone
23L	CSB Reference (15 character maximum): 213764-SOO

(C) **TRANSFEROR** DAVINDER SINGH PASSI AND ANITA PASSI

(D) acknowledges receipt of the consideration of $240,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple.

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

(F) **TRANSFEREE**

T TS (s713 LGA) TW (Sheriff)	IHSAN DOGAN AND NERIMAN DOGAN BOTH OF 32 VICTORIA ST., LIDCOMBE

(G) **TENANCY:** JOINT

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE** 22/6/99

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

.....
Signature of Witness

RAYMOND JOHN HUME
Name of Witness (BLOCK LETTERS)

12-14 AUBURN ROAD, AUBURN
Address of Witness

SOLICITOR

.....
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

.....
Signature of Transferee

SOLICITOR FOR FRANK BASSI

If signed on the transferee's behalf by a solicitor or licensed conveyancer, show the signatory's full name in block letters.

Checked by (LTO use) .....

Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AC951029R

RELODGED

STAMP DUTY
- 1 MAR 2007

TIME: 11.06

PRIVACY NOTE: this information is legally required and will become part of the public record

Office of State Revenue use only

NEW SOUTH WALES DUTY
14-12-2006 0003940748-001
SECTION 80(1)-TRANSFER FIRST HOME PLUS
NO DUTY PAYABLE
CONTRACT CONSIDERATION $ XXXX480,000.00
PRIVATE DWELLING

(A) TORRENS TITLE: Folio 5/8/3424

(B) LODGED BY

Delivery Box: 45A

Name, Address or DX and Telephone:
NATIONAL AUSTRALIA BANK
197 Prospect Highway
Seven Hills NSW 2147
45A Fax: 8825 0404

LLPN: 123011G

Reference: 01803401.

CODES: T / TW (Sheriff)

(C) TRANSFEROR: RAYMOND KHATTAR

(D) CONSIDERATION: The transferor acknowledges receipt of the consideration of $480,000.00 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: CARLA KHATTAR

(I) TENANCY:

(J) DATE

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

Signature of witness:

Name of witness: SARAH YAMMOUNI

Address of witness: 53 SPURWAY ST ERMINGTON NSW 2115

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

Signature of transferor: BY TONY KHATTAR PURSUANT TO POWER OF ATTORNEY REGISTERED BOOK 4392 NO 888.

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

Signature: of the TRANSFEREE

SIGNATURE OF WITNESS
ADDRESS OF WITNESS SARAH YAMMOUNI
53 SPURWAY ST
ERMINGTON NSW 2115

All handwriting must be in block capitals.

Land and Property Information NSW.

28 days notice - mortgagee sent