ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

TANNER KIBBLE DENTON ARCHITECTS PTY LTD

ON

PRELIMINARY STAGE 2 ENVIRONMENTAL SITE ASSESSMENT

FOR

PROPOSED KELLYVILLE SOUTH PUBLIC SCHOOL DEVELOPMENT

AT

21 AND 23 FAIRWAY DRIVE, KELLYVILLE, NSW

2 MAY 2016 **REF: E28861KDrpt2**

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EXECUTIVE SUMMARY

Tanner Kibble Denton Architects Pty Ltd on behalf of NSW Department of Education and Communities Commissioned Environmental Investigation Services (EIS)[1] to undertake a Preliminary Stage 2 Environmental Site Assessment (ESA) for the proposed Kellyville South Public School development at 21 and 23 Fairway Drive, Kellyville, NSW.

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

The scope of work included the following:

- Review of site information including additional site history information and the EIS Preliminary Stage 1 ESA prepared for the proposed school development (see **Section 2**);
- A site inspection to identify Areas of Environmental Concern (AEC);
- Preparation of a Preliminary Conceptual Site Model (PCSM);
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment;
- Undertake a Tier 1 Risk Assessment and review of CSM; and
- Preparation of a report presenting the results of the assessment.

Samples for EIS Stage 1 ESA were obtained from twelve (12) sampling points. Samples for the Preliminary Stage 2 ESA were obtained from an additional thirty eight (38) sampling points. The total number of sampling points meets the minimum sampling density recommended by the EPA.

Elevated concentrations of contaminants that could pose a risk to human health receptors at the site were not detected in any of the samples analysed.

The fill material is classified as General Solid Waste (non-putrescible) (GSW). The silty clay or shale bedrock is classified as virgin excavated natural material (VENM).

Based on the scope of work undertaken, EIS are of the opinion that the AEC identified in the PCSM pose a relatively low risk to the site receptors. EIS consider that the site can be made suitable for the proposed development provided that the following recommendations are implemented to minimise the risks:

- Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work; and
- A site inspection is undertaken by suitably qualified environmental consultant (eg. ACLCA member) following the demolition of the buildings.

In the event unexpected conditions are encountered during development work or between sampling locations that may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the site and address the issue.

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

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

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ABBREVIATIONS

Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Asbestos Health Screening Levels	**ASL**
Acid Sulfate Soil	**ASS**
Above Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene	**BTEXN**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Construction Management Plan	**CMP**
Chain of Custody	**COC**
Contaminant of Primary Concern	**CoPC**
Conceptual Site Model	**CSM**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Assessment Criteria	**EAC**
Ecological Investigation Levels	**EILs**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environmental Protection Agency	**EPA**
Environmental Site Assessment	**ESA**
Ecological Screening Level	**ESL**
Fibre Cement Fragments	**FCF**
General Approvals of Immobilisation	**GAI**
General Solid Waste	**GSW**
Health Investigation Level	**HILs**
Hardness Modified Trigger Values	**HMTV**
Health Screening Level	**HSLs**
International Organisation of Standardisation	**ISO**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Local Government Authority	**LGA**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**

ABBREVIATIONS

Potential Contaminants of Concern	**PCC**
Photo-ionisation Detector	**PID**
Practical Quantitation Limit	**PQL**
Preliminary Site Investigation	**PSI**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Relative Percentage Difference	**RPD**
Restricted Solid Waste	**RSW**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Site Audit Statement	**SAS**
Site Audit Report	**SAR**
Specific Contamination Concentration	**SCC**
Standard Penetration Test	**SPT**
Semi-Volatile Organic Compounds	**sVOC**
Standard Sampling Procedure	**SSP**
Standard Water Level	**SWL**
Standard Sampling Procedure	**SSP**
Trip Blank	**TB**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
Volatile Organic Chlorinated Compound	**VOCC**
Workplace, Health and Safety	**WHS**

1 INTRODUCTION

Tanner Kibble Denton Architects Pty Ltd on behalf of NSW Department of Education and Communities ('the client') commissioned Environmental Investigation Services (EIS)[2] to undertake a Preliminary Stage 2 Environmental Site Assessment (ESA) for the proposed Kellyville South Public School development at 21 and 23 Fairway Drive, Kellyville, NSW.

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

1.1 Proposed Development Details

At this preliminary stage EIS understand that a new primary school for 1000 students is proposed at the site. We understand that the existing residential buildings are to be demolished. The proposed school development includes construction of the following:

- Multistorey buildings in the west and east section of the site;
- A hardstand amphitheatre and play area in the central section of the site;
- A sports court in the north-west section of the site;
- A hardstand car park and drive in the north section of the site;
- Open space play areas in the south-west and south-east sections of the site; and
- Cut and fill works are expected to achieve desired site levels.

1.2 Objectives

The assessment objectives are to:

- Assess the potential for site contamination;
- Assess the potential risk the contamination may pose to the site receptors;
- Provide a preliminary waste classification for the off-site disposal of soil; and
- Comment on the suitability of the site for the proposed development/landuse.

1.3 Scope of Work

The assessment was undertaken generally in accordance with an EIS proposal (Ref: EP9711KD) of 17 February 2016 and written acceptance from TKD Architects of 18 March 2016.

The scope of work included the following:

- Review of site information including additional site history information and the EIS Preliminary Stage 1 ESA prepared for the proposed school development (see **Section 2**);
- A site inspection to identify Areas of Environmental Concern (AEC);
- Preparation of a Preliminary Conceptual Site Model (PCSM);
- Design and implementation of a sampling, analysis and quality plan (SAQP);

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

- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment;
- Undertake a Tier 1 Risk Assessment and review of CSM; and
- Preparation of a report presenting the results of the assessment.

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

Table 1-1: Guidelines

Guidelines/Regulations
Contaminated Land Management Act 1997[3]
State Environmental Planning Policy No.55 – Remediation of Land 1998[4]
Guidelines for Consultants Reporting on Contaminated Sites 2011[5]
Guidelines for the NSW Site Auditor Scheme, 2nd Edition 2006[6]
National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended 2013[7]

[3] NSW Government Legislation, (1997), *Contaminated Land Management Act 1997.* (referred to as CLM Act 1997)

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

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

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

[7] National Environment Protection Council (NEPC), (2013), *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

2 SITE INFORMATION

2.1 Background

2.1.1 Preliminary Stage 1 Environmental Site Assessment (EIS, 2015[8])

TKD Architects commissioned EIS to undertake a Preliminary Stage 1 ESA for the proposed Kellyville South Public School development at 21 and 23 Fairway Drive, Kellyville, NSW.

A geotechnical investigation was undertaken in conjunction with this assessment by JK Geotechnics. The results of the investigation are presented in a separate report (Ref. 28861ZHrpt, dated 18 November 2015[9]).

The scope of work for the EIS Preliminary Stage 1 ESA included a review of site information, review of historical data and soil sampling from twelve (12) boreholes as shown on the attached Figure 2. This density is approximately 25% of the minimum sampling density recommended by the EPA.

Historical site information indicated that the site appeared to have been vacant and covered by bushland from 1947 to sometime before 1986. The aerial photographs suggest that the buildings were built prior to 1986. Market gardening appeared to have occurred on the site from 1986 to sometime before 2005.

Fill material was encountered at the surface in all boreholes and extended to a depth of approximately 0.5m. The fill material was underlain by silty clay or shale.

Elevated concentrations of contaminants that could pose a risk to environmental or human receptors at the site were not detected in any of the samples analysed.

The following data gaps were identified:

- The NSW EPA minimum sampling density for a Stage 2 Environmental Site Assessment was not met;
- A full site history at the site was not undertaken;
- Groundwater investigation was not undertaken at the site;
- Areas beneath the existing buildings were not included in the assessment;
- The presence of hazardous building materials in the existing buildings was not assessed;
- The stockpile in the northern section of the site was not investigated;
- The southern section of the property was overgrown and prevented a visual inspection of this section of the site; and
- The large shed in the northern section of the site was not adequately investigated.

[8] EIS, (2015), *Report to Department of Education & Communities on Preliminary Stage 1 Environmental Site Assessment for Proposed School Development at 21 and 23 Fairway Drive, Kellyville, NSW.* (Report Ref: E28861KDrpt, dated 2 December 2015) (referred to as EIS Preliminary Stage 1 ESA Report)

[9] Referred to as JK 2015 Report

EIS considered that the site could be made suitable for the proposed development provided the following work was undertaken:

- A Stage 2 ESA when the site becomes accessible to address some of the data gaps; and
- A Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work.

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner:	Minister For Education and Training
Site Address:	21-23 Fairway Drive, Kellyville, NSW
Lot & Deposited Plan:	Lot 11 DP 247442 and Lots 501-502 DP 1130020
Current Land Use:	Residential
Proposed Land Use:	Primary School
Local Government Authority (LGA):	Hills Shire Council
Current Zoning:	R2 Low Density Residential and RE1 Public Recreation
Site Area (m^2):	40,000
RL (approx.):	69.10-79.99
Geographical Location (MGA) (approx.):	N: 6238747 E: 303199
Site Location Plan:	Figure 1
Sample Location Plan:	Figure 2

2.3 Site Location and Regional Setting

The site is located in a predominantly residential area of Kellyville. The site is located on the west side of Fairway Drive approximately 220m to the north-west of the junction with Laura Street. The site is located approximately 100m to the west of Strangers Creek.

2.4 Topography

The site is located within undulating regional topography. The site itself slopes gently to the east, north-east at approximately 3 ^{o} to 4^{o}.

2.5 Site Inspection

A walkover inspection of the site was undertaken by EIS on 2 November 2015 for the EIS preliminary Stage 1 ESA. The inspection was limited to accessible areas of the site and immediate surrounds. An internal inspection of buildings was not undertaken. Selected site photographs obtained during the inspection are attached in the appendices.

At the time of the inspection, the northern half of the site comprised of a one storey brick house with landscaped areas, driveways, medium to large trees, tennis court and a large shed. The north, central and south sections of site were paved with asphaltic concrete (AC). The paved areas provided vehicle access from Fairway Drive to the residential buildings and to a large four door shed located in the west section of the site. Various mechanical associated products were stored in and outside of the shed including: tyres, a car chassis and a car canopy. Inside the accessible area of the shed a large tank that contained what appeared to be waste oils was observed. To the immediate south of the large shed a smaller shed was observed.

What appeared to be a grass covered fill mound/stockpile was observed in the central section of the site within the grassed section of the AC driveway ring road.

A dilapidated tennis court was located in the north-west section of the site. The tennis court appeared to have been cut and filled to achieve desired levels.

A single storey residential building was located in the south-west section of the site. A corrugated metal shed was located adjacent and to the south-west of the residential building. Paint tins were observed inside the shed.

Potential ACM (including fibre cement fragments) were not observed on the surface of the site during the site inspection.

2.6 Surrounding Land Use

The immediate surrounds included the following landuses:

- North – residential properties.
- South – residential properties.
- East – Fairway Drive, residential properties beyond a golf course.
- West –newly constructed residential properties.

2.7 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the assessment. Copies of the relevant plans are attached in the appendices. A brief summary of the relevant information is presented below:

Table 2-2: Summary of Relevant Services

Service	Location	Potential Migratory Pathway
Sewer	The Sydney Water plan indicates that a concrete case sewer line extends through the site from the west to east parallel to the northern boundary. A copy of the Sydney Water plan is attached in the appendices.	The backfill around the sewer could act as a potential migratory pathway.
Telecom	The Telstra plan indicates that telecommunication cables enter the site at two main locations along the eastern boundary of the site. A copy of the Telstra plan is attached in the appendices.	These services are unlikely to be a potential migratory pathway.

2.8 Regional Geology

A review of the regional geological map of Sydney (1983[10]) indicates that the site is underlain by Quaternary aged deposits of medium to fine-grained marine sands with podsols.

2.9 Acid Sulfate Soil (ASS) Risk

The site is not located in an ASS risk area.

2.10 Hydrogeology

A review of groundwater bore records available on the NSW Department of Primary Industries and Water[11] (DPIW) online database was undertaken on 17 November 2015. The search was limited to registered bores located within a radius of approximately 0.5km of the site.

The search indicated that one registered bore was located within the search area. A copy of the bore records are attached in the appendices and summarised below:

Table 2-3: Summary of Groundwater Bores

Reference	Distance from Site (0.5km) (approx.)	Direction & Gradient from Site	Final Depth (m)	Standing Water Level (SWL) (m)	Registered Purpose	Potential Receptor
GW106457	210m	North east and down gradient	87.0	1.6	Stock, Domestic	Unlikely

[10] Department of Mineral Resources, (1983), *1:100,000 Geological Map of Sydney (Series 9130).*

[11] http://www.waterinfo.nsw.gov.au/gw/ (viewed 17/11/2015)

A review of the regional geology and groundwater bore information indicates that the subsurface condition at the site is expected to consist of residual soils overlying relatively shallow bedrock. The occurrence of groundwater that could be utilised as a resource for beneficial use is considered to be relatively low under such conditions. A perched aquifer in the subsurface may be present.

2.11 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water bodies to the site were the two small livestock dams located to the north-west and north of the site. Given the gradient of the land these are not considered to be a potential receptors. Strangers Creek approximately 100m to the east of the site is a potential receptor.

3 ADDITIONAL SITE HISTORY INFORMATION

Further assessment of site historical information for 23 Fairway Drive, Kellyville (Lots 501, 502 DP 1130020) was recommended by the preliminary Stage 1 ESA.

3.1 Review of Land Title Records

Land title records for Lots 501, 502 DP 1130020 were reviewed for the preliminary Stage 2 ESA. The record search was undertaken by Advance Legal Searchers Pty Ltd. Copies of the title records are attached in the appendices.

The land title records did not identify any particular landuses which could have resulted in significant contamination. The professions of the individuals listed on the title records are not considered to be associated with site related activities.

3.2 Section 149 Planning Certificates

The s149 (2 and 5) planning certificates for Lots 501, 502 DP 1130020 were reviewed for the assessment. Copies of the certificates are attached in the appendices.

A summary of the relevant information is outlined below:

a) The site is not deemed to be:
   - significantly contaminated;
   - subject to a management order;
   - the subject of an approved voluntary management proposal; or
   - subject to an on-going management order under the provisions of the CLM Act 1997;

b) The site is not subject to a Site Audit Statement (SAS);

c) The site is not located in a heritage conservation area; and

d) The site is not located in an Acid Sulfate Soil Risk area.

4 CONCEPTUAL SITE MODEL (PCSM)

The AEC identified below are based on a review of the site and site history information outlined previously in this report. The AEC can either be a point source or widespread areas impacted by current or historical activities.

Table 4-1: CSM

AEC / Extent	CoPC	Potential Exposure Pathway and Media	Potential Receptors
Fill Material – Entire Site The site could have potentially been historically filled to achieve existing levels. The fill may have been imported from various sources and can contain elevated concentrations of contaminants. A fill mound/stockpile was observed in the central section of the site within the grassed section of the AC driveway ring road.	Heavy metals, TRH, BTEXN, PAHs, OCPs, OPPs, PCB, VOCs and asbestos	Direct Contact – dermal contact; ingestion; and inhalation of dust, vapours and fibres. Media - soil, groundwater and vapour.	Human Receptors – Site occupants; visitors; development and maintenance workers; and off-site occupants. Environmental Receptors – Flora and fauna at the site and immediate surrounds; receiving water bodies; others identified in the above sections.
Use of Pesticides – The site has been used for market gardening or agricultural purposes between 1986 and sometime before 2005. The use of pesticides during this period could have resulted in potential contamination.	Heavy metals, OCPs, PCBs and OPPs	Direct Contact – dermal contact; ingestion; and inhalation of dust. Media – soil and groundwater.	Human Receptors – As Above Environmental Receptors – As Above

AEC / Extent	CoPC	Potential Exposure Pathway and Media	Potential Receptors
Hazardous Building Material – The buildings on the site have been constructed prior to 1990's. Hazardous building materials were used for construction purposes during this period. The material can pose a potential contamination source during demolition/development.	Asbestos, lead and PCBs	Direct Contact – dermal contact; ingestion; and inhalation of dust and fibres. Media – soil and air.	Human Receptors – As Above Environmental Receptors – As Above

5 SAMPLING, ANALYSIS AND QUALITY PLAN

5.1 Data Quality Objectives (DQO)

The NEPM 2013 defines the DQO process as a seven step iterative planning tool used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of the site.

The DQO process is detailed in the US EPA document *Guidance on systematic planning using the data quality process (2006[12])* and the NSW DEC document *The Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006[13])*.

These seven steps are applicable to this assessment as summarised in the table below:

Table 5-1: DQOs – Seven Steps

Step	Input
State the Problem	The CSM has identified AEC at the site which may pose a risk to the site receptors. The contamination status has not been adequately characterised at this stage. Further intrusive investigation is required to assess the risk and comment on the suitability of the site for the proposed development or intended landuse. The EIS project team will include: project principal (PP) and/or project associate (PA); project engineer/scientist (PE); and field engineer/scientist (FE) as outlined in the quality recorded checklist maintained for the project in accordance with our ISO 9001 certification.
Identify the Decisions/ Goal of the Study	The data collection is project specific and has been designed based on the following information: • Review of site information including the EIS Preliminary Stage 1 ESA 2015; • Review of additional site history information for Lots 501, 502 DP1130020**;** • AEC, PCC, receptors, pathways and medium identified in the CSM; • Development of Site Assessment Criteria (SAC) for each media; and • The use of decision statements outlined below: 1. Are any of the soil results above the SAC? 2. Do any of the contaminants pose a risk to the site receptors? 3. Is further investigation required? and 4. Is the site suitable for the proposed use? • The data will be assessed as follows; 1) Statistical analysis will be used to assess the laboratory data against the SAC. The following criteria will be adopted: ➢ The 95% Upper Confidence Limit (UCL) value of the arithmetic mean concentration of each contaminant should be less than the SAC;

[12] US EPA, (2006), *Guidance on Systematic Planning using the Data Quality Objectives Process.* (referred to as US EPA 2006)
[13] NSW DEC, (2006), *Guidelines for the NSW Site Auditor Scheme, 2nd ed.* (referred to as Site Auditor Guidelines 2006)

Step	Input
	➢ The standard deviation (SD) of the results must be less than 50% of the SAC; and ➢ No single value exceeds 250% of the relevant SAC. 2) Statistical calculations will not be undertaken if all results are below the SAC; and 3) Statistical calculations will not be undertaken on the following: ➢ Health Screening Levels (HSLs) – elevated point source contamination associated with petroleum hydrocarbons can pose a vapour risk to receptors.
Identify Information Inputs	The following information will be collected: • Soil samples based on subsurface conditions; • Fibre Cement Fragments (FCF) in the vicinity of the sampling points; • The SAC will be designed based on the criteria outlined in NEPM 2013. Other criteria will be used as required and detailed in this report; • The samples will be analysed in accordance with the analytical methods outlined in NEPM 2013; • Field screening information (i.e. PID data, presence of hydrocarbons etc.) will be taken into consideration in selecting the analytical schedule; and • Any additional information that may arise during the field work will also be used as data inputs.
Define the Study Boundary	The sampling will be confined to the site boundaries as shown in Figure 2. Fill has been identified as an AEC. The source of fill has not been established. Fill is considered to be heterogeneous material with CoPC occurring in random pockets or layers. The presence of CoPC in between sampling points cannot be measured. The areas excluded from the investigation are outlined in the data gaps.
Develop the analytical approach (or decision rule)	The following acceptable limits will be adopted for the data quality assessment: • The following acceptance criteria will be used to assess the RPD results: ➢ results > 10 times the practical quantitation limit (PQL), RPDs < 50% are acceptable; ➢ results between 5 and 10 times PQL, RPDs < 75% are acceptable; ➢ results < 5 times PQL, RPDs < 100% are acceptable; and ➢ An explanation is provided if RPD results are outside the acceptance criteria. • Acceptable concentrations in Trip Spike (TS) and Trip Blanks (TB). Non-compliance to be documented in the report; • The following acceptance criteria will be used to assess the primary laboratory QA/QC results. Non-compliance to be documented: ➢ <u>RPDs</u>: - Results that are < 5 times the PQL, any RPD is acceptable; and - Results > 5 times the PQL, RPDs between 0-50% are acceptable; ➢ <u>LCS recovery and matrix spikes</u>: - 70-130% recovery acceptable for metals and inorganics;

Step	Input
	- 60-140% recovery acceptable for organics; and - 10-140% recovery acceptable for VOCs; ➢ Surrogate spike recovery: - 60-140% recovery acceptable for general organics; and - 10-140% recovery acceptable for VOCs; ➢ Blanks: All less than PQL.
Specify the performance or acceptance criteria	NEPM 2013 defines decision errors as '*incorrect decisions caused by using data which is not representative of site conditions'*. This can arise from errors during sampling or analytical testing. A combination of these errors is referred to as '*total study error'*. The study error can be managed through the correct choice of sample design and measurement. Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. In this case, for example, the CoPC identified in the CSM is considered to pose a risk to receptors unless proven not to. The null hypothesis has been adopted for this assessment.
Optimise the design for obtaining data	The most resource-effective design will be used in an optimum manner to achieve the assessment objectives.

5.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology adopted for this assessment is outlined in the table below:

Table 5-2: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	The NSW EPA Contaminated Sites Sampling Design Guidelines (1995[14]) recommend a sampling density for an environmental assessment based on the size of the investigation area. The guideline provides a minimum number of sampling points required for the investigation on a systematic sampling pattern. The guidelines recommend sampling from a minimum of fifty (50) evenly spaced sampling points for this site with an area of approximately 40,000m^2.

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

Aspect	Input
	Samples for EIS Stage 1 ESA were obtained from twelve (12) sampling points. Samples for this Preliminary Stage 2 ESA were obtained from an additional thirty eight (38) sampling points. The total number of sampling points meets the minimum sampling density recommended by the EPA.
Sampling Plan	The sampling locations were placed on a systematic plan with a grid spacing of approximately 30m between sampling locations. A systematic plan was considered suitable to address potential contaminants associated with the fill material. This included the drilling of two boreholes (BH116 and BH117) within the fill mound /stockpile located in the central section of the site.
Exclusion Areas (Data Gaps)	Sampling was not undertaken in inaccessible areas of the site such as beneath existing buildings. These areas have been excluded from the investigation.
Sampling Equipment	Soil samples were obtained on 5th and 6th April 2016 in accordance with the standard sampling procedure (SSP) attached in the appendices. Sampling locations were set out using a hand held GPS unit (with an accuracy of ±5m). In-situ sampling locations were cleared for underground services by an external contractor prior to sampling as outlined in the SSP. The sample locations were drilled using the following equipment as shown on the borehole logs attached in the appendices: • A four-wheel-drive (4wd) mounted hydraulically push tube rig. Soil samples were obtained from disposable polyethylene push tube samplers.
Sampling Collection and Field QA/QC	Soil samples were collected from the fill and natural profiles based on field observations. The sampling depths are shown on the logs attached in the appendices. Additional samples were obtained when relatively deep fill (>0.5m) was encountered. Samples were also obtained when there was a distinct change in lithology or based on the observations made during the investigation. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis. Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. Sampling personnel used disposable nitrile gloves during sampling activities. The samples were labelled with the job number, sampling location, sampling depth and date in accordance with the SSP.

Aspect	Input
Field PID Screening for VOCs	A portable Photoionisation Detector (PID) was used to screen the samples for the presence of VOCs and to assist with selection of samples for hydrocarbon analysis. The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source. The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents. PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases.
Decontami-nation and Sample Preservation	The decontamination procedure adopted during sampling is outlined in the SSP. Where applicable, the sampling equipment was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water. Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with the SSP. On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures.

5.3 Analytical Schedule

The analytical schedule is outlined in the following table:

Table 5-3: Analytical Schedule

CoPC	Fill Samples	Natural Soil Samples
Heavy Metals	42	18
TRH/BTEXN	42	18
PAHs	42	18
OCPs/OPPs	20	11

CoPC	Fill Samples	Natural Soil Samples
PCBs	20	11
Asbestos	38	Na
pH/CEC/Clay Content (%)	1	1
TCLP Metals (nickel)	2	Na

5.3.1 Laboratory Analysis

The samples were analysed by the NATA Accredited laboratory/s using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 5-4: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks and trip spikes samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	144447, 144447-A and 144447-B.
Inter-laboratory duplicates	Envirolab Services Pty Ltd WA, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	179261

6 SITE ASSESSMENT CRITERIA (SAC)

The SAC adopted for the assessment is outlined in the table below. The SAC has been derived from the NEPM 2013 and other guidelines as applicable. The guideline values for individual contaminants are presented in the attached report tables.

Table 6-1: SAC Adopted for this Investigation

Guideline	Applicability
Health Investigation Levels (HILs) (NEPM 2013)	The HIL-A criteria for 'residential with accessible soil' have been adopted for this assessment.
Health Screening Levels (HSLs) (NEPM 2013)	The HSL-A criteria for 'residential with accessible soil' have been adopted for this assessment.
Ecological Assessment Criteria (EAC) (NEPM 2013)	A preliminary screening of ecological risk has been undertaken based on the limited information available at this stage. The EAC criteria for 'urban residential and public open space (URPOS)' exposure setting have been adopted. The EAC criteria for 'urban residential and public open space (URPOS)' exposure setting have been adopted. The EILs for selected metals have been derived as follows: • The ABC values for high traffic (25th percentiles) areas for old suburbs of NSW published in Olszowy et. al. (1995[15]) has been adopted for this assessment; and • Selected fill samples obtained from the surficial profile (<2m) across the site were analysed for pH, CEC and clay content. The average pH, CEC and clay content values were used to calculate the ACL.
Asbestos in Soil	The 'presence/absence' of asbestos in soil has been adopted as the assessment criterion for the Preliminary Site Investigation (PSI).
Waste Classification (WC) Criteria	The criteria outlined in the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014[16]) has been adopted to classify the material for off-site disposal.

[15] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission.

[16] NSW EPA, (2014), *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

7 INVESTIGATION RESULTS

7.1 Subsurface Conditions

A summary of the subsurface conditions encountered during the preliminary Stage 1 ESA and Preliminary Stage 2 ESA investigations are presented in the table below. Reference should be made to the borehole logs attached in the appendices for further details.

Table 7-1: Summary of Subsurface Conditions

Profile	Description (m in bgl)
Pavement	Asphaltic Concrete (AC) pavement was encountered at the surface in borehole BH115 to approximately 0.1m. An additional AC pavement was encountered at borehole BH115 between approximately 0.3m and 0.4m
Fill	Fill material was encountered at the surface in all boreholes and generally extended to depths of approximately 0.2m to 0.5m. Approximately 1.1m of fill was encountered at the fill mound/stockpile locations BH116 and BH117. The fill typically comprised of clayey silt. The fill contained inclusions of: ironstone and shale gravel, timber fragments and ash.
Natural Soil	Residual silty clay of high plasticity was encountered beneath the fill in all boreholes and comprised of orange brown, red brown, brown and light grey. The natural soils contained inclusion of: root fibres, ironstone gravel and ash.
Bedrock	Weathered shale bedrock was encountered in borehole BH1 to BH12 at depths ranging from 0.6m to 2.7m and extended to the termination depth of the boreholes.
Groundwater	Groundwater seepage was not encountered in the boreholes during drilling. All boreholes remained dry on completion of drilling and a short time after.

7.2 Field Screening

A summary of the field screening results are presented in the table below.

Table 7-2: Summary of Field Screening

Aspect	Details (m in bgl)
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. All results were 0 ppm equivalent isobutylene which indicates a lack of PID detectable VOCs.

7.3 Soil Laboratory Results

The soil laboratory results are compared to the relevant SAC in the attached report tables. A summary of the results assessed against the SAC is presented below.

Table 7-3: Summary of Soil Laboratory Results

Analyte	Results Compared to SAC
Heavy Metals	**HILs:** All heavy metal results were below the HIL-A criteria. **EILs:** All heavy metal results were below the EIL-UR&POS criteria. **WC:** The nickel results from the fill soil samples BH113 (0-0.2m) and BH115 (0.1-0.3m) were greater than the CT1 and less than the SCC1 criteria. TCLP leachates were prepared from the BH113 (0-0.2m) and BH115 (0.1-0.3m) samples and analysed for nickel. The results were less than the TCLP1 criteria.
TRH	**HSLs:** All TRH results were below the HSL-A criteria. **ESLs:** All TRH results were below the ESL-URPOS criteria. **WC:** All TRH results were less than the relevant CT1 and SCC1 criteria.
BTEXN	**HSLs:** All BTEXN results were below the HSL-A criteria. **ESLs:** All BTEXN results were below the ESL-URPOS criteria. **WC:** All BTEX results were less than the relevant CT1 and SCC1 criteria.
PAHs	**HILs:** All PAH results were below the HIL-A criteria. **HSLs:** All naphthalene results were below the HSL-A criteria. **ESLs:** All benzo(a)pyrene results were below the ESL-URPOS criteria,

Analyte	Results Compared to SAC
	EILs: All naphthalene results were below the EIL-URPOS criteria. **WC:** All PAH results were less than the relevant CT1 and SCC1 criteria.
OCPs & OPPs	**HILs:** All OCP and OPP results were below the HIL-A criteria. **EILs:** All DDT results were below the EIL-URPOS criteria. **WC:** All OCP and OPP results were less than the relevant CT1 and SCC1 criteria.
PCBs	**HILs:** All PCB results were below the HIL-A criterion. **WC:** All PCB results were less than the SCC1 criterion.
Asbestos	Asbestos was not detected in the samples analysed for the investigation.

8 DATA QUALITY ASSESSMENT

As part of the data quality assessment the following data quality indicators (DQIs) were assessed: precision, accuracy, representativeness, completeness and comparability as outlined in the table below. Reference should be made to the appendices for an explanation of the individual DQI.

Table 8-1: Assessment of DQIs

Completeness
Field Considerations: • The investigation was designed to target the AEC identified at the site. A systematic and judgemental sampling plan was adopted based on the AEC as outlined in the report; • Samples were obtained from various depths based on the subsurface conditions encountered at the sampling locations. All samples were recorded on the borehole logs. All sampling points are shown on the attached Figure 2; • The investigation was undertaken by trained staff in accordance with the SSP; and • Documentation maintained during the field work is attached in the appendices where applicable. Laboratory Considerations: • Selected samples were analysed for a range of CoPC. For the preliminary screening samples were not analysed for VOCs; • All samples were analysed by NATA registered laboratories in accordance with the analytical methods outlined in NEPM 2013; • Appropriate analytical methods and PQLs were used by the laboratories; and • Appropriate sample preservation, handling, holding time and COC procedures were adopted for the investigation.
Comparability
Field Considerations: • The investigation was undertaken by trained staff in accordance with the SSP; • The climate conditions encountered during the field work were noted on the site description record maintained in the job file; and • Consistency was maintained during sampling in accordance with the SSP. Laboratory Considerations: • All samples were analysed in accordance with the analytical methods outlined in NEPM 2013; • Appropriate PQLs were used by the laboratories for all analysis (other than those outlined above); • All primary, intra-laboratory duplicates and other QA/QC samples were analysed by the same laboratory; and • The same units were used by the laboratoryies for all of the analysis.
Representativeness
Field Considerations:

- The investigation was designed to obtain appropriate media encountered during the field work as outlined in the SAQP. Dust and/or vapour sampling was outside the scope of this assessment; and
- All media based on the subsurface conditions encountered during the field work was sampled.

Laboratory Considerations:

- All samples were analysed in accordance with the SAQP.

Precision

Field Considerations:

- The investigation was undertaken in accordance with the SSP.

Laboratory Considerations:

- Analysis of field QA/QC samples including inter and intra-laboratory duplicates, trip blanks (TB) and trip spikes (TS) as outlined below;
- The field QA/QC frequency adopted for the investigation is outlined below;
- Calculation of the Relative Percentage Difference (RPD) from the primary and duplicate results (the RPD calculation equation is outlined in the attached appendices);
- Assessment of RPD results against the acceptance criteria outlined in **Section 5.1.**

Intra-laboratory RPD Results:

Soil Samples at a frequency of 3% of the primary samples:

- DupAS1 is a soil duplicate of primary sample BH131 (0-0.2m); and
- DupAS2 is a soil duplicate of primary sample BH137 (0-0.2m).

The intra-laboratory results are presented in the attached report tables. The results indicated that field precision was acceptable.

Inter-laboratory RPD Results:

Soil Samples at a frequency of 3% of the primary samples:

- DupAS3 is a soil duplicate of primary sample BH116 (0.5-0.7m); and
- DupAS4 is a soil duplicate of primary sample BH102 (0-0.2m).

The inter-laboratory results are presented in the attached report tables. The results indicated that field precision was acceptable.

Trip Spike (TS):

One soil TS was analysed for BTEX at a frequency of one spike per batch of volatiles. The results are presented in the attached report tables.

The results ranged from 64% to 96%. EIS note the lower percentage recovery value for benzene of 64% was outside of the acceptance criteria. Suitable recovery was achieved for the remaining analytes. EIS are of the opinion that field preservation methods were appropriate. No detectable concentrations of benzene were encountered in the soil samples analysed.

Trip Blank (TB):

One soil TB was analysed for BTEX at a frequency of one blank per batch of volatiles. The results are presented in the attached report tables.

The results were all less than the PQLs.

Accuracy

Field Considerations:

- The investigation was undertaken in accordance with the SSP.

Laboratory Considerations:

- The analytical quality assessment adopted by the laboratories was in accordance with the NATA and NEPM 2013 requirements as outlined in the analytical reports; and
- A review of the reports indicates the following comments noted by the laboratories:

Envirolab Report 144447 – The laboratory RPD acceptance criteria was exceeded in one sample for chromium. A triplicate result was issued to account for this. Percentage recovery was not possible in some samples due to matrix interference. However, an acceptable recovery was achieved for the LCS.

9 WASTE CLASSIFICATION OF SOIL FOR OFF-SITE DISPOSAL

The waste classification of soil for off-site disposal is summarised in the following table:

Table 9-1: Waste Classification

Site Extent / Material Type	Classification	Disposal Option
Fill material in the investigation area	General Solid Waste (non-putrescible) (GSW)	A NSW EPA landfill licensed to receive the waste stream. The landfill should be contacted to obtain the required approvals prior to commencement of excavation. Alternatively, the fill material is considered to be suitable for re-use on the subject site (only) provided it meets geotechnical and earthwork requirements.
Natural silty clay soil and shale bedrock	Virgin excavated natural material (VENM)	VENM is considered suitable for re-use on-site, or alternatively, the information included in this report may be used to assess whether the material is suitable for beneficial reuse at another site as fill material. Alternatively, the natural material can be disposed of as VENM to a facility licensed by the NSW EPA to receive the waste stream.

10 TIER 1 RISK ASSESSMENT AND REVIEW OF CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

The assessment identified the following:

- Elevated concentrations of contaminants were not encountered in the soil samples analysed for the investigation;
- All results were below the SAC adopted for this assessment; and
- EIS consider the risk posed by the AEC to the receptors to be relatively low.

There is a possibility of the presence of hazardous building materials in the existing buildings at the site. This is considered to pose a relatively low risk to the receptors provided that the demolition works are undertaken in accordance with the relevant codes and standards.

Sampling was not undertaken beneath the existing buildings at the site. Following demolition, a site inspection should be undertaken by suitably qualified environmental consultant (eg. Australian Contaminated Land Consultants Association (ACLCA) member) for visual assessment of indicators of potential contamination including potential Asbestos Containing Materials (ACM).

In the event that groundwater seepage management or dewatering is required as part of the construction, dewatering and/or groundwater disposal approvals should be sought from the relevant authorities.

11 CONCLUSION

EIS consider that the report objectives outlined in **Section 1.2** have been addressed.

Based on the scope of work undertaken, EIS are of the opinion that the AEC identified in the PCSM pose a relatively low risk to the site receptors.

The decisions listed in **Section 5.1** are addressed in the table below:

Table 11-1: Decision Results

	Decision Statement	Decision Result
1.	Are any of the soil results above the SAC?	No. All of the soil results were below the SAC.
2.	Do any of the contaminants pose a risk to site receptors?	No.
3.	Is further investigation required?	Yes. See below.
4.	Is the site suitable for the proposed use?	Yes. Subject to the recommendations below.

EIS consider that the site can be made suitable for the proposed development provided that the following recommendations are implemented to minimise the risks:

1. Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work; and

2. A site inspection is undertaken by suitably qualified environmental consultant (eg. ACLCA member) following the demolition of the buildings.

In the event unexpected conditions are encountered during development work or between sampling locations that may pose a contamination risk, all works should stop and an environmental consultant should be engaged to inspect the site and address the issue.

11.1 Regulatory Requirement

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

Table 11-2: Regulatory Requirement

Guideline	Applicability
Duty to Report Contamination 2015[17]	EIS consider that there is no requirement to notify the NSW EPA.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner.
Dewatering Consent	In the event groundwater is intercepted during excavation works, dewatering may be required. Council, NSW Office of Water (NOW) and other relevant approvals (from discharge authorities like Sydney Water etc.) should be obtained prior to the commencement of dewatering.

[17] NSW EPA, (2009), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.* (referred to as Duty to Report Contamination 2015)

12 LIMITATIONS

The report limitations are outlined below:

- EIS accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the EIS proposal; and terms of contract between EIS and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- EIS accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- EIS have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. EIS should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

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IMPORTANT INFORMATION ABOUT THIS REPORT

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

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the EIS proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

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

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

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

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

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

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

Misinterpretation of Site Assessments by Design Professionals

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

Logs Should not be Separated from the Assessment Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

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

Read Responsibility Clauses Closely

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

REPORT FIGURES

NOTES:
Figure has been recreated from UBD on disc (version 7.1) and http://maps.six.nsw.gov.au/.

Figure is not to scale. UBD Map ref: 149 P12

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

ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E28861KDrpt2	Title: SITE LOCATION PLAN
	Figure: 1	Address: 21-23 Fairway Drive, Kellyville, NSW

LEGEND

- APPROXIMATE SITE BOUNDARY
- BH (Fill Depth) — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (PRELIMINARY STAGE 1 ESA 2015)
- BH (Fill Depth) — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m) (PRELIMINARY STAGE 2 ESA 2016)

SCALE 0 10 20 30 40 50 METRES 1:1000 @A3

This plan should be read in conjunction with the EIS report.

Title: **DETAILED SITE LAYOUT**

Project: PRELIMINARY STAGE 2 ESA
21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Report No: E28861KD

Figure No: 2

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

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LABORATORY SUMMARY TABLES

TABLE A

SOIL LABORATORY RESULTS COMPARED TO HILs

All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC) [1]			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.0-0.2	Fill: clayey silt	5	LPQL	14	17	24	LPQL	6	22	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH2	0.0-0.3	Fill: clayey silt	5	LPQL	13	26	23	LPQL	6	39	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH3	0.0-0.2	Fill: clayey silt	6	LPQL	15	19	20	LPQL	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH3	1.55-1.65	Silty clay	LPQL	LPQL	5	28	19	LPQL	4	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH4	0.2-0.3	Fill: clayey silt	5	LPQL	13	16	35	LPQL	6	25	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH5	0.0-0.2	Fill: Silty clay	6	LPQL	19	19	35	LPQL	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH5	0.7-0.95	Silty clay	LPQL	LPQL	9	40	24	LPQL	5	28	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH6	0.0-0.2	Fill: clayey silt	16	0.5	19	21	25	LPQL	12	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH7	0.0-0.3	Fill: clayey silt	8	LPQL	12	36	19	LPQL	9	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH8	0.0-0.3	Fill: clayey silt	12	0.5	24	28	32	LPQL	11	50	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH9	0.0-0.3	Fill: clayey silt	9	0.6	24	20	23	LPQL	9	40	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH10	0.0-0.3	Fill: clayey silt	7	0.4	19	20	35	LPQL	10	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH10	1.5-1.55	Silty clay	LPQL	LPQL	6	40	28	LPQL	10	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH11	0.0-0.3	Fill: clayey silt	8	0.5	22	22	25	LPQL	12	62	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH11	0.5-0.95	Silty clay	4	LPQL	13	30	21	LPQL	6	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH12	0.0-0.3	Fill: clayey silt	8	0.5	22	15	28	LPQL	8	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
Total Number of Samples			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	12
Maximum Value			16	0.6	24	40	35	LPQL	12	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

2 - The results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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TABLE A-1
SOIL LABORATORY RESULTS COMPARED TO HILs
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium VI [2]	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ [3]	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC) [1]			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0-0.2	Fill: Silty clay	4	LPQL	20	18	21	LPQL	6	21	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH101	0.5-0.7	Silty clay	LPQL	LPQL	13	25	18	LPQL	3	19	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH102	0-0.2	Fill: Silty clay	5	LPQL	15	23	21	LPQL	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH103	0-0.2	Fill: Silty clay	10	LPQL	20	19	22	LPQL	9	35	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH104	0-0.2	Fill: Silty clay	5	LPQL	17	17	21	LPQL	6	20	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH104	0.5-0.7	Silty clay	4	LPQL	15	31	21	LPQL	3	23	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH105	0-0.2	Fill: Silty clay	8	LPQL	15	21	15	LPQL	7	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH105	0.5-0.7	Silty clay	LPQL	LPQL	15	30	22	LPQL	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH106	0-0.2	Fill: Silty clay	6	LPQL	17	18	19	LPQL	6	20	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH106	0.5-0.7	Silty clay	5	LPQL	14	27	22	LPQL	2	15	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH107	0-0.2	Fill: Silty clay	4	LPQL	20	19	22	LPQL	7	28	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH108	0-0.2	Fill: Silty clay	8	LPQL	18	19	21	LPQL	7	22	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH109	0-0.2	Fill: Silty clay	4	LPQL	14	20	19	LPQL	18	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH109	0.5-0.7	Silty clay	5	LPQL	19	38	22	LPQL	3	25	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH110	0-0.2	Fill: Silty clay	5	LPQL	15	20	20	LPQL	5	19	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH111	0-0.2	Fill: Silty clay	4	LPQL	16	18	21	LPQL	6	26	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH112	0-0.2	Fill: Silty clay	4	LPQL	18	20	24	LPQL	6	18	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH112	0.5-0.7	Silty clay	5	LPQL	20	44	29	LPQL	5	34	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH113	0-0.2	Fill: Silty clay	LPQL	LPQL	68	35	5	LPQL	66	39	0.4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH113	0.5-0.7	Silty clay	LPQL	LPQL	18	39	26	LPQL	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH114	0-0.2	Fill: Silty clay	12	LPQL	17	20	23	LPQL	13	42	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH115	0.1-0.3	Fill: Silty clay	LPQL	LPQL	7	120	2	LPQL	86	35	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH116	0-0.2	Fill: Silty clay	6	LPQL	20	21	21	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH116	0.5-0.7	Fill: Silty clay	6	LPQL	22	21	30	LPQL	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH116	1.2-1.3	Fill: Silty clay	LPQL	LPQL	8	24	19	LPQL	5	27	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH117	0-0.2	Fill: Silty clay	6	LPQL	21	19	24	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH117	0.8-1.0	Fill: Silty clay	5	LPQL	18	34	23	LPQL	6	33	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH117	1.3-1.5	Fill: Silty clay	LPQL	LPQL	10	40	20	LPQL	4	28	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH118	0-0.2	Fill: Silty clay	5	LPQL	15	18	22	LPQL	7	23	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH119	0-0.2	Fill: Silty clay	5	LPQL	20	22	21	LPQL	7	23	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH120	0-0.2	Fill: Silty clay	5	LPQL	20	22	24	LPQL	8	28	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH121	0-0.2	Fill: Silty clay	6	LPQL	26	19	23	LPQL	10	46	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH121	0.5-0.7	Silty clay	LPQL	LPQL	9	27	20	LPQL	4	31	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH122	0-0.2	Fill: Silty clay	5	LPQL	14	16	18	LPQL	5	18	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH123	0-0.2	Fill: Silty clay	4	LPQL	15	22	21	LPQL	6	28	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH123	0.5-0.7	Silty clay	LPQL	LPQL	15	30	20	LPQL	4	23	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH124	0-0.2	Fill: Silty clay	5	LPQL	22	27	24	LPQL	9	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH125	0-0.2	Fill: Silty clay	5	LPQL	21	18	78	LPQL	8	29	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH125	0.5-0.7	Silty clay	5	LPQL	19	43	28	LPQL	7	52	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH126	0-0.2	Fill: Silty clay	8	LPQL	21	16	21	LPQL	9	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH126	0.5-0.7	Silty clay	8	LPQL	18	27	19	LPQL	3	21	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH127	0-0.2	Fill: Silty clay	6	LPQL	19	17	19	LPQL	6	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH128	0-0.2	Fill: Silty clay	5	LPQL	17	33	22	LPQL	6	46	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH128	0.3-0.4	Silty clay	LPQL	LPQL	17	35	22	LPQL	3	29	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH129	0-0.2	Fill: Silty clay	5	LPQL	18	22	22	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH130	0-0.2	Fill: Silty clay	8	LPQL	23	21	24	LPQL	11	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH130	0.5-0.7	Silty clay	6	LPQL	21	33	21	LPQL	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH131	0-0.2	Fill: Silty clay	7	LPQL	27	17	23	LPQL	10	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH131	0.5-0.7	Silty clay	7	LPQL	24	29	20	LPQL	10	37	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH132	0-0.2	Fill: Silty clay	7	LPQL	26	21	25	LPQL	12	38	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH133	0-0.2	Fill: Silty clay	8	LPQL	20	18	24	LPQL	8	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH134	0-0.2	Fill: Silty clay	9	LPQL	19	21	22	LPQL	9	43	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	No asbestos detected
BH134	0.5-0.7	Silty clay	7	LPQL	17	29	18	LPQL	7	41	LPQL	LPQL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH135	0-0.2	Fill: Silty clay	7	LPQL	24	17	18	LPQL	9	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH135	0.6-0.8	Silty clay	7	LPQL	19	33	16	LPQL	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH136	0-0.2	Fill: Silty clay	70	LPQL	24	22	26	LPQL	14	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH137	0-0.2	Fill: Silty clay	10	LPQL	27	21	25	LPQL	11	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH137	0.5-0.7	Silty clay	10	LPQL	22	34	21	LPQL	5	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH138	0-0.2	Fill: Silty clay	7	LPQL	18	18	25	LPQL	10	35	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH138	0.5-0.7	Silty clay	11	LPQL	12	31	15	LPQL	16	110	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of Samples			60	60	60	60	60	60	60	60	60	60	31	31	31	31	31	31	31	31	31	38
Maximum Value			70	LPQL	68	120	78	LPQL	86	110	0.4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

2 - The results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.

3 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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TABLE B
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					RESIDENTIAL WITH ACCESSIBLE SOIL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.5
BH3	1.55-1.65	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH4	0.2-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH5	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH5	0.7-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2
BH6	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH7	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH8	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH9	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH10	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.1
BH10	1.5-1.55	Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH11	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.1
BH11	0.5-0.95	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH12	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples					16	16	16	16	16	16	16	16
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.1

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:

UCL: Upper Level Confidence Limit on Mean Value	NC: Not Calculated	PQL: Practical Quantitation Limit
HSLs: Health Screening Levels	NL: Not Limiting	LPQL: Less than PQL
NA: Not Analysed	SAC: Site Assessment Criteria	NEPM: National Environmental Protection Measure

SITE ASSESSMENT CRITERIA

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]					RESIDENTIAL WITH ACCESSIBLE SOIL						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH1	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH2	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH3	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH3	1.55-1.65	Silty clay	1m to <2m	Clay	90	NL	1	NL	NL	310	NL
BH4	0.2-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH5	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH5	0.7-0.95	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH6	0.0-0.2	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH7	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH8	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH9	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH10	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH10	1.5-1.55	Silty clay	1m to <2m	Clay	90	NL	1	NL	NL	310	NL
BH11	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH11	0.5-0.95	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH12	0.0-0.3	Fill: clayey silt	0m to < 1m	Clay	50	280	0.7	480	NL	110	5

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TABLE B-1
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID [2]
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1	
HSL Land Use Category [1]					RESIDENTIAL WITH ACCESSIBLE SOIL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH101	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH101	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH102	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH103	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH104	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH105	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH105	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH106	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH106	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH107	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH108	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH109	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH109	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH110	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH111	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH112	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH112	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH113	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.1	0
BH113	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH114	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH115	0.1-0.3	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH116	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH116	0.5-0.7	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH116	1.2-1.3	Fill: Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH117	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH117	0.8-1.0	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH117	1.3-1.5	Fill: Silty clay	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH118	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH119	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH120	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH121	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH121	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH122	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH123	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH123	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH124	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH125	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH125	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH126	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH126	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH127	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH128	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH128	0.3-0.4	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH129	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH130	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH130	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH131	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH131	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH132	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH133	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH134	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH134	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH135	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH135	0.6-0.8	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH136	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH137	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH137	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH138	0-0.2	Fill: Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH138	0.5-0.7	Silty clay	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples					60	60	60	60	60	60	60	60
Maximum Value					LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.1	0

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013
2 - Field PID values obtained during the investigation
Note: HSL-A SAC is presented on the following page

Concentration above the SAC **VALUE**
The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

Abbreviations:
UCL: Upper Level Confidence Limit on Mean Value
HSLs: Health Screening Levels
NC: Not Calculated
NL: Not Limiting
PQL: Practical Quantitation Limit
LPQL: Less than PQL

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SITE ASSESSMENT CRITERIA											
					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
PQL - Envirolab Services					25	50	0.2	0.5	1	3	1
HSL Land Use Category [1]					**RESIDENTIAL WITH ACCESSIBLE SOIL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH101	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH101	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH102	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH103	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH104	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH104	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH105	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH105	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH106	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH106	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH107	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH108	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH109	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH109	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH110	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH111	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH112	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH112	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH113	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH113	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH114	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH115	0.1-0.3	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH116	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH116	0.5-0.7	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH116	1.2-1.3	Fill: Silty clay	1m to <2m	Clay	90	NL	1	NL	NL	310	NL
BH117	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH117	0.8-1.0	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH117	1.3-1.5	Fill: Silty clay	1m to <2m	Clay	90	NL	1	NL	NL	310	NL
BH118	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH119	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH120	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH121	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH121	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH122	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH123	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH123	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH124	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH125	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH125	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH126	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH126	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH127	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH128	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH128	0.3-0.4	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH129	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH130	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH130	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH131	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH131	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH132	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH133	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH134	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH134	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH135	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH135	0.6-0.8	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH136	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH137	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH137	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH138	0-0.2	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH138	0.5-0.7	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5

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TABLE C
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2014)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful [2]	Total Scheduled [3]		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	<50	<50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	<50	<50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	<50	<50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	<50	<50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH1	0.0-0.2	Fill: clayey silt	5	LPQL	14	17	24	LPQL	6	22	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	100	LPQL	LPQL	100	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH2	0.0-0.3	Fill: clayey silt	5	LPQL	13	26	23	LPQL	6	39	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH3	0.0-0.2	Fill: clayey silt	6	LPQL	15	19	20	LPQL	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH3	1.55-1.65	Silty clay	LPQL	LPQL	5	28	19	LPQL	4	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH4	0.2-0.3	Fill: clayey silt	5	LPQL	13	16	35	LPQL	6	25	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH5	0.0-0.2	Fill: clayey silt	6	LPQL	19	19	35	LPQL	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH5	0.7-0.95	Silty clay	LPQL	LPQL	9	40	24	LPQL	5	28	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH6	0.0-0.2	Fill: clayey silt	16	0.5	19	21	25	LPQL	12	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH7	0.0-0.3	Fill: clayey silt	8	LPQL	12	36	19	LPQL	9	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH8	0.0-0.3	Fill: clayey silt	12	0.5	24	28	32	LPQL	11	50	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH9	0.0-0.3	Fill: clayey silt	9	0.6	24	20	23	LPQL	9	40	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH10	0.0-0.3	Fill: clayey silt	7	0.4	19	20	35	LPQL	10	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH10	1.5-1.55	Silty clay	LPQL	LPQL	6	40	28	LPQL	10	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH11	0.0-0.3	Fill: clayey silt	8	0.5	22	22	25	LPQL	12	62	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH11	0.5-0.95	Silty clay	4	LPQL	13	30	21	LPQL	6	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH12	0.0-0.3	Fill: clayey silt	8	0.5	22	15	28	LPQL	8	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
Total Number of samples			16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	12
Maximum Value			16	0.6	24	40	35	LPQL	12	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	100	LPQL	LPQL	100	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

[1] - NSW EPA Waste Classification Guidelines (2014)

[2] - Assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion

[3] - Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde

Concentration above the CT1 — VALUE
Concentration above SCC1 — VALUE
Concentration above the SCC2 — VALUE

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TRH: Total Recoverable Hydrocarbons
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure
BTEX: Monocyclic Aromatic Hydrocarbons

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TABLE C-1
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES (2014)
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful [2]	Total Scheduled [3]		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.2	0.5	1	3	100
General Solid Waste CT1 [1]			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	<50	<50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1 [1]			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	<50	<50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2 [1]			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	<50	<50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2 [1]			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	<50	<50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH101	0-0.2	Fill: Silty clay	4	LPQL	20	18	21	LPQL	6	21	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH101	0.5-0.7	Silty clay	LPQL	LPQL	13	25	18	LPQL	3	19	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH102	0-0.2	Fill: Silty clay	5	LPQL	15	23	21	LPQL	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH103	0-0.2	Fill: Silty clay	10	LPQL	20	19	22	LPQL	9	35	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH104	0-0.2	Fill: Silty clay	5	LPQL	17	17	21	LPQL	6	20	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH104	0.5-0.7	Silty clay	4	LPQL	15	31	21	LPQL	3	23	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH105	0-0.2	Fill: Silty clay	8	LPQL	15	21	15	LPQL	7	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH105	0.5-0.7	Silty clay	LPQL	LPQL	15	30	22	LPQL	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH106	0-0.2	Fill: Silty clay	6	LPQL	17	18	19	LPQL	6	20	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH106	0.5-0.7	Silty clay	5	LPQL	14	27	22	LPQL	2	15	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH107	0-0.2	Fill: Silty clay	4	LPQL	20	19	22	LPQL	7	28	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH108	0-0.2	Fill: Silty clay	8	LPQL	18	19	21	LPQL	7	22	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH109	0-0.2	Fill: Silty clay	4	LPQL	14	20	19	LPQL	18	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH109	0.5-0.7	Silty clay	5	LPQL	19	38	22	LPQL	3	25	LPQL	LPQL	LPQL	LPQL	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH110	0-0.2	Fill: Silty clay	5	LPQL	15	20	20	LPQL	5	19	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH111	0-0.2	Fill: Silty clay	4	LPQL	16	18	21	LPQL	6	26	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH112	0-0.2	Fill: Silty clay	4	LPQL	18	20	24	LPQL	6	18	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH112	0.5-0.7	Silty clay	5	LPQL	20	44	29	LPQL	5	34	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH113	0-0.2	Fill: Silty clay	LPQL	LPQL	68	35	5	LPQL	66	39	0.4	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH113	0.5-0.7	Silty clay	LPQL	LPQL	18	39	26	LPQL	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH114	0-0.2	Fill: Silty clay	12	LPQL	17	20	23	LPQL	13	42	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH115	0.1-0.3	Fill: Silty clay	LPQL	LPQL	7	120	2	LPQL	86	35	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH116	0-0.2	Fill: Silty clay	6	LPQL	20	21	21	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH116	0.5-0.7	Fill: Silty clay	6	LPQL	22	21	30	LPQL	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH116	1.2-1.3	Fill: Silty clay	LPQL	LPQL	8	24	19	LPQL	5	27	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH117	0-0.2	Fill: Silty clay	6	LPQL	21	19	24	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH117	0.8-1.0	Fill: Silty clay	5	LPQL	18	34	23	LPQL	6	33	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH117	1.3-1.5	Fill: Silty clay	LPQL	LPQL	10	40	20	LPQL	4	28	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH118	0-0.2	Fill: Silty clay	5	LPQL	15	18	22	LPQL	7	23	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH119	0-0.2	Fill: Silty clay	5	LPQL	20	22	21	LPQL	7	23	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH120	0-0.2	Fill: Silty clay	5	LPQL	20	22	24	LPQL	8	28	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH121	0-0.2	Fill: Silty clay	6	LPQL	26	19	23	LPQL	10	46	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH121	0.5-0.7	Silty clay	LPQL	LPQL	9	27	20	LPQL	4	31	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH122	0-0.2	Fill: Silty clay	5	LPQL	14	16	18	LPQL	5	18	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH123	0-0.2	Fill: Silty clay	4	LPQL	15	22	21	LPQL	6	28	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH123	0.5-0.7	Silty clay	LPQL	LPQL	15	30	20	LPQL	4	23	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH124	0-0.2	Fill: Silty clay	5	LPQL	22	27	24	LPQL	9	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH125	0-0.2	Fill: Silty clay	5	LPQL	21	18	78	LPQL	8	29	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH125	0.5-0.7	Silty clay	5	LPQL	19	43	28	LPQL	7	52	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH126	0-0.2	Fill: Silty clay	8	LPQL	21	16	21	LPQL	9	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH126	0.5-0.7	Silty clay	8	LPQL	18	27	19	LPQL	3	21	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH127	0-0.2	Fill: Silty clay	6	LPQL	19	17	19	LPQL	6	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH128	0-0.2	Fill: Silty clay	5	LPQL	17	33	22	LPQL	6	46	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH128	0.3-0.4	Silty clay	LPQL	LPQL	17	35	22	LPQL	3	29	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH129	0-0.2	Fill: Silty clay	5	LPQL	18	22	22	LPQL	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH130	0-0.2	Fill: Silty clay	8	LPQL	23	21	24	LPQL	11	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH130	0.5-0.7	Silty clay	6	LPQL	21	33	21	LPQL	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH131	0-0.2	Fill: Silty clay	7	LPQL	27	17	23	LPQL	10	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH131	0.5-0.7	Silty clay	7	LPQL	24	29	20	LPQL	10	37	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH132	0-0.2	Fill: Silty clay	7	LPQL	26	21	25	LPQL	12	38	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH133	0-0.2	Fill: Silty clay	8	LPQL	20	18	24	LPQL	8	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH134	0-0.2	Fill: Silty clay	9	LPQL	19	21	22	LPQL	9	43	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH134	0.5-0.7	Silty clay	7	LPQL	17	29	18	LPQL	7	41	LPQL	LPQL	NA	NA	NA	NA	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH135	0-0.2	Fill: Silty clay	7	LPQL	24	17	18	LPQL	9	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH135	0.6-0.8	Silty clay	7	LPQL	19	33	16	LPQL	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH136	0-0.2	Fill: Silty clay	70	LPQL	24	22	26	LPQL	14	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH137	0-0.2	Fill: Silty clay	10	LPQL	27	21	25	LPQL	11	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH137	0.5-0.7	Silty clay	10	LPQL	22	34	21	LPQL	5	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
BH138	0-0.2	Fill: Silty clay	7	LPQL	18	18	25	LPQL	10	35	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	No asbestos detected
BH138	0.5-0.7	Silty clay	11	LPQL	12	31	15	LPQL	16	110	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NA
Total Number of samples			60	60	60	60	60	60	60	60	60	60	31	31	31	31	31	60	60	60	60	60	60	60	60	60	38
Maximum Value			70	LPQL	68	120	78	LPQL	86	110	0.4	LPQL	LPQL	LPQL	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	NC

Explanation:

[1] - NSW EPA Waste Classification Guidelines (2014)

[2] - Assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion

[3] - Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde

Concentration above the CT1 — VALUE
Concentration above SCC1 — VALUE
Concentration above the SCC2 — VALUE

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
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LPQL: Less than PQL
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
NA: Not Analysed
NC: Not Calculated
NSL: No Set Limit
SAC: Site Assessment Criteria
TRH: Total Recoverable Hydrocarbons
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure
BTEX: Monocyclic Aromatic Hydrocarbons

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TABLE D

SOIL LABORATORY TCLP RESULTS

All data in mg/L unless stated otherwise

			Nickel
PQL - Envirolab Services			0.02
TCLP1 - General Solid Waste [1]			2
TCLP2 - Restricted Solid Waste [1]			8
TCLP3 - Hazardous Waste [1]			>8
Sample Reference	**Sample Depth**	**Sample Description**	
BH113	0-0.2	Fill: Silty clay	0.06
BH115	0.1-0.3	Fill: Silty clay	0.08
Total Number of samples			2
Maximum Value			0.08

Explanation:

1 - NSW EPA Waste Classification Guidelines (2014)

General Solid Waste	**VALUE**
Restricted Solid Waste	**VALUE**
Hazardous Waste	**VALUE**

Abbreviations:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

B(a)P: Benzo(a)pyrene

NC: Not Calculated

NA: Not Analysed

TCLP: Toxicity Characteristics Leaching Procedure

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TABLE E
SOIL LABORATORY RESULTS COMPARED TO EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	9	11	NSL	5	24	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH1	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	5	14	17	24	6	22	LPQL	LPQL	LPQL	LPQL	100	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH2	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	5	13	26	23	6	39	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	6	15	19	20	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH3	1.55-1.65	Silty clay	Fine	NA	NA	NA	LPQL	5	28	19	4	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH4	0.2-0.3	Fill: clayey silt	Fine	NA	NA	NA	5	13	16	35	6	25	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH5	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	6	19	19	35	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH5	0.7-0.95	Silty clay	Fine	NA	NA	NA	LPQL	9	40	24	5	28	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH6	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	16	19	21	25	12	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH7	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	8	12	36	19	9	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH8	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	12	24	28	32	11	50	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH9	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	9	24	20	23	9	40	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH10	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	7	19	20	35	10	45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH10	1.5-1.55	Silty clay	Fine	NA	NA	NA	LPQL	6	40	28	10	65	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH11	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	8	22	22	25	12	62	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH11	0.5-0.95	Silty clay	Fine	NA	NA	NA	4	13	30	21	6	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH12	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	8	22	15	28	8	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples				NC	NC	NC	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Maximum Value				NC	NC	NC	16	24	40	LPQL	12	65	LPQL	LPQL	LPQL	LPQL	100	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for new suburbs with low traffic have been quoted)

Concentration above the SAC VALUE

The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

Abbreviations:

EILs: Ecological Investigation Levels
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
UCL: Upper Level Confidence Limit on Mean Value
ESLs: Ecological Screening Levels
NA: Not Analysed
LPQL: Less than PQL
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure
NC: Not Calculated
NSL: No Set Limit
ABC: Ambient Background Concentration

EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	9	11	NSL	5	24	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH1	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH2	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH3	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH3	1.55-1.65	Silty clay	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH4	0.2-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH5	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH5	0.7-0.95	Silty clay	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH6	0.0-0.2	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH7	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH8	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH9	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH10	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH10	1.5-1.55	Silty clay	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH11	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH11	0.5-0.95	Silty clay	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7
BH12	0.0-0.3	Fill: clayey silt	Fine	NA	NA	NA	100	199	71	1100	35	94	710	180	180	120	1300	5600	60	105	125	45	0.7

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EIS

TABLE E-1
SOIL LABORATORY RESULTS COMPARED TO EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC (cmol$_c$/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	9	11	NSL	5	24	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	20	18	21	6	21	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH101	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	LPQL	13	25	18	3	19	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH102	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	15	23	21	7	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH103	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	10	20	19	22	9	35	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	17	17	21	6	20	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH104	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	4	15	31	21	3	23	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH105	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	8	15	21	15	7	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH105	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	LPQL	15	30	22	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH106	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	6	17	18	19	6	20	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH106	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	5	14	27	22	2	15	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH107	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	20	19	22	7	28	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH108	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	8	18	19	21	7	22	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH109	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	14	20	19	18	17	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH109	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	5	19	38	22	3	25	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH110	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	15	20	20	5	19	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH111	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	16	18	21	6	26	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH112	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	18	20	24	6	18	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH112	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	5	20	44	29	5	34	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH113	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	LPQL	68	35	5	66	39	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH113	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	LPQL	18	39	26	4	23	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH114	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	12	17	20	23	13	42	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH115	0.1-0.3	Fill: Silty clay	Fine	7.75	15.2	NA	LPQL	7	120	2	86	35	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH116	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	6	20	21	21	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH116	0.5-0.7	Fill: Silty clay	Fine	7.75	15.2	NA	6	22	21	30	9	34	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH116	1.2-1.3	Fill: Silty clay	Fine	7.75	15.2	NA	LPQL	8	24	19	5	27	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH117	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	6	21	19	24	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH117	0.8-1.0	Fill: Silty clay	Fine	7.75	15.2	NA	5	18	34	23	6	33	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH117	1.3-1.5	Fill: Silty clay	Fine	7.75	15.2	NA	LPQL	10	40	20	4	28	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH118	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	15	18	22	7	23	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH119	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	20	22	21	7	23	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH120	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	20	22	24	8	28	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH121	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	6	26	19	23	10	46	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH121	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	LPQL	9	27	20	4	31	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH122	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	14	16	18	5	18	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH123	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	4	15	22	21	6	28	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH123	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	LPQL	15	30	20	4	23	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH124	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	22	27	24	9	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH125	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	21	18	78	8	29	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH125	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	5	19	43	28	7	52	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH126	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	8	21	16	21	9	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH126	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	8	18	27	19	3	21	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH127	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	6	19	17	19	6	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH128	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	17	33	22	6	46	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH128	0.3-0.4	Silty clay	Fine	7.75	15.2	NA	LPQL	17	35	22	3	29	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH129	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	5	18	22	22	8	33	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH130	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	8	23	21	24	11	42	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH130	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	6	21	33	21	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH131	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	7	27	17	23	10	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH131	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	7	24	29	20	10	37	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH132	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	7	26	21	25	12	38	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH133	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	8	20	18	24	8	26	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH134	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	9	19	21	22	9	43	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH134	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	7	17	29	18	7	41	LPQL	NA	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH135	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	7	24	17	18	9	31	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH135	0.6-0.8	Silty clay	Fine	7.75	15.2	NA	7	19	33	16	7	43	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH136	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	70	24	22	26	14	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH137	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	10	27	21	25	11	53	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH137	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	10	22	34	21	5	32	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH138	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	7	18	18	25	10	35	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH138	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	11	12	31	15	16	110	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
Total Number of Samples				60	60	0	60	60	60	60	60	60	60	31	60	60	60	60	60	60	60	60	60
Maximum Value				7.75	15.2	0	70	68	120	78	86	110	0.1	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 2013

2 - ABC Values for selected metals has been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for new suburbs with low traffic have been quoted)
Note: The EIL and ESL SAC is presented on the following page

Concentration above the SAC VALUE

The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

Abbreviations:

EILs: Ecological Investigation Levels
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
UCL: Upper Level Confidence Limit on Mean Value
ESLs: Ecological Screening Levels
NA: Not Analysed
LPQL: Less than PQL
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

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EIL AND ESL ASSESSMENT CRITERIA

Land Use Category [1]				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																		
							AGED HEAVY METALS-EILs						EILs		ESLs							
				pH	CEC ($cmol_c/kg$)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	$>C_{10}$-C_{16} (F2)	$>C_{16}$-C_{34} (F3)	$>C_{34}$-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	0.1	0.1	25	50	100	100	0.2	0.5	1	3	0.05
Ambient Background Concentration (ABC) [2]				-	-	-	NSL	9	11	NSL	5	24	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																			
BH101	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH101	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH102	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH103	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH104	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH104	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH105	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH105	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH106	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH106	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH107	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH108	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH109	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH109	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH110	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH111	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH112	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH112	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH113	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH113	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH114	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH115	0.1-0.3	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH116	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH116	0.5-0.7	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH116	1.2-1.3	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH117	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH117	0.8-1.0	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH117	1.3-1.5	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH118	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH119	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH120	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH121	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH121	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH122	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH123	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH123	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH124	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH125	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH125	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH126	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH126	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH127	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH128	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH128	0.3-0.4	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH129	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH130	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH130	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH131	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH131	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH132	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH133	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH134	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH134	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	--	180	120	1300	5600	60	105	125	45	0.7
BH135	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH135	0.6-0.8	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH136	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH137	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH137	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH138	0-0.2	Fill: Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7
BH138	0.5-0.7	Silty clay	Fine	7.75	15.2	NA	100	199	221	1100	275	724	710	180	180	120	1300	5600	60	105	125	45	0.7

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TABLE F
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH2 0-0.3	Arsenic	4	5	4	4.5	22
Dup Ref = DUPM1	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	13	13	13.0	0
Envirolab Report: 136920	Copper	1	26	29	27.5	11
	Lead	1	23	23	23.0	0
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	6	6	6.0	0
	Zinc	1	39	39	39.0	0
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	TRH C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	TRH >C_{16}-C_{34} (F3)	100	LPQL	LPQL	NC	NC
	TRH >C_{34}-C_{40} (F4)	100	LPQL	LPQL	NC	NC
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

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TABLE F-1
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH131 (0-0.2m)	Arsenic	4	7	8	7.5	13
Dup Ref = DUPAS1	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	27	26	26.5	4
Envirolab Report: 144447	Copper	1	17	15	16.0	13
	Lead	1	23	22	22.5	4
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	10	9	9.5	11
	Zinc	1	30	24	27.0	22
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	TRH C_6-C_{10} (F1)	25	LPQL	LPQL	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	LPQL	LPQL	NC	NC
	TRH >C_{16}-C_{34} (F3)	100	LPQL	LPQL	NC	NC
	TRH >C_{34}-C_{40} (F4)	100	LPQL	LPQL	NC	NC
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

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TABLE F-2
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH137 (0-0.2m)	Arsenic	4	10	9	9.5	11
Dup Ref = DUPAS2	Cadmium	0.4	LPQL	LPQL	NC	NC
	Chromium	1	27	23	25.0	16
Envirolab Report: 144447	Copper	1	21	20	20.5	5
	Lead	1	25	25	25.0	0
	Mercury	0.1	LPQL	LPQL	NC	NC
	Nickel	1	11	9	10.0	20
	Zinc	1	53	47	50.0	12
	Naphthalene	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	25	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	LPQL	LPQL	NC	NC
	TRH >C34-C40 (F4)	100	LPQL	LPQL	NC	NC
	Benzene	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	LPQL	LPQL	NC	NC
	o-xylene	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

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TABLE G
SOIL INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab WA PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH116 (0.5-0.7m)	Arsenic	4	4	6	5	5.5	18
Dup Ref = DUPAS3	Cadmium	0.4	0.4	LPQL	LPQL	NC	NC
	Chromium	1	1	22	23	22.5	4
Envirolab Report: 144447	Copper	1	1	21	21	21.0	0
Envirolab WA Report: 179261	Lead	1	1	30	34	32.0	13
	Mercury	0.1	0.1	LPQL	LPQL	NC	NC
	Nickel	1	1	9	10	9.5	11
	Zinc	1	1	34	36	35.0	6
	Naphthalene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	25	25	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	100	LPQL	LPQL	NC	NC
	TRH >C34-C40 (F4)	100	100	LPQL	LPQL	NC	NC
	Benzene	0.5	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	2	LPQL	LPQL	NC	NC
	o-xylene	1	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable
Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
Results < 5 times PQL = RPD value <= 100% are acceptable
If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

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TABLE G-1
SOIL INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab WA PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH102 (0-0.2m)	Arsenic	4	4	5	5	5.0	0
Dup Ref = DUPAS4	Cadmium	0.4	0.4	LPQL	LPQL	NC	NC
	Chromium	1	1	15	21	18.0	33
Envirolab Report: 144447	Copper	1	1	23	26	24.5	12
Envirolab WA Report: 179261	Lead	1	1	21	28	24.5	29
	Mercury	0.1	0.1	LPQL	LPQL	NC	NC
	Nickel	1	1	7	10	8.5	35
	Zinc	1	1	33	40	36.5	19
	Naphthalene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthylene	0.1	0.1	LPQL	LPQL	NC	NC
	Acenaphthene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluorene	0.1	0.1	LPQL	LPQL	NC	NC
	Phenanthrene	0.1	0.1	LPQL	LPQL	NC	NC
	Anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Fluoranthene	0.1	0.1	LPQL	LPQL	NC	NC
	Pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Chrysene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	LPQL	LPQL	NC	NC
	Benzo(a)pyrene	0.05	0.05	LPQL	LPQL	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	LPQL	LPQL	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(ghi)perylene	0.1	0.1	LPQL	LPQL	NC	NC
	Benzo(a)pyrene TEQ	0.5	0.5	LPQL	LPQL	NC	NC
	Total OCPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total OPPs	0.1	0.1	LPQL	LPQL	NC	NC
	Total PCBs	0.1	0.1	LPQL	LPQL	NC	NC
	TRH C6-C10 (F1)	25	25	LPQL	LPQL	NC	NC
	TRH >C10-C16 (F2)	50	50	LPQL	LPQL	NC	NC
	TRH >C16-C34 (F3)	100	100	LPQL	LPQL	NC	NC
	TRH >C34-C40 (F4)	100	100	LPQL	LPQL	NC	NC
	Benzene	0.5	0.5	LPQL	LPQL	NC	NC
	Toluene	0.5	0.5	LPQL	LPQL	NC	NC
	Ethylbenzene	1	1	LPQL	LPQL	NC	NC
	m+p-xylene	2	2	LPQL	LPQL	NC	NC
	o-xylene	1	1	LPQL	LPQL	NC	NC

Explanation:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

- Results > 10 times PQL = RPD value <= 50% are acceptable
- Results between 5 & 10 times PQL = RPD value <= 75% are acceptable
- Results < 5 times PQL = RPD value <= 100% are acceptable

If result is LPQL then 50% of the PQL is used for the calculation

RPD Results Above the Acceptance Criteria VALUE

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TRH: Total Recoverable Hydrocarbons

Copyright Environmental Investigation Services

TABLE H
SUMMARY OF FIELD QA/QC RESULTS

ANALYSIS	Envirolab PQL		TBAS1[S] 5-6/4/16 144447	TSAS[S] 5-6/4/16 144447
	mg/kg	µg/L	mg/kg	% Recovery
Benzene	1	1	LPQL	64
Toluene	1	1	LPQL	80
Ethylbenzene	1	1	LPQL	96
m+p-xylene	2	2	LPQL	96
o-xylene	1	1	LPQL	94

Explanation:

[W] Sample type (water)

[S] Sample type (sand)

BTEX concentrations in trip spikes are presented as % recovery

Values above PQLs/Acceptance criteria **VALUE**

Abbreviations:

PQL: Practical Quantitation Limit
LPQL: Less than PQL
NA: Not Analysed
NC: Not Calculated
TB: Trip Blank
TS: Trip Spike
RS: Rinsate Sample
TRH: Total Recoverable Hydrocarbons

Copyright Environmental Investigation Services

Appendix A: Site Information including Site History

Groundwater Bore Records

NSW Office of Water
Work Summary

GW106457

Licence: 10BL162218
Licence Status: CONVERTED

Authorised Purpose(s): STOCK,DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary
Owner Type: Private

Commenced Date:
Completion Date: 07/01/2004
Final Depth: 87.00 m
Drilled Depth: 87.00 m

Contractor Name: Britt's Water Solutions
Driller: Thomas Garry Britt
Assistant Driller:

Property: JENMAN 16 FAIRWAY DR KELLYVILLE 2155
GWMA: -
GW Zone: -
Standing Water Level: 1.600
Salinity: Brackish
Yield: 11.100

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.10	25 247442
Licensed:	CUMBERLAND	CASTLE HILL	Whole Lot 25//247442

Region: 10 - Sydney South Coast
River Basin: 212 - HAWKESBURY RIVER
Area/District:
CMA Map: 9030-1S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6266382.0
Easting: 310712.0
Latitude: 33°43'32.6"S
Longitude: 150°57'25.1"E

GS Map: -
MGA Zone: 0
Coordinate Source: GIS - Geographic Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	46.00	200			Rotary
1		Hole	Hole	46.00	87.00	162			Rotary
1	1	Casing	P.V.C.	-0.30	50.00	158	146		Driven into Hole, Glued

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
18.00	18.15	0.15	Unknown	2.80		1.00		00:05:00	

27.00	27.20	0.20	Unknown	2.80		0.50		00:05:00	
43.00	43.25	0.25	Unknown	2.80		1.60		00:05:00	
63.00	63.20	0.20	Unknown	1.60		4.00		00:05:00	
82.00	82.25	0.25	Unknown	1.60		4.00		00:05:00	

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	topsoil	Topsoil	
1.00	3.00	2.00	clay	Clay	
3.00	6.00	3.00	shale, weathered	Shale	
6.00	7.00	1.00	shale, brown	Shale	
7.00	46.00	39.00	sandstone, with bands of shale	Sandstone	
46.00	87.00	41.00	sandstone	Sandstone	

Remarks

12/01/2010: updated from original form A

***** End of GW106457 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

EIS

Land Title Records

MD

31 MAR 20..

31 MAR 2016

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

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

29th March, 2016

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

Attention: Mitchell Delaney

RE: **23 Fairway Drive,**
Kellyville
Job No. E28861KD – Kellyville

Note 1:	**Lot 501**	**DP 1130020**	(page 1)
Note 2:	**Lot 502**	**DP 1130020**	(page 4)

Note 1:

Current Search

Folio Identifier 501/1130020 (title attached)
DP 1130020 (plan attached)
Dated 23rd March, 2016
Registered Proprietor:
THE MINISTER FOR EDUCATION AND TRAINING

Title Tree
Lot 501 DP 1130020

Folio Identifier 501/1130020

Folio Identifier 12/247442

Certificate of Title Volume 12438 Folio 120

Certificate of Title Volume 9444 Folio 172

PA 42347

Conveyance Book 2589 No 212

Conveyance Book 2587 No 210

Conveyance Book 2146 No 32

Conveyance Book 1813 No 320

Conveyance Book 890 No 785

****

Summary of proprietor(s)
Lot 501 DP 1130020

Year	Proprietor
	(Lot 501 DP 1130020)
2009 – todate	The Minister for Education and Training
	(Lot 12 DP 247442)
2009 – 2009	The Minister for Education and Training
2008 – 2009	Hilc Pty Limited
1994 – 2008	Won Tae Kim Young Hae Kim
1987 – 1994	Veta Avis Beeby, nurserywoman
	(Lot 12 DP 247442 – CTVol 12438 Fol 120)
1980 – 1987	Veta Avis Beeby, nurserywoman
1978 – 1980	Wasyl Bernyk, tailor's cutter Ludmilla Bernyk, wife
1974 – 1978	Yacobi Trading Company (No.2) Pty. Limited.
	(Lot 1 DP 208565 – CTVol 9444 Fol 172)
1971 – 1974	Yacobi Trading Company (No2) Pty Limited
1970 – 1971	RSL Finance Pty Limited
1963 – 1970	North Land Developments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2589 No 212)
1963 – 1963	North Land Developments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2587 No 210)
1961 – 1963	Castle Hill Investments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2146 No 32)
1950 – 1961	Frank Granger Spurway, manufacturer
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Trustee Bk 1813 No 320)
1938 – 1950	Robert Chatfield Mackenzie, accountant / trustee Edward William Buckanbee Acres, company director / trustee Georgina Kathleen Pigott, widow Julia Mary Madden, widow
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Trustee Bk 890 No 785)
1909 – 1938	Georgina Pennington Acres, widow / trustee Ernest Edward Stacey Layton, trustee Robert Chatfield Mackenzie, accountant / trustee Edward Hart Acres, estate

****

Note 2:

Current Search

Folio Identifier 502/1130020 (title attached)
DP 1130020 (plan attached)
Dated 23rd March, 2016
Registered Proprietor:
ABDOLLAH JAVAM
RASHID HOSAINI

Title Tree
Lot 502 DP 1130020

Folio Identifier 502/1130020

Folio Identifier 12/247442

Certificate of Title Volume 12438 Folio 120

Certificate of Title Volume 9444 Folio 172

PA 42347

Conveyance Book 2589 No 212

Conveyance Book 2587 No 210

Conveyance Book 2146 No 32

Conveyance Book 1813 No 320

Conveyance Book 890 No 785

****

Summary of proprietor(s)
Lot 502 DP 1130020

Year	Proprietor
	(Lot 502 DP 1130020)
2011 – todate	Abdollah Javam Rashid Hosaini
2009 – 2011	Hilc Pty Limited
	(Lot 12 DP 247442)
2008 – 2009	Hilc Pty Limited
1994 – 2008	Won Tae Kim Young Hae Kim
1987 – 1994	Veta Avis Beeby, nurserywoman
	(Lot 12 DP 247442 – CTVol 12438 Fol 120)
1980 – 1987	Veta Avis Beeby, nurserywoman
1978 – 1980	Wasyl Bernyk, tailor's cutter Ludmilla Bernyk, wife
1974 – 1978	Yacobi Trading Company (No.2) Pty. Limited.
	(Lot 1 DP 208565 – CTVol 9444 Fol 172)
1971 – 1974	Yacobi Trading Company (No2) Pty Limited
1970 – 1971	RSL Finance Pty Limited
1963 – 1970	North Land Developments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2589 No 212)
1963 – 1963	North Land Developments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2587 No 210)
1961 – 1963	Castle Hill Investments Pty Limited
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Conv Bk 2146 No 32)
1950 – 1961	Frank Granger Spurway, manufacturer
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Trustee Bk 1813 No 320)
1938 – 1950	Robert Chatfield Mackenzie, accountant / trustee Edward William Buckanbee Acres, company director / trustee Georgina Kathleen Pigott, widow Julia Mary Madden, widow
	(Part Portion 55 Parish Castle Hill – Area 175 Acres 3 Roods 16 ½ Perches – Trustee Bk 890 No 785)
1909 – 1938	Georgina Pennington Acres, widow / trustee Ernest Edward Stacey Layton, trustee Robert Chatfield Mackenzie, accountant / trustee Edward Hart Acres, estate

****

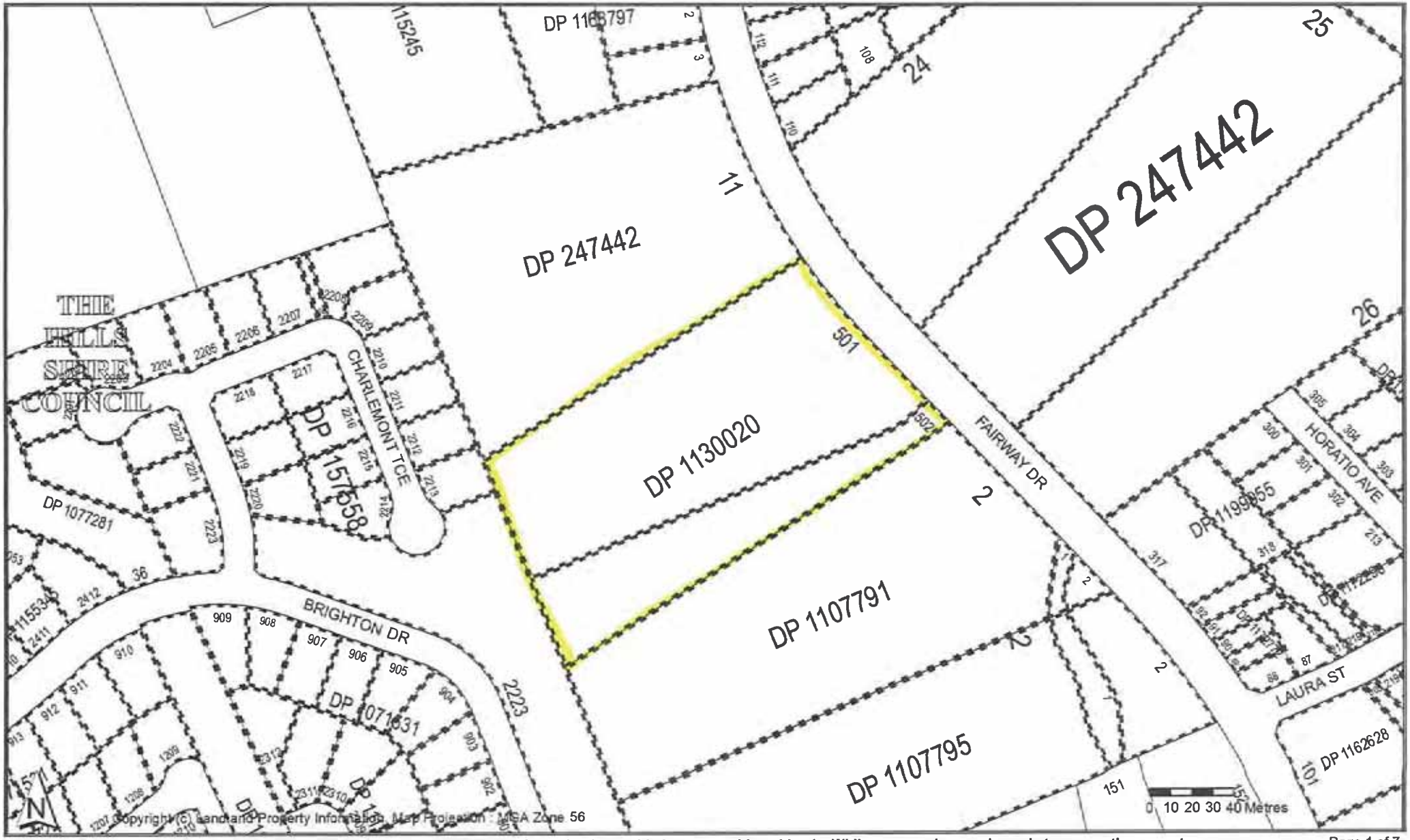
Land & Property Information

Cadastral Records Enquiry Report

Ref : eis - kellyville

Requested Parcel : Lot 501 DP 1130020 **Identified Parcel :** Lot 501 DP 1130020

Locality : KELLYVILLE **LGA :** THE HILLS **Parish :** CASTLE HILL **County :** CUMBERLAND



Report Generated 1:54:37 PM, 23 March, 2016

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This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

Advance Legal Searchers Pty Ltd 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.

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

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 501/1130020

SEARCH DATE	TIME	EDITION NO	DATE
23/3/2016	1:55 PM	1	4/11/2009

LAND

LOT 501 IN DEPOSITED PLAN 1130020
AT KELLYVILLE
LOCAL GOVERNMENT AREA THE HILLS SHIRE
PARISH OF CASTLE HILL COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1130020

FIRST SCHEDULE

THE MINISTER FOR EDUCATION AND TRAINING

SECOND SCHEDULE (3 NOTIFICATIONS)

1 BK 2587 NO 211 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PIECE OF LAND SHOWN AS RIGHT OF WAY 20.115 WIDE IN DP247442
2 BK 2589 NO 212 COVENANT
3 DP247442 RESTRICTION(S) ON THE USE OF LAND

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

*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.

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 502/1130020

SEARCH DATE	TIME	EDITION NO	DATE
23/3/2016	1:56 PM	2	18/3/2011

LAND

LOT 502 IN DEPOSITED PLAN 1130020
AT KELLYVILLE
LOCAL GOVERNMENT AREA THE HILLS SHIRE
PARISH OF CASTLE HILL COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1130020

FIRST SCHEDULE

ABDOLLAH JAVAM
RASHID HOSAINI
AS TENANTS IN COMMON IN EQUAL SHARES (T AG126160)

SECOND SCHEDULE (8 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 BK 2587 NO 211 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PIECE OF LAND SHOWN AS RIGHT OF WAY 20.115 WIDE IN DP247442
3 BK 2589 NO 212 COVENANT
4 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PIECE OF LAND IN THE PLAN HEREON CREATED BY NOTIFICATION IN GOV GAZ DATED 25.5.1956 FOLIOS 1454/5
5 DP247442 RESTRICTION(S) ON THE USE OF LAND
6 AG126161 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED
* 7 AG841010 CAVEAT BY HANS AGDAM
* 8 AJ784489 CAVEAT BY UNIVERSAL PROPERTY GROUP PTY LTD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

**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.*

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

23/3/2016 1:58PM

FOLIO: 501/1130020

First Title(s): OLD SYSTEM
Prior Title(s): 12/247442

Recorded	Number	Type of Instrument	C.T. Issue
25/8/2008	DP1130020	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
4/11/2009	AE950318	REQUEST	FOLIO CREATED EDITION 1

*** END OF SEARCH ***

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.

Form: 11R
Release: 2.3
www.lpma.nsw.gov.au

REQUEST

New South Wales
Real Property Act 1900

AF697748V

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

(A) **STAMP DUTY** — If applicable. Office of State Revenue use only

(B) **TORRENS TITLE** — 502/1130020

(C) **REGISTERED DEALING**

Number	Torrens Title

(D) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and Customer Account Number if any	CODE
1W	PHANG LEGAL PO BOX 1375, PARRAMATTA NSW 2124 TELEPHONE: 02 9687 8885 Reference: 09193	R

(E) **APPLICANT** — HILC PTY LIMTIED off NBT

(F) **NATURE OF REQUEST** — APPLICATION FOR CT FOR LOT CREATED BY PLAN OF ACQUISITION

(G) **TEXT OF REQUEST**

CURRENT TITLE RECORDS SHOW THAT THE CERTIFICATE OF TITLE FOR 502/1130020 HAS NOT BEEN ISSUED AND FUTURE DEALINGS MUST BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLE 12/247442. WE ATTACH THE PRIOR CERTIFICATE OF TITLE AND REQUEST THAT YOU ISSUE A CERTIFICATE OF TITLE FOR 502/1130020.

DATE 16 August 2010.

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

Signature:

Signatory's name: ERN PHANG
Signatory's capacity: applicant's solicitor

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

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

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
23/3/2016 2:00PM

FOLIO: 502/1130020

First Title(s): OLD SYSTEM
Prior Title(s): 12/247442

Recorded	Number	Type of Instrument	C.T. Issue
25/8/2008	DP1130020	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
4/11/2009	AE950318	REQUEST	FOLIO CREATED CT NOT ISSUED
18/8/2010	AF697748	REQUEST	EDITION 1
18/3/2011	AG126160	TRANSFER	
18/3/2011	AG126161	MORTGAGE	EDITION 2
28/2/2012	AG841010	CAVEAT	
16/10/2013	AI90647	CAVEAT	
16/10/2013	AI90909	DEPARTMENTAL DEALING	
28/11/2014	AJ74077	WITHDRAWAL OF CAVEAT	
3/9/2015	AJ784489	CAVEAT	

*** END OF SEARCH ***

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.

Req:R409575 /Doc:DL AE127812 /Rev:06-Aug-2008 /Sts:NO.OK /Pgs:ALL /Prt:23-Mar-2016 14:04 /Seq:1 of 1
Ref:eis - kellyville /Src:T

Form: 01T
Release: 3.4
www.lands.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AE127812X

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

STAMP DUTY Office of State Revenue use only

NEW SOUTH WALES DUTY
22-07-2008 0005076408-001
SECTION 275-TRANSFER
NO DUTY PAYABLE

(A) **FOLIO OF THE REGISTER** 12/247442

(B) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and LLPN if any	CODES
35D	LLPN: 123005 B MORRIS, HAYES & EDGAR DX 420 SYDNEY PH: 9232-2411 AS AGENTS FOR Reference: CC0430 MALLESONS	T TW (Sheriff)

(C) **TRANSFEROR** WON TAE KIM and YOUNG HAE KIM

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 5,750,000.00 and as regards

(E) **ESTATE** the above folio of the Register transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED** WHOLE

(G) Encumbrances (if applicable): NIL

(H) **TRANSFEREE** HILC PTY LIMITED ACN 130 364 171

(I) ~~TENANCY~~:

DATE

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

Signature of witness:

Name of witness: MICHELLE KWON
Address of witness: PSK Legal
Lawyers
Suite 5, Level 7
11 The Boulevarde, Strathfield

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

Signature of transferor:

Won Tae Kim
Young Hae Kim

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

Signature:

Signatory's name: Paul Anthony Crawford
Signatory's capacity: Solicitor for transferee

NOS

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.
0709

DEPARTMENT OF LANDS
LAND AND PROPERTY INFORMATION DIVISION

Advance Legal Searchers
Pty Ltd Phone: 02 9644 1679

Advance Legal Searchers Pty Ltd hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

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

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
23/3/2016 2:02PM

FOLIO: 12/247442

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 12438 FOL 120

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
1/12/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
11/7/1991	Z776574	MORTGAGE	EDITION 1
11/8/1994	U523486	DISCHARGE OF MORTGAGE	
11/8/1994	U523487	TRANSFER	EDITION 2
10/8/1999	6080207	DEPARTMENTAL DEALING	
7/11/2007	AD545317	CAVEAT	
7/7/2008	AE72559	WITHDRAWAL OF CAVEAT	
7/7/2008	AE72560	CAVEAT	
5/8/2008	AE127812	TRANSFER	EDITION 3
25/8/2008	DP1130020	DEPOSITED PLAN	
6/8/2009	AE884812	DEPARTMENTAL DEALING	
4/11/2009	AE950318	REQUEST	FOLIO CANCELLED

*** END OF SEARCH ***

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.

Req:R409621 /Doc:CT 12438-120 CT /Rev:23-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:23-Mar-2016 14:06 /Seq:1 of 2
Ref:als /Src:T

12438120

CERTIFICATE OF TITLE

NEW SOUTH WALES

PROPERTY ACT, 1900

Vol. 12438 Fol. 120

Appln. No.42347

Prior Title Vol.9444 Fol.172

Edition issued 17-5-1974

(Page 1) Vol. 12438 Fol. 120

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.

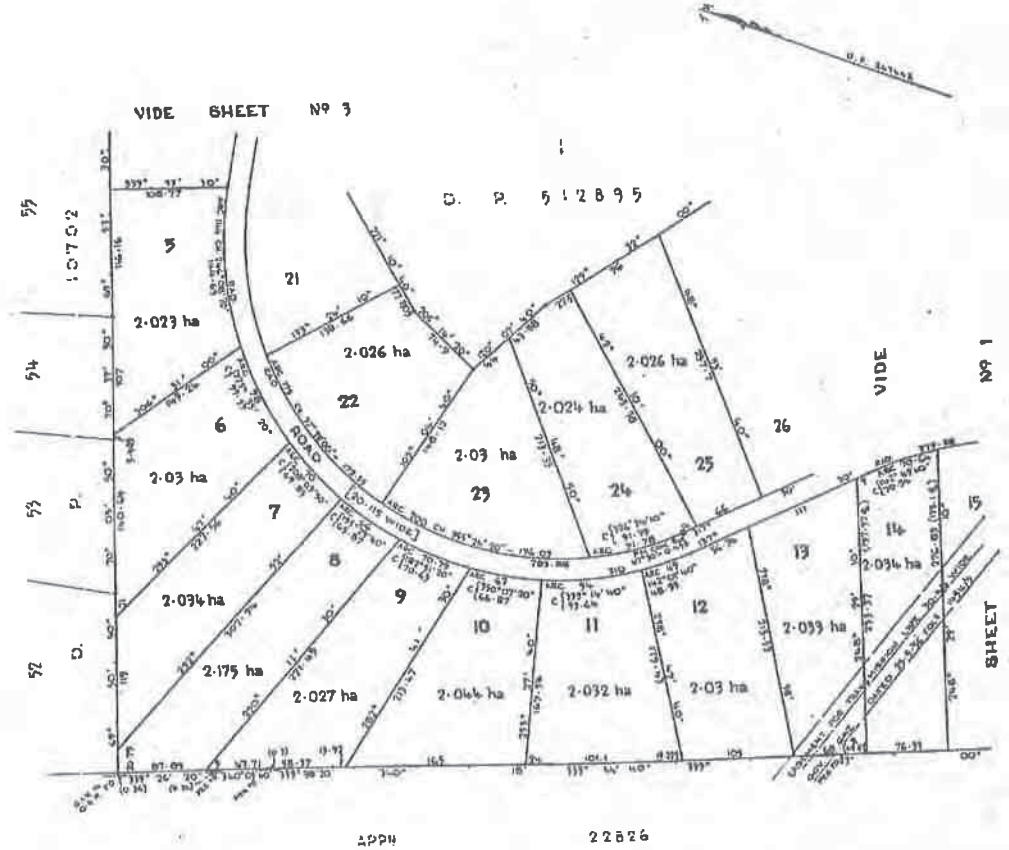
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 12 in Deposited Plan 247442 at Kellyville in the Shire of Baulkham Hills Parish of Castle Hill and County of Cumberland being part of Portion 55 granted to George Acres on 30-6-1823.

FIRST SCHEDULE

~~YACOBI TRADING COMPANY (NO.2) PTY. LIMITED.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Easement (Right of Carriageway) appurtenant to the land above described affecting the piece of land shown as "Right of Way 20.115 wide" in Deposited Plan 247442 created by Deed Book 2587 No.211.
3. Covenant created by Deed Book 2589 No.212
4. Easement for Transmission Line affecting the piece of land shown as "Easement for Transmission Line 30.48 wide" in the plan hereon created by notification in Government Gazette dated 25-5-1956 Folios 1454/5. Discharged N905550
5. ~~Mortgage No.N173098 to N.S.W. Permanent Building Society Limited. Entered 9-4-1973.~~
6. Restriction as to user created by the registration of Deposited Plan 247442 See N837918.

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.

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

N005551

Vol. 12438 Fol. 120

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Wasyl Bernyk of Berala, Tailor's Cutter and Ludmilla Bernyk his wife as joint tenants~~	~~Transfer~~	~~Q802988~~		~~4-8-1978~~	
Veta Avis Beeby of Epping, Nurserywoman	Transfer	R871240	———	20-6-1980	

Q802988T(P1)
R871240 TRA
S511702M
W864948DM1

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	N905551	~~7-6-1974~~	~~to A.G.C. (Advances) Limited~~	9-7-1974		Cancelled	Q802988	
S511702 Mortgage to Commonwealth Savings Bank of Australia Registered 10-6-1981						Discharged	W864948	

(Page 2 of 2 pages)

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

Req:R409621 /Doc:CT 12438-120 CT /Rev:23-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:23-Mar-2016 14:06 /Seq:2 of 2
Refals /Src:T

Req:R833332 /Doc:CT 09444-172 CT /Rev:27-Mar-2008 /Sts:NO.OK /Prt:29-Sep-2011 10:31 /Pgs:ALL /Seq:1 of 4
Ref:12570/1 /Src:T

G. 2

NEW SOUTH WALES

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

[redacted]IFICATE OF TITLE

[redacted]ERTY ACT, 1900, as amended.

09444172

Vol. 9444 Fol. 172

1st Edition issued 5-6-1963.

MA CANCELLED

Fol. 172

Vol. 9444 (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 B Bailey

Registrar-General.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 Deposited Plan 208565, Shire Baulkham Hills, Parish Castle Hill, County Cumberland.

Registrar General.

FIRST SCHEDULE (continued overleaf)

~~NORTHLAND DEVELOPMENTS PTY. LIMITED.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited Plan.

2. Easement (Right of Carriageway) appurtenant to the land above described affecting the piece of land shown as Right of Way 66 feet wide in the plan hereon created by Deed Book 2587 No.211.

3. Covenant created by Deed Book 2589 No.212.

4. Easement for transmission line affecting the piece of land shown as Easement for Transmission Line 100 feet wide in the plan hereon created by Notification in Government Gazette dated 25-5-1956 Folios 1454/5.

Registrar General.

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

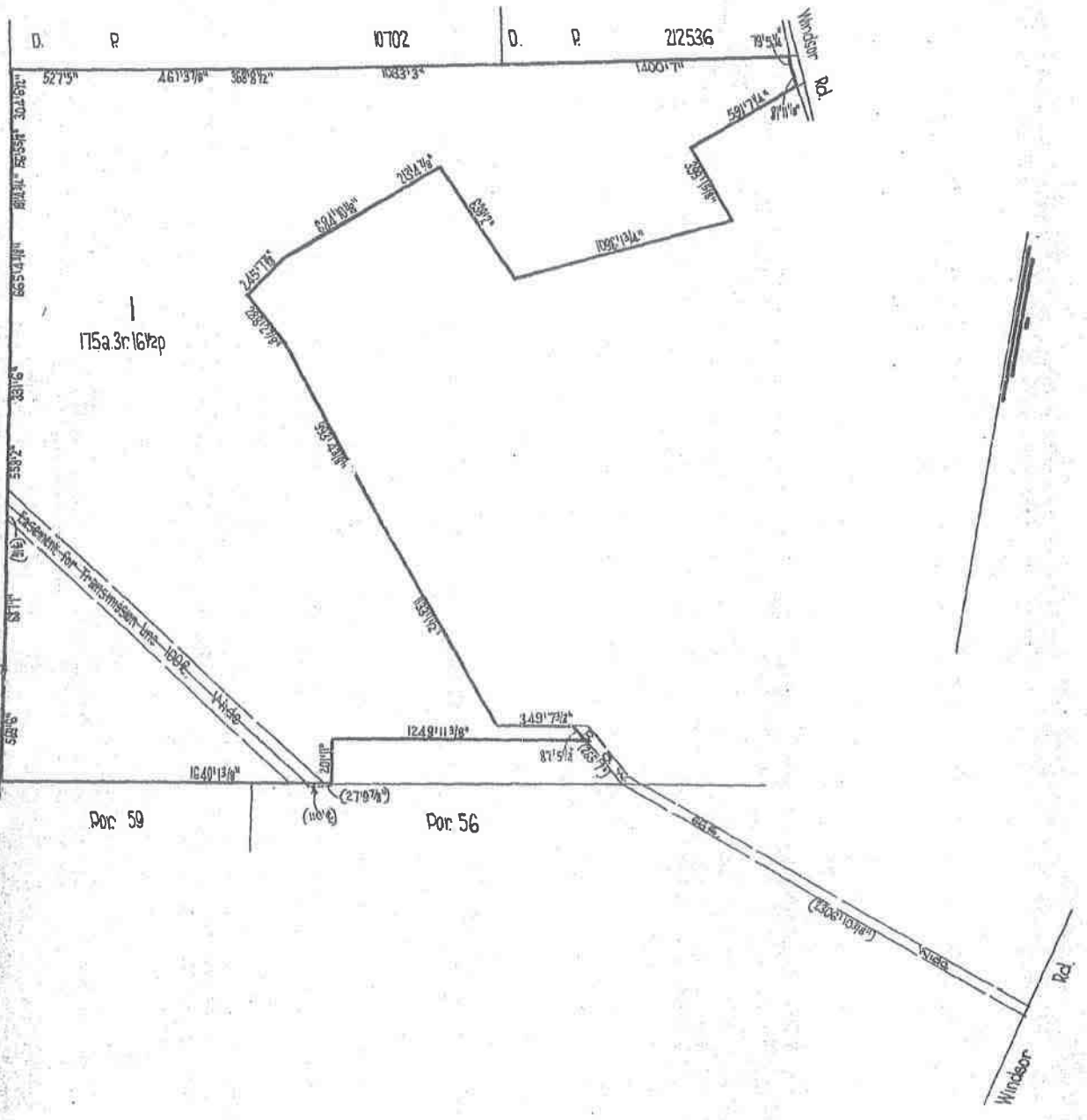
WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

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

Req:R833332 /Doc:CT 09444-172 CT /Rev:27-Mar-2008 /Sts:NO.OK /Prt:29-Sep-2011 10:31 /Pgs:ALL /Seq:2 of 4
Ref:12570/1 /Src:Tges)

Vol. 9444 Fol. 172

-PLAN SHOWING LOCATION OF LAND-



DA47347
D.P.208565

All lengths shown hereon are in feet and inches
Scale: 600 feet to one inch

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
N.S.W. Finance Pty. Limited Yacole Trading Company (No2) Pty Limited	Transfer Transfer	L760680 N591410	24-2-1970 2.12.1971	13.3.1970 22.2.1972	

This deed is cancelled as to the whole & road.
New Certificates of Title have issued on 17-5-1974
for lots in Deposited Plan No. 247442 as follows:
Lots 1-33 Vol. 12438 Fol 109-141 respectively.

REGISTRAR GENERAL

The residue of land in this folio comprises the road in D.P. 247442

REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		Signature of Registrar-General
Mortgage	J223388	5-2-1861	to Castle Hill Investments Pty Limited	5.6.1963		Discharged	J846245	
Caveat	L677464	23-12-1969		13-1-1970		Withdrawn	L760687	
Caveat	M240366	2-2-1971		16-2-1971		Withdrawn	N591409	
Caveat	N591411	25-1-1972		22-2-1972		Withdrawn	M626375	
Caveat	N591412	25-1-1972		22-2-1972		Withdrawn	M626376	
Mortgage	M626377	21-2-1972	to Industrial Acceptance Corporation Limited	9.3.1972		Discharged	N173097	
Mortgage	N173098 N837918	19-3-1973	to N.S.W. Permanent Building Society Limited interests created pursuant to Section 888 Conveyancing Act, 1919, by the registration of Deposited Plan 247442	9-4-1973				
				8-5-1974				
			The Interest of the Council of the Shire of Baulkham Hills in the new roads shown in D.P. 247442	8-5-1974				

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

Req:R833332 /Doc:CT 09444-172 CT /Rev:27-Mar-2008 /Sts:NO.OK /Prt:29-Sep-2011 10:31 /Pgs:ALL /Seq:3 of 4
Ref:12570/1 /Src:M

25035 11.60 Sc 1609 V. C. N. Blight, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		

FORM No. 190 177A NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

Req:R833332 /Doc:CT 09444-172 CT /Rev:27-Mar-2008 /Sts:NO.OK /Prt:29-Sep-2011 10:31 /Pgs:ALL /Seq:4 of 4
Ref:12570/1 /Src:T
(4 pages)

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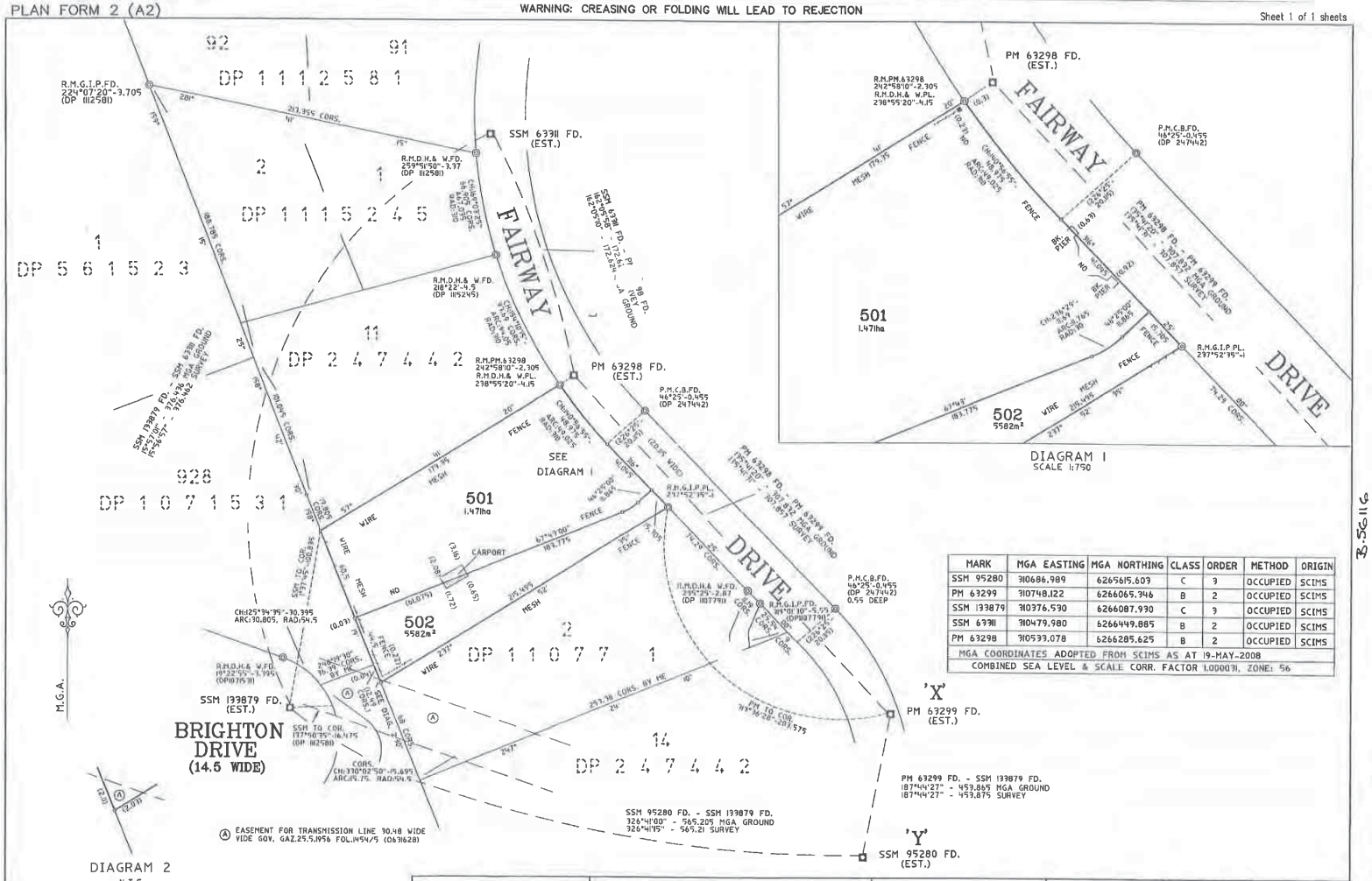
PLAN FORM 2 (A2)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Sheet 1 of 1 sheets


DP 1112581
DP 1115245
DP 561523
DP 247442
DP 1077531
DP 107715
DP 110777
501
1.471ha
502
9582m²
928
FAIRWAY
DRIVE
BRIGHTON DRIVE
(14.5 WIDE)
SSM 63311 FD. (EST.)
PM 63298 FD. (EST.)
SSM 139879 FD. (EST.)
SSM 95280 FD. (EST.)
PM 63299 FD. (EST.)
'X'
'Y'
SEE DIAGRAM 1
R.M.G.I.P.FD. 224°07'20"-3.705 (DP 1112581)
R.M.D.H.& W.FD. 259°51'50"-3.37 (DP 1112581)
R.M.D.H.& W.FD. 218°22'-4.5 (DP 1115245)
R.M.PM.63298 242°58'10"-2.305
R.M.D.H.& W.PL. 238°55'20"-4.15
P.M.C.B.FD. 46°25'-0.455 (DP 247442)
R.M.G.I.P.PL. 237°52'35"-1
R.M.D.H.& W.FD. 395°29'-2.87 (DP 1107791)
R.M.G.I.P.FD. 89°01'10"-5.55 (DP1107791)
P.M.C.B.FD. 46°25'-0.455 (DP 247442) 0.55 DEEP
SSM TO COR. 177°50'35"-16.475 (DP 1112581)
SSM TO COR. 89°36'20"-287.575
PM 63299 FD. - SSM 139879 FD. 187°44'27" - 459.865 MGA GROUND 187°44'27" - 459.875 SURVEY
SSM 95280 FD. - SSM 139879 FD. 326°41'00" - 565.209 MGA GROUND 326°41'15" - 565.21 SURVEY
PM 63298 FD. - PM 63299 FD. 135°41'20" - 301.857 MGA GROUND 135°41'30" - 301.857 SURVEY
SSM 139879 FD. - SSM 63311 FD. 15°51'10" - 376.463 MGA GROUND 15°51'10" - 376.477 SURVEY
SSM 63311 FD. - PM 63298 FD. 182°05'10" - 172.634 MGA GROUND
CH:125°34'39"-30.395 ARC:30.805, RAD:54.5
CH:110°02'50"-15.695 ARC:15.75, RAD:54.5
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0
CH:23°47'-9.64 ARC:9.745 RAD:30
CH:90°00'00"-9.425 ARC:14.137 RAD:9.0

Req:R409448 /Doc:DP 1130020 P /Rev:26-Aug-2008 /Sts:SC.OK /Pgs:ALL /Prt:23-Mar-2(
Ref:als /Src:T

PLAN FORM 6 WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 1 sheet

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

IT IS PROPOSED TO ACQUIRE LOT 501
FOR EDUCATION PURPOSES

*

DP1130020 S

*

Registered: NC 25-8-2008

Title System: TORRENS

Purpose: Acquistion

* OFFICE USE ONLY

PLAN OF ~~PROPOSED~~ ACQUISTION ~~OF PART~~ OF LOT 12 IN DP 247442

LGA: BAULKHAM HILLS

Locality: ~~BELLA VISTA~~ KELLYVILLE

Parish: CASTLE HILL

County: CUMBERLAND

B.5611S.

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

Crown Lands NSW/Western Lands Office Approval

I.....in approving this plan certify
(Authorised Officer)
that all necessary approvals in regard to the allocation of the land shown herein have been given

Signature:.....
Date:.....
File Number:.....
Office:.....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to:

the proposed..... set out herein
(insert 'subdivision' or 'new road')

.....
* Authorised Person/General Manager/Accredited Certifier

Consent Authority: .....
Date of Endorsement: .....
Accreditation no: .....
Subdivision Certificate no: .....
File no: .....

* Delete whichever is inapplicable.

Surveying Regulation, 2006

I, GORDON PATRICK WREN
of Grinsell & Johns Pty Ltd, P/ ox 150 BANKSTOWN 1885
a surveyor registered under the *Surveying Act, 2002*, certify that the survey represented in this plan is accurate, has been made in accordance with the *Surveying Regulation, 2006* and was completed on: 2 June 2008

The survey relates to ..... Lots 501 & 502

(specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)

Signature .....*Dated:* 1 Aug 2008
Surveyor registered under the Surveying Act, 2002

Datum Line: "X" – "Y" (PM 63299 – PM 95280).
Type: Urban/~~Rural~~

Plans used in the preparation of survey

DP 247442
DP 1071531
DP 1107791
DP 1107795
DP 1112581
DP 1115245

(if insufficient space use Plan Form 6A annexure sheet)

SURVEYOR'S REFERENCE: S1263-01

Section 149 Certificates

THE HILLS Sydney's Garden Shire

THE HILLS SHIRE COUNCIL
3 Columbia Court, Baulkham Hills NSW 2153
PO Box 7064, Baulkham Hills BC NSW 2153

Telephone +61 2 9843 0555
Facsimilie +61 2 9843 0409
Email council@thehills.nsw.gov.au
www.thehills.nsw.gov.au
DX 9966 Norwest
ABN No. 25 034 494 656

PLANNING CERTIFICATE UNDER SECTION 149 (2) & (5)

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AS AMENDED.

Certificate Number:	**56976**
Reference:	E28861KD MD:66632
Issue Date:	23 March 2016
Receipt No:	5139390
Fee Paid:	$ 133.00

ADDRESS:	23 Fairway Drive, KELLYVILLE NSW 2155
DESCRIPTION:	Lot 501 DP 1130020

The land is zoned:
Zone R2 Low Density Residential

The following prescribed matters apply to the land to which this certificate relates:

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

THIS CERTIFICATE IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 149 (2) OF THE ABOVE ACT.

1. Names of relevant planning instruments and DCPs

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

(A) **Local Environmental Plans**

The Hills Local Environmental Plan 2012, as amended, applies to all land in the Shire unless otherwise stated in this certificate.

State Environmental Planning Policies

SEPP No.19 - Bushland In Urban Areas
SEPP No.21 - Caravan Parks
SEPP No.30 - Intensive Agriculture
SEPP No.33 - Hazardous And Offensive Development
SEPP No.50 - Canal Estate Development
SEPP No.55 - Remediation Of Land
SEPP No.62 - Sustainable Aquaculture
SEPP No.64 - Advertising And Signage
SEPP No.65 - Design Quality Of Residential Flat Development
SEPP No.70 - Affordable Housing (Revised Schemes)
SEPP (Building Sustainability Index: Basix) 2004
SEPP (Major Development) 2005
SEPP (Mining, Petroleum Production And Extractive Industries) 2007
SEPP (Miscellaneous Consent Provisions) 2007
SEPP (Infrastructure) 2007
SEPP (Exempt and Complying Development Codes) 2008
SEPP (Affordable Rental Housing) 2009
SEPP (State and Regional Development) 2011
Sydney Regional Environmental Plan No. 9 Extractive Industries (No.2) - Amendment No.1
Sydney Regional Environmental Plan No. 20 Hawkesbury – Nepean River (No.2 – 1997)

The following SEPP's may apply to the land. Please refer to **'Land to which Policy applies'** for each individual SEPP.

SEPP (Housing For Seniors Or People With A Disability) 2004
SEPP No.32 – Urban Consolidation (Redevelopment of Urban Land)

(2) The name of each **proposed environmental planning instrument** that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

(A) **Proposed Local Environmental Plans**

Proposed The Hills Local Environmental Plan 2012 (Amendment No.) applies to this land.

Refer Attachment 1(2)(A)

(B) **Proposed State Environmental Planning Policies**

Draft State Environmental Planning Policy (Competition).

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

The Hills Development Control Plan 2012
Note: the land is within The Hills Development Control Plan 2012 Part D map sheet. Refer Council's website www.thehills.nsw.gov.au to view the map sheet.

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

2. Zoning and land use under relevant LEPs

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

(A) The Hills Local Environmental Plan 2012 applies to the land unless otherwise stated in this certificate and identifies the land to be:

Zone R2 Low Density Residential

A Planning Proposal applies to the land and identifies the land to be:

Zone R2 Low Density Residential

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(B) The purposes for which the instrument provides that development may be carried out within the zone without development consent:

Refer Attachment 2(B) and 2(B)(1)

Also refer to the applicable instrument for provisions regarding Exempt Development

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(C) The purposes for which the instrument provides that development may not be carried out within the zone except with development consent:

Refer Attachment 2(B) and 2(B)(1)

Also refer to the applicable instrument for provisions regarding Complying Development

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(D) The purposes for which the instrument provides that development is prohibited in the zone:

Refer Attachment 2(B) and 2(B)(1)

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

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

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

(F) Whether the land includes or comprises critical habitat?

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

(G) Whether the land is in a conservation area (however described)?

The Hills Local Environmental Plan 2012?

NO

Any Other Planning Proposal?

NO

(H) Whether an item of environmental heritage (however described) is situated on the land?

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

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

To the extent that the land is within any zone (however described) under:

(a) Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the 2006 SEPP), or*

(b) a Precinct Plan (within the meaning of the 2006 SEPP), or

(c) a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the ACT.

(A) State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan) applies to the land unless otherwise stated in this certificate and identifies the land to be:

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan) does not apply.

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan) applies to the land unless otherwise stated in this certificate and identifies the land to be:

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan) does not apply.

Note: This precinct plan applies to land within the Box Hill Precinct or Box Hill Industrial Precinct.

(B) The purposes for which the instrument provides that development may be carried out within the zone without development consent:

Refer Attachment 2(B)

Also refer to the applicable instrument for provisions regarding Exempt Development.

(C) The purposes for which the instrument provides that development may not be carried out within the zone except with development consent:

Refer Attachment 2(B)

Also refer to the applicable instrument for provisions regarding Complying Development

(D) The purposes for which the instrument provides that development is prohibited in the zone:

Refer Attachment 2(B)

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

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

Any amendments to State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

Any amendments to State Environmental Planning Policy (Sydney Region Growth Centres 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(F) Whether the land includes or comprises critical habitat?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(G) Whether the land is in a conservation area (however described)?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(H) Whether an item of environmental heritage (however described) is situated on the land?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

3. Complying Development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code and Rural Housing Code
Complying Development under the General Housing Code and Rural Housing Code **may be** carried out on the land.

Housing Alterations Code and General Development Code
Complying Development under the Housing Alterations Code and General Development Code **may be** carried out on the land.

Commercial and Industrial (New Buildings and Additions) Code
Complying Development under the Commercial and Industrial (New Buildings and Additions) Code **may be** carried out on the land.

Commercial and Industrial Alterations, Subdivision, Demolition and Fire Safety Codes
Complying Development under the Commercial and Industrial Alterations, Subdivision, Demolition and Fire Safety Codes **may be** carried out on the land.

Note: Where reference is made to an applicable map, this information can be sourced from the following websites:

The Hills Local Environmental Plan 2012 - www.thehills.nsw.gov.au
State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct) or (Appendix 11 The Hills Growth Centre Precincts Plan) – www.planning.nsw.gov.au

4. Coastal protection

Whether or not the land is affected by the operation of Section 38 or 39 of the *Coastal Protection Act 1979*, but only to the extent that the council has been so notified by the Department of Finance, Services, and Innovation?

NO

4A. Certain information relating to beaches and coasts

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

NO

(2) In relation to a coastal council:

(a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

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

NO

(3) (Repealed)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

NO

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

5. Mine subsidence

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

NO

6. Road widening and road realignment

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

(A) Division 2 of Part 3 of the *Roads Act 1993*; or

NO

(B) any environmental planning instrument; or

NO

(C) any resolution of council?

a) The Hills Development Control Plan 2012?

NO

b) Any other resolution of council?

NO

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

Whether or not the land is affected by a policy:

(a) adopted by council, or

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)?

Council's policies on hazard risk restrictions are as follows:

(i) Landslip

a) By The Hills Local Environmental Plan 2012 zoning?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

b) By The Hills Local Environmental Plan 2012 local provision?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

c) By The Hills Development Control Plan 2012 provision?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

(ii) Bushfire

YES

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by bushfire. That question is answered in Section 11 of this certificate.

Council has adopted the NSW Rural Fire Service Guidelines entitled 'Planning for Bushfire Protection 2006'. Development subject to bushfire risk will be required to address the requirements in these guidelines and can be downloaded off the RFS web site www.rfs.nsw.gov.au

The Development Control Plan may also contain provisions for development on Bushfire Prone Land and Bushfire Hazard Management. Refer Part 1(3) of this certificate for the applicable Development Control Plan.

(iii) Tidal inundation

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by tidal inundation.

(iv) Subsidence

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by subsidence.

(v) Acid sulphate soils

NO

(vi) Land contamination

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by contamination or potential contamination.

(vii) Any other risk

NO

7A. Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls?

NO

Please note this is a statement of flood related development controls and is NOT a statement on whether or not the property is subject to flooding.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls?

NO

Please note this is a statement of flood related development controls and is NOT a statement on whether or not the property is subject to flooding.

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

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

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

State Environmental Planning Policy?

NO

Proposed State Environmental Planning Policy?

NO

9. Contributions plans

The name of each contributions plan applying to the land:

12 - BALMORAL RD EAST PRCT

9A. Biodiversity Certified Land

Whether the land is biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*?

NO

10. Biobanking Agreements

Whether the land is land to which a biobanking agreement under part 7A of the *Threatened Species Conservation Act 1995* relates, (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage)?

NO

11. Bush fire prone land

Has the land been identified as bush fire prone land?

NO

12. Property vegetation plans

Has the council been notified that a property vegetation plan under the *Native Vegetation Act 2003* applies to this land?

NO

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

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

NO

14. Directions under Part 3A

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

NO

15. Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing) of which council is aware, issued under *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land?

NO

(b) Whether there are any terms of a kind referred to in clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land?

NO

16. Site compatibility certificates for infrastructure

Whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land?

NO

17. Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land?

NO

(2) Whether there are any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land?

NO

18. Paper subdivision information

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

NO DEVELOPMENT PLAN APPLIES

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

NO SUBDIVISION ORDER APPLIES

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land?

NO

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

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

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

NO

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act – if it is subject to such an order at the date when the certificate is issued,

NO

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act – if it is the subject of such an approved proposal at the date when the certificate is issued,

NO

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of the Act – if it is subject to such an order at the date when the certificate is issued,

NO

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of the Act – if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

NO

Note: Whether Council has been provided with a copy of any exemption under section 23 or authorisation by the Co-ordinator General under section 24 of the *Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009*?

NO

THIS PART IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 149 (5) OF THE ABOVE ACT

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

A. Whether there are any provisions applying to the land that control the management of trees and bushland?

YES

Clause 5.9 and 5.9AA of The Hills Local Environmental Plan 2012 and Part C Section 3 of The Hills Development Control Plan 2011 contain provisions for the control and management of actions in respect of trees and bushland.

B. Does the land contain a foreshore area as identified on The Hills Local Environmental Plan 2012 Foreshore Building Line map?

NO

C. Under the Protection of the Environment Operations Act 1997, is the property subject to a listing on the public register maintained by council with respect to an environmental notice or civil proceedings in the Land and Environment Court, or a prosecution under this Act?

NO

D. Is the land affected by any special provisions of Sydney Regional Environmental Plan No 9 – Extractive Industry (No 2 – 1995)?

NO

E. Is the land affected by a restricted development area as identified under The Hills Development Control Plan 2012?

NO

F. Is the land within an area where a Special Infrastructure Contribution, as determined by the Minister for Planning and Infrastructure, applies?

YES

The land is within the Special Infrastructure Contribution – Western Sydney Growth Areas under the *Environmental Planning and Assessment Act 1979*.

Refer to the Department of Planning and Infrastructure for further information
www.planning.nsw.gov.au

G. Is the land in the vicinity of a heritage item or heritage conservation area as described in The Hills Local Environmental Plan 2012 **OR** State Environmental Planning Policy (Sydney Region Growth Centres) 2006?

NO

H. Whether Council has adopted a Voluntary Planning Agreement within the meaning of S93F of the Environmental Planning and Assessment Act, 1979, as amended, in relation to the land?

NO

I. Is the land within or adjacent to the North West Rail Link as identified on the maps prepared by Transport NSW?

NO

J. Is the land within or adjacent to the Parramatta to Epping Rail Link as identified on the maps prepared by Transport NSW?

NO

K. Does the land contain a proposed road as identified within a Development Control Plan under State Environmental Planning Policy (Sydney Region Growth Centres) 2006?

NO

L. Has Council been notified by NSW Land and Property Information that the land is affected by a plan of proposed acquisition for railway purposes (North West Rail Link)?

NO

THE HILLS SHIRE COUNCIL

DAVE WALKER
GENERAL MANAGER

Per:

PLEASE NOTE: COUNCIL RETAINS THE ELECTRONIC ORIGINAL OF THIS CERTIFICATE. WHERE THIS CERTIFICATE REFERS TO INFORMATION DISPLAYED ON COUNCIL'S WEBSITE OR TO ANY EXTERNAL WEBSITE, IT REFERS TO INFORMATION DISPLAYED ON THE WEBSITE ON THE DATE THIS CERTIFICATE IS ISSUED.

ATTACHMENT 1(2)(A)

Sydney Metro Northwest Priority Precincts (Showground, Bella Vista and Kellyville)

Draft Plans for the Sydney Metro Northwest Priority Precincts (Showground, Bella Vista and Kellyville) are currently being exhibited by the Department of Planning and Environment.

The draft Plans outline the vision for the Priority Precincts with respect to residential and employment growth, open space, retail and community facilities, built form and connectivity and sustainability. The draft Plans include proposed zonings, building heights, floor space ratios and Development Control Plans for each Precinct. The exhibition material also includes a number of specialist studies which have informed the proposed outcomes within each Precinct.

The draft Plans are on exhibition until 28 February 2016. The exhibition materials can be viewed on the Department of Planning and Environment website at the following link:

http://planspolicies.planning.nsw.gov.au/index.pl?action=job_listing&status=exhibition

ATTACHMENT 2(B)

Zone R2 Low Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To maintain the existing low density residential character of the area.

2 Permitted without consent

Home business; Home occupations

3 Permitted with consent

Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Dual occupancies; Dwelling houses; Group homes; Health consulting rooms; Home-based child care; Roads; Any other development not specified in item 2 and 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies.

NOTE: This land use table should be read in conjunction with the Dictionary at the end of The Hills LEP 2012 which defines words and expressions for the purpose of the plan.

ATTACHMENT 2(B1)

A **proposed environmental planning instrument** applies to the land and identifies the land to be:

Zone R2 Low Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To maintain the existing low density residential character of the area.

2 Permitted without consent

Home business; Home occupations

3 Permitted with consent

Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Dual occupancies; Dwelling houses; Group homes; Health consulting rooms; Home-based child care; Roads; Any other development not specified in item 2 and 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies.

NOTE: This land use table should be read in conjunction with the Dictionary at the end of The Hills LEP 2012 which defines words and expressions for the purpose of the plan.

THE HILLS Sydney's Garden Shire

THE HILLS SHIRE COUNCIL
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Email council@thehills.nsw.gov.au
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DX 9966 Norwest
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PLANNING CERTIFICATE UNDER SECTION 149 (2) & (5)

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AS AMENDED.

Certificate Number:	**56978**
Reference:	E28861KD MD:66632
Issue Date:	23 March 2016
Receipt No:	5139390
Fee Paid:	$ 133.00

ADDRESS:	23A Fairway Drive, KELLYVILLE NSW 2155
DESCRIPTION:	Lot 502 DP 1130020

The land is zoned:
Zone R2 Low Density Residential

The following prescribed matters apply to the land to which this certificate relates:

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

THIS CERTIFICATE IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 149 (2) OF THE ABOVE ACT.

1. Names of relevant planning instruments and DCPs

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

(A) **Local Environmental Plans**

The Hills Local Environmental Plan 2012, as amended, applies to all land in the Shire unless otherwise stated in this certificate.

State Environmental Planning Policies

SEPP No.19 - Bushland In Urban Areas
SEPP No.21 - Caravan Parks
SEPP No.30 - Intensive Agriculture
SEPP No.33 - Hazardous And Offensive Development
SEPP No.50 - Canal Estate Development
SEPP No.55 - Remediation Of Land
SEPP No.62 - Sustainable Aquaculture
SEPP No.64 - Advertising And Signage
SEPP No.65 - Design Quality Of Residential Flat Development
SEPP No.70 - Affordable Housing (Revised Schemes)
SEPP (Building Sustainability Index: Basix) 2004
SEPP (Major Development) 2005
SEPP (Mining, Petroleum Production And Extractive Industries) 2007
SEPP (Miscellaneous Consent Provisions) 2007
SEPP (Infrastructure) 2007
SEPP (Exempt and Complying Development Codes) 2008
SEPP (Affordable Rental Housing) 2009
SEPP (State and Regional Development) 2011
Sydney Regional Environmental Plan No. 9 Extractive Industries (No.2) - Amendment No.1
Sydney Regional Environmental Plan No. 20 Hawkesbury – Nepean River (No.2 – 1997)

The following SEPP's may apply to the land. Please refer to **'Land to which Policy applies'** for each individual SEPP.

SEPP (Housing For Seniors Or People With A Disability) 2004
SEPP No.32 – Urban Consolidation (Redevelopment of Urban Land)

(2) The name of each **proposed environmental planning instrument** that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

(A) **Proposed Local Environmental Plans**

Proposed The Hills Local Environmental Plan 2012 (Amendment No.) applies to this land.

Refer Attachment 1(2)(A)

(B) **Proposed State Environmental Planning Policies**

Draft State Environmental Planning Policy (Competition).

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

The Hills Development Control Plan 2012
Note: the land is within The Hills Development Control Plan 2012 Part D map sheet. Refer Council's website www.thehills.nsw.gov.au to view the map sheet.

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

2. Zoning and land use under relevant LEPs

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

(A) The Hills Local Environmental Plan 2012 applies to the land unless otherwise stated in this certificate and identifies the land to be:

Zone R2 Low Density Residential

A Planning Proposal applies to the land and identifies the land to be:

Zone R3 Medium Density Residential

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(B) The purposes for which the instrument provides that development may be carried out within the zone without development consent:

Refer Attachment 2(B) and 2(B)(1)

Also refer to the applicable instrument for provisions regarding Exempt Development

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(C) The purposes for which the instrument provides that development may not be carried out within the zone except with development consent:

Refer Attachment 2(B) and 2(B)(1)

Also refer to the applicable instrument for provisions regarding Complying Development

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

(D) The purposes for which the instrument provides that development is prohibited in the zone:

Refer Attachment 2(B)
and 2(B)(1)

Also refer Attachment 1 (2)(A) for proposed amendment to The Hills Local Environmental Plan 2012

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

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

YES

Clause 4.1B of The Hills Local Environmental Plan 2012 provides, in part, minimum land dimensions for the erection of a dwelling house on land zoned R3 Medium Density Residential or R4 High Density Residential where it is undertaken as a single development application in conjunction with the subdivision of land.

(F) Whether the land includes or comprises critical habitat?

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

(G) Whether the land is in a conservation area (however described)?

The Hills Local Environmental Plan 2012?

NO

Any Other Planning Proposal?

NO

(H) Whether an item of environmental heritage (however described) is situated on the land?

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

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

To the extent that the land is within any zone (however described) under:

(a) Part 3 of the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the 2006 SEPP), or*

(b) a Precinct Plan (within the meaning of the 2006 SEPP), or

(c) a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the ACT.

(A) State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan) applies to the land unless otherwise stated in this certificate and identifies the land to be:

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan) does not apply.

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan) applies to the land unless otherwise stated in this certificate and identifies the land to be:

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan) does not apply.

Note: This precinct plan applies to land within the Box Hill Precinct or Box Hill Industrial Precinct.

(B) The purposes for which the instrument provides that development may be carried out within the zone without development consent:

Refer Attachment 2(B)

Also refer to the applicable instrument for provisions regarding Exempt Development.

(C) The purposes for which the instrument provides that development may not be carried out within the zone except with development consent:

Refer Attachment 2(B)

Also refer to the applicable instrument for provisions regarding Complying Development

(D) The purposes for which the instrument provides that development is prohibited in the zone:

Refer Attachment 2(B)

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

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

Any amendments to State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

Any amendments to State Environmental Planning Policy (Sydney Region Growth Centres 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(F) Whether the land includes or comprises critical habitat?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(G) Whether the land is in a conservation area (however described)?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

(H) Whether an item of environmental heritage (however described) is situated on the land?

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct Plan)?

NO

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 11 The Hills Growth Centre Precincts Plan)?

NO

3. Complying Development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code and Rural Housing Code
Complying Development under the General Housing Code and Rural Housing Code **may be** carried out on the land.

Housing Alterations Code and General Development Code
Complying Development under the Housing Alterations Code and General Development Code **may be** carried out on the land.

Commercial and Industrial (New Buildings and Additions) Code
Complying Development under the Commercial and Industrial (New Buildings and Additions) Code **may be** carried out on the land.

Commercial and Industrial Alterations, Subdivision, Demolition and Fire Safety Codes
Complying Development under the Commercial and Industrial Alterations, Subdivision, Demolition and Fire Safety Codes **may be** carried out on the land.

Note: Where reference is made to an applicable map, this information can be sourced from the following websites:

The Hills Local Environmental Plan 2012 - www.thehills.nsw.gov.au
State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Appendix 2 North Kellyville Precinct) or (Appendix 11 The Hills Growth Centre Precincts Plan) – www.planning.nsw.gov.au

4. Coastal protection

Whether or not the land is affected by the operation of Section 38 or 39 of the *Coastal Protection Act 1979*, but only to the extent that the council has been so notified by the Department of Finance, Services, and Innovation?

NO

4A. Certain information relating to beaches and coasts

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

NO

(2) In relation to a coastal council:

(a) whether the council has been notified under section 55X of the *Coastal Protection Act 1979* that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

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

NO

(3) (Repealed)

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

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

NO

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

5. Mine subsidence

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

NO

6. Road widening and road realignment

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

(A) Division 2 of Part 3 of the *Roads Act 1993*; or

NO

(B) any environmental planning instrument; or

NO

(C) any resolution of council?

a) The Hills Development Control Plan 2012?

YES

The Hills Development Control Plan 2012 identifies the land as being affected by a proposed road or road widening. Refer Part 1(3) of this certificate for the applicable map sheet.

b) Any other resolution of council?

NO

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

Whether or not the land is affected by a policy:

(a) adopted by council, or

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding)?

Council's policies on hazard risk restrictions are as follows:

(i) Landslip

a) By The Hills Local Environmental Plan 2012 zoning?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

b) By The Hills Local Environmental Plan 2012 local provision?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

c) By The Hills Development Control Plan 2012 provision?

NO

No resolution has been adopted but attention is directed to the fact that there are areas within the Shire liable to landslip.

(ii) Bushfire

YES

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by bushfire. That question is answered in Section 11 of this certificate.

Council has adopted the NSW Rural Fire Service Guidelines entitled 'Planning for Bushfire Protection 2006'. Development subject to bushfire risk will be required to address the requirements in these guidelines and can be downloaded off the RFS web site www.rfs.nsw.gov.au

The Development Control Plan may also contain provisions for development on Bushfire Prone Land and Bushfire Hazard Management. Refer Part 1(3) of this certificate for the applicable Development Control Plan.

(iii) Tidal inundation

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by tidal inundation.

(iv) Subsidence

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by subsidence.

(v) Acid sulphate soils

NO

(vi) Land contamination

NO

Please note this is a statement of Council policy only and NOT a statement on whether or not the property is affected by contamination or potential contamination.

(vii) Any other risk

NO

7A. Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls?

NO

Please note this is a statement of flood related development controls and is NOT a statement on whether or not the property is subject to flooding.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls?

NO

Please note this is a statement of flood related development controls and is NOT a statement on whether or not the property is subject to flooding.

(3) Words and expressions in this clause have the same meanings as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

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

The Hills Local Environmental Plan 2012?

NO

Any other Planning Proposal?

NO

State Environmental Planning Policy?

NO

Proposed State Environmental Planning Policy?

NO

9. Contributions plans

The name of each contributions plan applying to the land:

12 - BALMORAL RD EAST PRCT

9A. Biodiversity Certified Land

Whether the land is biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*?

NO

10. Biobanking Agreements

Whether the land is land to which a biobanking agreement under part 7A of the *Threatened Species Conservation Act 1995* relates, (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage)?

NO

11. Bush fire prone land

Has the land been identified as bush fire prone land?

NO

12. Property vegetation plans

Has the council been notified that a property vegetation plan under the *Native Vegetation Act 2003* applies to this land?

NO

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

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

NO

14. Directions under Part 3A

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

NO

15. Site compatibility certificates and conditions for seniors housing

(a) Whether there is a current site compatibility certificate (seniors housing) of which council is aware, issued under *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* in respect of proposed development on the land?

NO

(b) Whether there are any terms of a kind referred to in clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land?

NO

16. Site compatibility certificates for infrastructure

Whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land?

NO

17. Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land?

NO

(2) Whether there are any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land?

NO

18. Paper subdivision information

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

NO DEVELOPMENT PLAN APPLIES

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

NO SUBDIVISION ORDER APPLIES

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. Site verification certificates

Whether there is a current site verification certificate, of which the council is aware, in respect of the land?

NO

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

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

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

NO

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act – if it is subject to such an order at the date when the certificate is issued,

NO

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act – if it is the subject of such an approved proposal at the date when the certificate is issued,

NO

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of the Act – if it is subject to such an order at the date when the certificate is issued,

NO

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of the Act – if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

NO

Note: Whether Council has been provided with a copy of any exemption under section 23 or authorisation by the Co-ordinator General under section 24 of the *Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009*?

NO

THIS PART IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 149 (5) OF THE ABOVE ACT

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

A. Whether there are any provisions applying to the land that control the management of trees and bushland?

YES

Clause 5.9 and 5.9AA of The Hills Local Environmental Plan 2012 and Part C Section 3 of The Hills Development Control Plan 2011 contain provisions for the control and management of actions in respect of trees and bushland.

B. Does the land contain a foreshore area as identified on The Hills Local Environmental Plan 2012 Foreshore Building Line map?

NO

C. Under the Protection of the Environment Operations Act 1997, is the property subject to a listing on the public register maintained by council with respect to an environmental notice or civil proceedings in the Land and Environment Court, or a prosecution under this Act?

NO

D. Is the land affected by any special provisions of Sydney Regional Environmental Plan No 9 – Extractive Industry (No 2 – 1995)?

NO

E. Is the land affected by a restricted development area as identified under The Hills Development Control Plan 2012?

NO

F. Is the land within an area where a Special Infrastructure Contribution, as determined by the Minister for Planning and Infrastructure, applies?

YES

The land is within the Special Infrastructure Contribution – Western Sydney Growth Areas under the *Environmental Planning and Assessment Act 1979*.

Refer to the Department of Planning and Infrastructure for further information
www.planning.nsw.gov.au

G. Is the land in the vicinity of a heritage item or heritage conservation area as described in The Hills Local Environmental Plan 2012 **OR** State Environmental Planning Policy (Sydney Region Growth Centres) 2006?

NO

H. Whether Council has adopted a Voluntary Planning Agreement within the meaning of S93F of the Environmental Planning and Assessment Act, 1979, as amended, in relation to the land?

NO

I. Is the land within or adjacent to the North West Rail Link as identified on the maps prepared by Transport NSW?

NO

J. Is the land within or adjacent to the Parramatta to Epping Rail Link as identified on the maps prepared by Transport NSW?

NO

K. Does the land contain a proposed road as identified within a Development Control Plan under State Environmental Planning Policy (Sydney Region Growth Centres) 2006?

NO

L. Has Council been notified by NSW Land and Property Information that the land is affected by a plan of proposed acquisition for railway purposes (North West Rail Link)?

NO

THE HILLS SHIRE COUNCIL

DAVE WALKER
GENERAL MANAGER

Per:

PLEASE NOTE: COUNCIL RETAINS THE ELECTRONIC ORIGINAL OF THIS CERTIFICATE. WHERE THIS CERTIFICATE REFERS TO INFORMATION DISPLAYED ON COUNCIL'S WEBSITE OR TO ANY EXTERNAL WEBSITE, IT REFERS TO INFORMATION DISPLAYED ON THE WEBSITE ON THE DATE THIS CERTIFICATE IS ISSUED.

ATTACHMENT 1(2)(A)

Sydney Metro Northwest Priority Precincts (Showground, Bella Vista and Kellyville)

Draft Plans for the Sydney Metro Northwest Priority Precincts (Showground, Bella Vista and Kellyville) are currently being exhibited by the Department of Planning and Environment.

The draft Plans outline the vision for the Priority Precincts with respect to residential and employment growth, open space, retail and community facilities, built form and connectivity and sustainability. The draft Plans include proposed zonings, building heights, floor space ratios and Development Control Plans for each Precinct. The exhibition material also includes a number of specialist studies which have informed the proposed outcomes within each Precinct.

The draft Plans are on exhibition until 28 February 2016. The exhibition materials can be viewed on the Department of Planning and Environment website at the following link:

http://planspolicies.planning.nsw.gov.au/index.pl?action=job_listing&status=exhibition

ATTACHMENT 2(B)

Zone R2 Low Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To maintain the existing low density residential character of the area.

2 Permitted without consent

Home business; Home occupations

3 Permitted with consent

Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Dual occupancies; Dwelling houses; Group homes; Health consulting rooms; Home-based child care; Roads; Any other development not specified in item 2 and 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies.

NOTE: This land use table should be read in conjunction with the Dictionary at the end of The Hills LEP 2012 which defines words and expressions for the purpose of the plan.

ATTACHMENT 2(B1)

A **proposed environmental planning instrument** applies to the land and identifies the land to be:

Zone R3 Medium Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To encourage medium density residential development in locations that are close to population centres and public transport routes.

2 Permitted without consent

Home businesses; Home occupations.

3 Permitted with consent

Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Group homes; Home-based child care; Multi dwelling housing; Neighbourhood shops; Places of public worship; Respite day care centres; Roads; Seniors housing; Any other development not specified in item 2 or 4.

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems**;** Wharf or boating facilities; Wholesale supplies.

NOTE: This land use table should be read in conjunction with the Dictionary at the end of The Hills LEP 2012 which defines words and expressions for the purpose of the plan.

Appendix B: Borehole Logs

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BOREHOLE LOG

Borehole No. **1** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 75.1m

Date: 2&5-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 5 HRS						0			FILL: Clayey silt topsoil, low plasticity, brown, with fine grained ironstone and shale gravel, roots and root fibres, trace of ash and timber fragments.	MC<PL			GRASS COVER
					N = 21 6,9,12			CH	SILTY CLAY: high plasticity, red brown and light grey mottled brown, trace of root fibres, fine grained ironstone gravel and ash.	MC<PL	H	>600	RESIDUAL
						1		-	SHALE: dark brown and red brown.	DW	M-H		MODERATE 'TC' BIT RESISTANCE WITH HIGH BANDS
						2			as above, but grey and dark brown.				
						3					M		LOW TO MODERATE RESISTANCE
						4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **2** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 72.7m

Date: 2-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 4.5 HRS						0			FILL: Clayey silt topsoil, low plasticity, brown, with fine grained ironstone and shale gravel, roots and root fibres, trace of ash.	MC<PL			GRASS COVER
					N = 21 8,12,9			CH	SILTY CLAY: high plasticity, light grey and orange brown, trace of root fibres, fine grained ironstone gravel and ash.	MC<PL	H	>600 >600 >600	RESIDUAL
						1		-	SHALE: grey and red brown, with H strength bands.	DW	L-M		LOW TO MODERATE 'TC' BIT RESISTANCE WITH HIGH BANDS LOW RESISTANCE WITH MODERATE BANDS
						2							
						3			SHALE: dark grey and grey.	SW	M-H		MODERATE RESISTANCE
						4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **3** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 70.8m

Date: 2-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 4 HRS	■			■		0			FILL: Clayey silt topsoil, low plasticity, brown, with fine grained ironstone gravel, fine to medium grained igneous gravel, roots and root fibres, trace of ash.	MC<PL			GRASS COVER
				■	N = 17 7,8,9			CH	SILTY CLAY: high plasticity, light grey, red brown and orange brown, with fine grained ironstone gravel, trace of root fibres and ash.	MC<PL	H	>600 >600 >600	RESIDUAL
	■			■	N > 3 13,3/10mm REFUSAL	1							
						2		-	SHALE: dark grey and dark brown.	DW	L-M		LOW TO MODERATE 'TC' BIT RESISTANCE
						3							
				■						SW	M--H		MODERATE RESISTANCE
				■		4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **4** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 79.1m

Date: 2-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 5.5 HRS	■					0			FILL; Clayey silt topsoil, low plasticity, brown, with roots and root fibres, fine grained ironstone gravel, trace of ash.	MC<PL			GRASS COVER
								CH	SILTY CLAY: high plasticity, red brown and light grey, with fine grained ironstone gravel, trace of root fibres and ash.	MC<PL	(H)		RESIDUAL
	■			■	N > 26 12,26/ 130mm	1		-	SHALE: dark grey and dark brown.	DW	M-H		MODERATE 'TC' BIT RESISTANCE
					REFUSAL						M		LOW TO MOIDERATE RESISTANCE
				■		2							
						3							
				■		4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **5** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 74.8m

Date: 2-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■			■		0			FILL: Clayey silt topsoil, low plasticity, brown, with roots and root fibres, trace of fine grained ironstone gravel and ash.	MC<PL			GRASS COVER
					N = 21 5,9,12			CH	SILTY CLAY: high plasticity, light grey mottled light orange and brown.	MC<PL	H	>600 >600 >600	RESIDUAL
	■			■		1		-	SHALE: dark grey and dark brown, with H strength iron indurated bands.	DW	M		MODERATE 'TC' BIT RESISTANCE
				■		2							
									END OF BOREHOLE AT 2.3m				'TC; BIT REFUSAL
						3							
						4							
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **6** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 71.2m

Date: 2&5-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION & AFTER 1 HR						0			FILL: Clayey silt topsoil, low plasticity, brown, with roots root fibres, with fine grained ironstone gravel, trace of ash.	MC<PL			GRASS COVER
					N = 27 6,10,17	1		CH	SILTY CLAY: high plasticity, light grey mottled light orange and red brown, with fine grained ironstone gravel, trace of root fibres and ash.	MC<PL	H	>600 >600 >600	RESIDUAL
					N > 19 5,9,10/ 50mm							420 >600	
					REFUSAL	2		-	SHALE: dark grey and brown.	DW	L-M		LOW TO MODERATE 'TC' BIT RESISTANCE
						3							
						4					M-H		MODERATE RESISTANCE
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **7** 1/1

Client: TKD ARCHITECTS
Project: PROPOSED BUILDING
Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH
Date: 3-11-15
Method: SPIRAL AUGER JK300
Logged/Checked by: M.T./A.J.H.
R.L. Surface: ≈ 77.6m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Clayey silt topsoil, low plasticity, brown, with roots root fibres, trace of fine grained ironstone gravel and ash.	MC<PL			GRASS COVER
								CH	SILTY CLAY: high plasticity, orange brown, trace of roots, fine grained ironstone gravel and ash.	MC<PL	(H)		RESIDUAL
					N = SPT 13/70mm REFUSAL			-	SHALE: dark grey and brown.	DW	H		MODERATE 'TC' BIT RESISTANCE
						1					M		LOW RESISTANCE WITH MODERATE BANDS
						2							
						3							
						4					M-H		MODERATE TO HIGH RESISTANCE
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **8** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 72.2m

Date: 2-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■			■		0			FILL: Clayey silt topsoil, low to medium plasticity, brown, with roots and root fibres, trace of fine grained ironstone gravel and ash,	MC≈PL			GRASS COVER
				■	N = 7 3,3,4			CH	SILTY CLAY: high plasticity, orange brown, trace of root fibres, fine grained ironstone gravel and ash.	MC≈PL	VSt	220 350 350	RESIDUAL
	■					1							
				■	N = 26 5,11,15				as above, but light grey, light orange and red brown.		H	460 450 490	
						2							
								-	SHALE: dark brown and dark grey.	DW	L-M		MODERATE 'TC' BIT RESISTANCE
				■		3					M-H		MODERATE TO HIGH RESISTANCE
						4					H		HIGH RESISTANCE
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **9** 1/1

Client: TKD ARCHITECTS
Project: PROPOSED BUILDING
Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 70.3m
Date: 3-11-15 **Datum:** AHD
Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■					0			FILL: Clayey silt topsoil, low plasticity, brown, with roots and root fibres, trace of ash.	MC≈PL			GRASS COVER
	■				N = 10 5,4,6	1		CH	SILTY CLAY: high plasticity, red brown and light grey, trace of root fibres, coarse grained ironstone gravel, ash and XW shale bands.	MC≈PL	VSt-H	320 360 >600	RESIDUAL BANDS OF VERY LOW 'TC' BIT RESISTANCE
				■	N > 5 11,5/50mm REFUSAL	2		-	SHALE: dark grey and grey brown.	DW	L-M M-H		LOW TO MODERATE RESISTANCE MODERATE TO HIGH RESISTANCE
				■		3					H		HIGH RESISTANCE
				■		4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **10** 1/1

Client: TKD ARCHITECTS
Project: PROPOSED BUILDING
Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH
Date: 3-11-15
Method: SPIRAL AUGER JK300
Logged/Checked by: M.T./A.J.H.
R.L. Surface: ≈ 75.2m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Clayey silt topsoil, low plasticity, brown, with roots and root fibres, trace of fine grained ironstone gravel and ash,	MC≈PL			GRASS COVER
					N = 11 5,5,6	1		CH	SILTY CLAY: high plasticity, light grey mottled orange brown, with fine grained ironstone gravel and ash.	MC≈PL	H	430 450 500	RESIDUAL
					N = SPT 16/50mm				as above, with ironstone gravel bands.				
						2		-	SHALE: dark grey and grey, trace of iron induration.	DW	M		LOW TO MODERATE 'TC' BIT RESISTANCE
						3							
						4					M-H		MODERATE RESISTANCE
									END OF BOREHOLE AT 4.3m				'TC' BIT REFUSAL
						5							
						6							
						7							

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. **11** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 70.7m

Date: 3-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■					0			FILL: Clayey silt topsoil, low plasticity, brown, with roots and root fibres, trace of fine grained ironstone gravel and ash.	MC≈PL			GRASS COVER
								CH		MC≈PL	H		RESIDUAL
	■				N = 10 5,4,6	1			SILTY CLAY: high plasticity, brown, light grey and red brown, trace of roots, fine grained ironstone gravel and ash.			520 550 >600	
				■	N = 26 5,8,18	2		-	SHALE: dark grey, red brown and grey brown.	DW	L-M	420 500 >600	LOW TO MODERATE 'TC' BIT RESISTANCE
				■		3					H		HIGH RESISTANCE
									END OF BOREHOLE AT 3.6m				'TC' BIT REFUSAL
						4							
						5							
						6							
						7							

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BOREHOLE LOG

Borehole No. **12** 1/1

Client: TKD ARCHITECTS

Project: PROPOSED BUILDING

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. 28861ZH **Method:** SPIRAL AUGER JK300 **R.L. Surface:** ≈ 66.9m

Date: 3&5-11-15 **Datum:** AHD

Logged/Checked by: M.T./A.J.H.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Clayey silt topsoil, low to medium plasticity, brown, with roots and root fibres, trace of ash and fine grained ironstone gravel.	MC≈PL			GRASS COVER
					N = 27 10,14,13			CL	SILTY CLAY: low to medium plasticity, orange brown, with fine grained ironstone gravel, trace of roots and ash,	MC≈PL	(H)		RESIDUAL SLIGHT ORGANIC ODOUR
					N = SPT 10/50mm REFUSAL	1							
						2		-	SHALE: dark grey and brown.	DW	L-M		LOW TO MODERATE 'TC' BIT RESISTANCE
											M-H		MODERATE RESISTANCE
						3							
												H	HIGH RESISTANCE
						4							
									END OF BOREHOLE AT 4.5m				
						5							
						6							
						7							

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REPORT EXPLANATION NOTES

INTRODUCTION

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

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

DESCRIPTION AND CLASSIFICATION METHODS

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

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

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2mm
Gravel	2 to 60mm

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

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

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

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

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

SAMPLING

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

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

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

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

INVESTIGATION METHODS

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

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

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

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

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

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from "feel" and rate of penetration.

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

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

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" – Test F3.1.

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

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N>30
  15, 30/40mm

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

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

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

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

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

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

The information provided on the charts comprise:

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

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

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

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

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

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

Two relatively similar tests are used:

- Cone penetrometer (commonly known as the Scala Penetrometer) – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS1289, Test F3.2). The test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various Road Authorities.
- Perth sand penetrometer – a 16mm diameter flat ended rod is driven with a 9kg hammer, dropping 600mm (AS1289, Test F3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.

LOGS

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

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

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

GROUNDWATER

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

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or ‘reverted’ chemically if water observations are to be made.

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

FILL

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

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

LABORATORY TESTING

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

ENGINEERING REPORTS

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building) the information and interpretation may not be relevant if the design proposal is changed (eg to a twenty storey building). If this happens, the company will be pleased to review the report and the sufficiency of the investigation work.

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

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

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

SITE ANOMALIES

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

REPRODUCTION OF INFORMATION FOR CONTRACTUAL PURPOSES

Attention is drawn to the document *'Guidelines for the Provision of Geotechnical Information in Tender Documents'*, published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

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

REVIEW OF DESIGN

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

SITE INSPECTION

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

Requirements could range from:

i) a site visit to confirm that conditions exposed are no worse than those interpreted, to

ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or

iii) full time engineering presence on site.

GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS

SOIL

FILL

TOPSOIL

CLAY (CL, CH)

SILT (ML, MH)

SAND (SP, SW)

GRAVEL (GP, GW)

SANDY CLAY (CL, CH)

SILTY CLAY (CL, CH)

CLAYEY SAND (SC)

SILTY SAND (SM)

GRAVELLY CLAY (CL, CH)

CLAYEY GRAVEL (GC)

SANDY SILT (ML)

PEAT AND ORGANIC SOILS

ROCK

CONGLOMERATE

SANDSTONE

SHALE

SILTSTONE, MUDSTONE, CLAYSTONE

LIMESTONE

PHYLLITE, SCHIST

TUFF

GRANITE, GABBRO

DOLERITE, DIORITE

BASALT, ANDESITE

QUARTZITE

DEFECTS AND INCLUSIONS

CLAY SEAM

SHEARED OR CRUSHED SEAM

BRECCIATED OR SHATTERED SEAM/ZONE

IRONSTONE GRAVEL

ORGANIC MATERIAL

OTHER MATERIALS

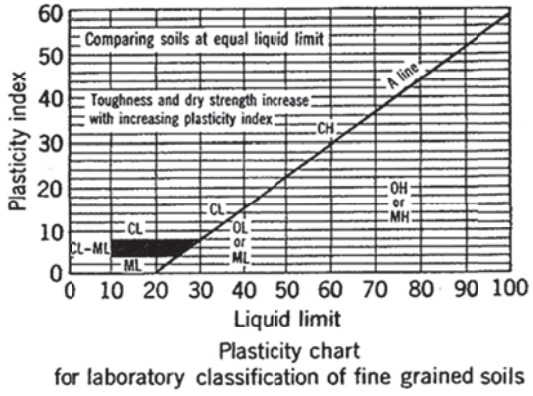
CONCRETE

BITUMINOUS CONCRETE, COAL

COLLUVIUM

UNIFIED SOIL CLASSIFICATION TABLE

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



Plasticity chart
for laboratory classification of fine grained soils

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

LOG SYMBOLS

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

LOG SYMBOLS continued

ROCK MATERIAL WEATHERING CLASSIFICATION

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

ROCK STRENGTH

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

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

ABBREVIATIONS USED IN DEFECT DESCRIPTION

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

ENVIRONMENTAL INVESTIGATION SERVICES

CONSULTING ENVIRONMENTAL ENGINEERS

EIS

Borehole No.
101
1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ironstone gravel.	MC<PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, ash, trace of root fibres.	MC<PL			
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **102** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC<PL			GRASS COVER
								CL-CH	SILTY CLAY: medium to high plasticity, red brown, trace of ash and root fibres.	MC≈PL			
	■		■			0.5							
								CH	SILTY CLAY: high plasticity, brown mottled grey.	MC<PL			
	■		■			1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **103** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low plasticity, brown, with fine grained ironstone bands.	MC<PL			
	■		■			0.5		CH	SILTY CLAY: high plasticity, red brown mottled grey.	MC≈PL			
	■		■			1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **104** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low plasticity, brown, trace of root fibres.	MC<PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, ash, trace of root fibres.	MC<PL			
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **105** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			GRASS COVER
								CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			
	■		■			0.5							
						1			SILTY CLAY: high plasticity, brown mottled grey orange.				
									END OF BOREHOLE AT 1.0m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **106** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION						0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres.	MC<PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, red brown, trace of root fibres.	MC<PL			
						1			SILTY CLAY: high plasticity, brown mottled red brown.				
									END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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Borehole No. 107 **1/1**

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low plasticity, brown, trace of root fibres.	MC<PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			
									END OF BOREHOLE AT 0.7m				EZIPROBE REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **108** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 5-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres.	MC≈PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, brown mottled red grey, with fine to medium grained ironstone gravel.	MC<PL			
									END OF BOREHOLE AT 0.8m				EZIPROBE REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **109** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low plasticity, brown, trace of root fibres and ash.	MC<PL			GRASS COVER
	■		■					CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, trace of ash and root fibres.	MC<PL			
						0.5							
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **110** **1/1**

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Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres.	MC<PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, trace of ash and root fibres.	MC≈PL			
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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Borehole No. 111 **1/1**

ENVIRONMENTAL LOG

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Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ironstone gravel.	MC<PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel, trace of ash and root fibres.	MC<PL			
						1			END OF BOREHOLE AT 1.0m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **112** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC<PL			GRASS COVER
								CH	SILTY CLAY: high plasticity, red brown, trace of root fibres.	MC<PL			
	■		■			0.5							
	■		■						SILTY CLAY: high plasticity, grey brown, with fine to medium grained ironstone gravel bands.				
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **113** **1/1**

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Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty gravel, fine to medium grained igneous gravel.	D			
	■		■			0.5		CH	SILTY CLAY: high plasticity. red brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			
						1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **114** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 5-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of ash and root fibres.	MC≈PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown mottled red grey, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			
						1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **115** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			ASPHALTIC CONCRETE: 100mm.t				
								-	FILL: Sand, fine grained, grey, with fine grained igneous gravel.	D			
								-	ASPHALTIC CONCRETE: 100mm.t				
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **116** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low plasticity, brown, trace of root fibres and ash.	MC<PL			GRASS COVER
	■		■			0.5							
						1							
	■		■					CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel.	MC≈PL			
									SILTY CLAY: high plasticity, brown grey, with fine to medium grained ironstone gravel.	MC<PL			
	■		■			1.5							
									END OF BOREHOLE AT 1.6m				EZIPROBE REFUSAL
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **117** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay, low plasticity, brown, with fine to medium grained ironstone gravel, trace of ash and root fibres.	MC<PL			GRASS COVER
						0.5							
									FILL: Silty clay, medium plasticity, brown mottled red, trace of ash and plastic.	MC≈PL			
						1							
								CH	SILTY CLAY: high plasticity, red brown mottled grey, with fine to medium grained ironstone gravel.	MC<PL			
						1.5			END OF BOREHOLE AT 1.5m				EZIPROBE REFUSAL
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **118** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, with fine to medium grained ironstone gravel, trace of root fibres.	MC<PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown, with fine to medium grained ironstone gravel, trace of ash.	MC≈PL			
						1			END OF BOREHOLE AT 0.9m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **119** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres.	MC<PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown mottled red.	MC≈PL			
	■		■						SILTY CLAY: high plasticity, grey, with fine to medium grained ironstone gravel.	MC<PL			
						1			END OF BOREHOLE AT 1.0m				EZIPROBE REFUSAL
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **120** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC≈PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown mottled red, trace of root fibres and ash.	MC<PL			
	■		■			1			SILTY CLAY: high plasticity, brown mottled grey.				
									END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **121** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 6-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC<PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, brown mottled grey orange.	MC<PL			
						1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **122** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 5-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC≈PL			GRASS COVER
						0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel bands, trace of ash.	MC<PL			
									END OF BOREHOLE AT 0.7m				EZIPROBE REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **123** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 5-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC≈PL			GRASS COVER
	■		■			0.5		CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel bands, trace of ash.	MC<PL			
									END OF BOREHOLE AT 0.8m				EZIPROBE REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No. **124** **1/1**

Environmental logs are not to be used for geotechnical purposes

Client: TKD ARCHITECTS

Project: PROPOSED SCHOOL

Location: 21-23 FAIRWAY DRIVE, KELLYVILLE, NSW

Job No. E28861KD **Method:** EZIPROBE **R.L. Surface:** N/A

Date: 5-4-16 **Datum:**

Logged/Checked by: A.S./M.D.

Groundwater Record	SAMPLES ES	SAMPLES ASS	SAMPLES ASB	SAMPLES SAL	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION	■		■			0			FILL: Silty clay topsoil, low to medium plasticity, brown, trace of root fibres and ash.	MC≈PL			GRASS COVER
								CH	SILTY CLAY: high plasticity, red brown, with fine to medium grained ironstone gravel bands, trace of ash.	MC<PL			
	■		■			0.5							
						1			END OF BOREHOLE AT 1.0m				
						1.5							
						2							
						2.5							
						3							
						3.5							

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