ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

ALLEN JACK + COTTIER ARCHITECTS

ON

PRELIMINARY SITE INVESTIGATION (PSI)

FOR

LORETO NORMANHURST GIRLS SCHOOL MASTER PLAN

AT

LORETO NORMANHURST GIRLS SCHOOL, 91-93 PENNANT HILLS ROAD, NORMANHURST, NSW

30 APRIL 2019 **REF: E31772KLrpt3**

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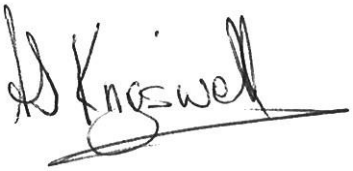

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Principal Consultant

EXECUTIVE SUMMARY

Allen Jack + Cottier ('the client') commissioned Environmental Investigation Services (EIS) to undertake a Preliminary Site Investigation (PSI) for the proposed Master Plan for Loreto Normanhurst Girls School, 91-93 Pennant Hills Road, Normanhurst. The site location is shown on Figure 1 and the assessment was confined to the site boundaries as shown on Figure 3. The proposed Master Plan development area is referred to as 'the site' in this report.

EIS undertook a Preliminary Site Investigation (EIS Ref: E31772KLrpt, dated 24 October 2018) at the site that was limited to the proposed development areas that occupied the north-eastern section of the property and area known as the Boarding House and Early Learning Centre, as shown on Figure 2.

For the purpose of this report, the data collected for the previous investigation will be referenced and assessed in light of Loreto Normanhurst School in its entirety. This data was supplemented with additional site history information and a site walkover inspection of the entire school. The outline of the proposed Master Plan is shown on Figure 3.

Proposed development details

From the information provided by the client, EIS understands the Loreto Normanhurst Girls School Concept Master Plan has outlined the concept plans for the following future works:

- Section 1 included the construction of a boarding house located on the eastern boundary of the school. It is proposed that the new building will comprise four levels including two partial basement levels. The building will be cut into the existing batters to the north and east elevations to create the two partial basement levels for car parking and common areas.
- Section 2 includes the upgrading of a 5,600m^2 area of the senior school located on the north western boundary. Six buildings are to be upgraded within the whole area.
- Section 3 includes the construction of new building within a 1,800m^2 area located in the northern section.
- Section 4 includes the upgrading of a 4,300m^2 area of the junior school located on the western boundary of the school. Two buildings are to be upgraded.
- Section 5 includes the Mary Ward Wing renovation located in the centre of the northern section of the school.
- Section 6 includes the upgrading of a 2,750m^2 area of the gymnasium located in the central northern section of the school.
- Section 7 includes the upgrading of Gonzaga Barry Centre Extension in an 1,100m^2 area located on the western boundary of the school.
- Section 8 includes the construction of an all-weather playing field and underground carpark within a 6,250m^2 area on the north western boundary of the school.
- Section 9 includes the construction of the Mount Pleasant pavilion within a 1,050m^2 area located on the western boundary of the school.
- Section 10 includes the construction of a Bush Chapel within a 200m^2 area of the forested space in the south western section of school.
- Section 11 includes an Early learning Centre located on the north eastern boundary of the school which is under another Development Application.
- Section 12 includes the construction of a pedestrian bridge link 150m^2 area between LRC and the Mary Ward Wing located in the centre of the northern section of the school.

EIS has previously undertaken a Preliminary Stage 1 Environmental Site Assessment (ESA) 1. The EIS 2019 ESA report made an assessment of the site history information for the school and identified potential on-site and off-site sources of contamination

Aims and Objectives

The assessment objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and use via a site walkover inspection;

- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM); and
- Assess the need for further investigation.

Scope of Work

The scope of work included the following:

- Review of existing site history information and previous EIS investigation reports;
- Review of the Normanhurst Girls School Concept Master Plan*;*
- A walkover site inspection; and
- Preparation of a PSI report specific to the Concept Master Plan, with reference to the NSW OEH Guidelines for Consultants Reporting on Contaminated Sites (2011), NEPM 2013 and other guidelines made under the Contaminated Land Management (CLM) Act 1997.

Background

EIS has previously conducted the following investigation at the site titled "*Report to TTW on Preliminary Site Investigation (PSI) for Proposed New School Buildings at Loreto Normanhurst Girls School, 91-93 Pennant Hills Road, Normanhurst, NSW"* (EIS Ref: E31772KLrpt, dated 24 October 2018[1]).

This investigation was undertaken at the site and was limited to the proposed development areas that occupy the north-eastern section of the property and are known as the Boarding House and Early Learning Centre, as shown on Figure 2. The proposed Boarding House area is included in Stage 1 of the Master Plan and the data collected from the previous investigation will be reviewed as part of this assessment.

Summary of Site History Information

- Pre-1933 – The majority of the site was vacant grassed land to the south with residential properties in the northern section of the site. The site had been owned by various individuals with professions that were unlikely to be associated with on-site activities;
- 1933 – The site was purchased by The Loreto Property Association; and
- 1933-2018 – The site has been operational as Loreto Normanhurst School since 1933 with construction and various additions to the school buildings during this time.

Conclusions and Recommendations

Based on the scope of work undertaken for this assessment, EIS identified the following potential contamination sources/AEC:

- Fill material - From the EIS 2018 investigation, fill material is known to be present at the site within the proposed boarding house (Site 1A). Elevated levels of contaminants were encountered within the fill material in this area. Other areas of the site appeared to have been historically filled to achieve existing levels;
- Use of Pesticides - Pesticides may have been used beneath the buildings and/or around the site; and
- Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, EIS are of the opinion that there is a moderate potential for site contamination.

Based on the potential contamination sources/AEC identified, and the potential for contamination, and the known contamination previously identified, further investigation of the contamination conditions is considered to be required.

Based on the findings of the preliminary investigation and subject to the recommendations below, EIS are of the opinion that the site can be made suitable for the proposed developments within the Loreto Normanhurst's Master Plan as described in Section 1.1.

[1] Referred to as EIS 2018 PSI

EIS recommend the implementation of Remediation Concept Plan (RCP) for the ongoing stages of work as outlined in the Master Plan. The RCP will include the following steps for all future stages of the development:

- Detailed Site Investigation (DSI) to be undertaken to better characterise the site contamination issues for each individual stage within the Master Plan; and
- Consultation with the Remediation Concept Plan to implement remediation strategies tailored for each stage making them suitable for their respective developments.

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

TABLE OF CONTENTS

ABBREVIATIONS

Asbestos Containing Material	**ACM**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminant(s) of Potential Concern	**CoPC**
Contaminated Land Management	**CLM**
Conceptual Site Model	**CSM**
Environmental Investigation Services	**EIS**
Environmental Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
International Organisation of Standardisation	**ISO**
Local Government Authority	**LGA**
Metres Below Ground Level	**mBGL**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Non-Aqueous Phase Liquid	**NAPL**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**
Remediation Action Plan	**RAP**
Sampling, Analysis and Quality Plan	**SAQP**
Site Audit Statement	**SAS**
Site Audit Report	**SAR**
Semi-Volatile Organic Compounds	**sVOC**
Standing Water Level	**SWL**
Total Recoverable Hydrocarbons	**TRH**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Volatile Organic Compounds	**VOC**
Work Health and Safety	**WHS**

1 INTRODUCTION

Allen Jack + Cottier ('the client') commissioned Environmental Investigation Services (EIS)[2] to undertake a Preliminary Site Investigation (PSI) for the proposed Master Plan at Loreto Normanhurst Girls School, 91-93 Pennant Hills Road, Normanhurst. The site location is shown on Figure 1 and the assessment was confined to the site boundaries as shown on Figure 3. The proposed Master Plan development area is referred to as 'the site' in this report.

EIS undertook a Preliminary Site Investigation (EIS Ref: E31772KLrpt, dated 24 October 2018[3]) at the site that was limited to the proposed development areas that occupied the north-eastern section of the property and are known as the Boarding House and Early Learning Centre, as shown on Figure 2.

For the purpose of this report, the data collected for the previous investigation will be referenced and assessed in light of Loreto Normanhurst School in its entirety. This data was supplemented with additional site history information and a site walkover inspection of the entire school. The outline of the proposed Master Plan is shown on Figure 3.

1.1 Proposed Development Details

From the information provided by the client, EIS understands the Loreto Normanhurst Girls School Concept Master Plan has outlined the concept plans for the following future works:

- Section 1 included the construction of a boarding house located on the eastern boundary of the school. It is proposed that the new building will comprise four levels including two partial basement levels. The building will be cut into the existing batters to the north and east elevations to create the two partial basement levels for car parking and common areas.
- Section 2 includes the upgrading 5,600m^2 area of the senior school located on the north western boundary. Six buildings are to be upgraded within the whole area.
- Section 3 includes the construction of new building within an area 1,800m^2 located in the northern section.
- Section 4 includes the upgrading 4,300m^2 area of the junior school located on the western boundary of the school. Two buildings are to be upgraded.
- Section 5 includes the Mary Ward Wing renovation located in the centre of the northern section of the school.
- Section 6 includes the upgrading of a 2,750m^2 area of the gymnasium located in the centre northern section of the school.
- Section 7 includes the upgrading of Gonzaga Barry Centre Extension in an area of 1,100m^2 located on the western boundary of the school.
- Section 8 includes the construction of an all-weather playing field and underground carpark within a 6,250m^2 area on the north western boundary of the school.

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

[3] Titled: "Report to Allen Jack & Cottier Architects on Preliminary Site Investigation at Loreto Normanhurst Master Plan

- Section 9 includes the construction of the Mount Pleasant pavilion within a 1,050m^2 area located on the western boundary of the school.
- Section 10 includes the construction of a Bush Chapel within a 200m^2 area of the forested space in the south western section of school.
- Section 11 includes an Early Learning Centre located on the north eastern boundary of the school which is under another Development Application.
- Section 12 includes the construction of a pedestrian bridge link 150m^2 area between LRC and the Mary Ward Wing located in the centre of the northern section of the school.

1.2 Aim and Objectives

The primary aims of the assessment were to identify past or present potentially contaminating activities at the site, identify the potential for site contamination, assess the need for further investigation, and make a preliminary assessment of the suitability of the site for the proposed development. The assessment objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and use via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Prepare a conceptual site model (CSM); and
- Assess the need for further investigation.

1.3 Scope of Work

The assessment was undertaken generally in accordance with an EIS proposal (Ref: EP49147PL) of 18 March 2019 and written acceptance from the client of 20 March 2019. The scope of work included the following:

- Review of existing site history information and previous EIS investigation reports;
- Review of the Normanhurst Girls School Concept Master Plan*;*
- A walkover site inspection; and
- Preparation of a PSI report specific to the Concept Master Plan, with reference to the NSW OEH Guidelines for Consultants Reporting on Contaminated Sites (2011), NEPM 2013 and other guidelines made under the Contaminated Land Management (CLM) Act 1997.

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/Documents
Contaminated Land Management Act (1997)[4]

[4] Contaminated Land Management Act 1997 (NSW). (referred to as CLM Act 1997)

Guidelines/Regulations/Documents
State Environmental Planning Policy No.55 – Remediation of Land (1998)[5]
Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)[6]
Guidelines for Consultants Reporting on Contaminated Sites (2011)[7]
Guidelines for the NSW Site Auditor Scheme, 3rd Edition (2017)[8]
National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)[9]

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

[6] Department of Urban Affairs and Planning, and Environment Protection Authority, (1998). *Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land*. (SEPP55 Planning Guidelines)

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

[8] NSW EPA, (2017). *Guidelines for the NSW Site Auditor Scheme, 3rd ed.* (referred to as Site Auditor Guidelines 2017)

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

2 SITE INFORMATION

2.1 Background

2.1.1 Preliminary Site Investigation (2018)

EIS has previously undertaken a preliminary site investigation (PSI)[10] in 2018. The PSI was limited to the proposed development areas located in the north-eastern section of the property, known as the Boarding House and Early Learning Centre, as shown on Figure 2. The proposed Boarding House area is located in the Stage 1 area of the Master Plan and the data relevant to this area, collected from the previous investigation, will be reviewed as part of this assessment.

The findings of the EIS 2018 Report are outlined below:

- The site history assessment identified imported fill material, use of pesticides and hazardous building materials as areas of environmental concern (AEC);
- Soil sampling was undertaken from six locations within the Boarding House area (Site 1A) and extended to a maximum depth of 14.0m;
- Fill material was encountered at the surface or beneath the pavement in all boreholes and extended to depths of between 0.1m to 2.4m. The fill material typically consisted of silty sandy clay with inclusions of ironstone gravel, ash and roots;
- Natural silty clay was encountered in BH2 to BH6 and extended to depths of between 0.6m to 4.8m;
- Elevated concentrations of carcinogenic PAHs, above the human-health based Site Assessment Criteria (SAC), were encountered in the fill sample collected from BH2 (0.04-0.2); and
- The investigation identified the following data gaps:
  - The number of sampling points across did not meet the minimum density recommended in the NSW EPA Sampling Design Guidelines (1995); and
  - Groundwater sampling was not undertaken.

The 2018 PSI Report concluded that some of the AEC identified in the CSM may pose a risk to the site receptors. The report made the following recommendations:

- Additional soil sampling in the vicinity of BH2 should be undertaken to better characterise the extent of the site contamination. This should include further soil sampling of the fill and underlying natural soil; and
- Groundwater sampling and analysis from the existing groundwater wells installed for the geotechnical investigation should be undertaken to address the data gaps.

[10] "Report to TTW on Preliminary Site Investigation (PSI) for Proposed New School Buildings at Loreto Normanhurst Girls School, 91-93 Pennant Hills Road, Normanhurst, NSW" (EIS Ref: E31772KLrpt, dated 24 October 2018, referred to as EIS 2018 PSI

2.2 Site Identification

Table 2-1: Site Identification

Current Site Owner:	Trustees of the Loreto Property Association
Site Address:	91 – 93 Pennant Hills Road, Normanhurst
Lot & Deposited Plans:	Lot 3 DP1217496 Lot 1 DP809066 Lot 16 DP6612 Lot 20 DP6612 Lot 21 DP6612 Lot 22 DP6612 Lot 23 DP6612 Lot 24 DP6612 Lot 25 DP6612 Lot 26 DP6612 Lot 27 DP6612 Lot 28 DP6612 Lot 29 DP6612 Lot 30 DP6612 Lot 31 DP6612 Lot 32 DP6612 Lot 33 DP6612 Lot 34 DP6612 Lot 35 DP6612 Lot 36 DP6612 Lot 1 DP809066 Lot 1 DP34834 Lot 1 DP114580
Current Land Use:	School
Proposed Land Use:	School
Local Government Authority:	Hornsby Shire Council
Current Zoning:	R2 – Low Density Residential
Approx. Entire School Site Area (ha):	13 hectares
Geographical Location (decimal degrees) (approx.):	Latitude: -33.726726 Longitude: 151.098743

Site Location Plan:	Figure 1
Sample Location Plan (EIS 2018):	Figure 2
Stage 1 Master Plan:	Figure 3

2.3 Site Location and Regional Setting

The site is located in a predominantly residential area of Normanhurst. The school is bounded by Pennant Hills Road to the north, Mount Pleasant Avenue to the east and south and Osborn Road to the west.

2.4 Topography

The regional topography is characterised by an east-west orientated ridgeline than runs between Mount Pleasant Avenue and Osborn Road, through the northern third of the school property. The site extends over the ridgeline and has a gentle slopes towards the east and north-east at approximately 2° to 3° in the north section and towards the south and south-west in the south section. Parts of the site appear to have been levelled to account for the slope and accommodate the existing development.

2.5 Site Inspection

A walkover inspection of the site was undertaken by EIS on 11 January 2019. The inspection was limited to accessible areas of the school grounds and immediate surrounds. An internal inspection of buildings was not undertaken. Selected site photographs obtained during the inspection are attached in the appendices. A summary of the other inspection findings are outlined in the following subsections:

2.5.1 Current Site Use and/or Indicators of Former Site Use

At the time of the inspection, the majority of the north section of the school was occupied by school associated buildings including covered outdoor learning areas (COLAs). The southern section of the school was occupied by a recreational area that included car parking, playing fields and bushland. The boarding houses located at the north-east section of the school appeared to have been former residential buildings converted for school use.

2.5.2 Buildings, Structures and Roads

The north-eastern section of the school consisted of the main boarding house and the central section contained classrooms, amenities and administration offices. The buildings were mostly of brick construction with potential asbestos containing fibre cement sheeting noted on the external areas of the buildings.

2.5.3 Boundary Conditions, Soil Stability and Erosion

The school was bounded by metal security fencing along most boundaries with the exception to the east of the boarding house which was bounded by a small brick retaining wall. There were no visible signs of erosion or soil instability along the school boundaries.

2.5.4 Visible or Olfactory Indicators of Contamination

No visible or olfactory signs of contamination were noted at the time of the site inspection.

2.5.5 Presence of Drums/Chemicals, Waste and Fill Material

The maintenance yard located in the northern area of the school housed minor quantities of various chemicals and fuel for general maintenance of the school grounds. The yard appeared to be properly contained and the chemicals stored correctly with no direct pathways to impact bare soil or grass.

The playing fields and tennis courts located centrally in the school ground appeared to have been historically cut and filled to achieve existing levels.

2.5.6 Drainage and Services

Stormwater pits were located across the low-level areas of the school and were assumed to be connected to the local stormwater system. The surface run-off was assumed to follow the general gradient of the site towards the south and east.

2.5.7 Sensitive Environments

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not identified on site or in the immediate surrounds.

2.5.8 Landscaped Areas and Visible Signs of Plant Stress

Various raised garden beds, grassed areas and ground-level garden beds were identified across the school grounds. The vegetation present included large (>10m) native trees, exotic and native grasses and exotic shrubs. No visible signs of plant stress or dieback were noted during the site inspection.

2.6 Surrounding Land Use

During the site inspection, EIS observed the following land uses in the immediate surrounds:

- North – Cumberland Highway and Normanhurst Public School;
- South – Loreto Normanhurst Girls School, including grassed playing fields and bushland that extended to Mount Pleasant Avenue. An aged care facility was located further south;
- East – Mount Pleasant Avenue and residential properties; and

- West – Osborn Road and residential properties.

EIS did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

2.7 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the assessment in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.8 Section 10.7 Planning Certificate

The s10.7 (2 and 5) planning certificates were reviewed for the assessment. Copies of the certificates are attached in the appendices. A summary of the relevant information is outlined below:

- The site is not located in an area of ecological significance;
- The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;
- The site is not the subject of a Site Audit Statement (SAS);
- The site is not located within an acid sulfate soil (ASS) risk area; and
- The site is not located in a heritage conservation area.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information presented in the Lotsearch report (attached in the appendices) indicated that the site is underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

A review of the acid sulfate soil (ASS) risk map prepared by Department of Land and Water Conservation (1997)[11] indicated that the site is not located within a risk area.

ASS information presented in the Lotsearch report (attached in the appendices) indicated that a Class 5 area is located directly to the south of the site. EIS do not consider this to pose a risk of ASS during the proposed development works.

3.3 Hydrogeology

Hydrogeological information presented in the Lotsearch report (attached in the appendices) indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There were a total of 10 registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 234m south of the site. This was installed to a depth of 180m and was utilised for recreational purposes. The next closest bore was located 1,414m west of the site and was utilised for monitoring purposes;
- The majority of the bores were registered for monitoring purposes;
- There was one bore within the report buffer registered for domestic use. This bore was located 1,977m east of the site and is not considered to be a potential receptor; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 1.55m-11.0m, underlain by sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 1.84mBGL to 78.5mBGL.

The information reviewed for this assessment indicated that the subsurface conditions at the site are likely to consist of relatively low permeability (residual) soils overlying shallow bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, EIS would generally expect groundwater to flow towards the north-east or south depending on which side of the ridgeline groundwater was encountered.

[11] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 9130N3, Ed 2)*

3.4 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Coups Creek located approximately 354m to the east of the site. Due to the distance from the site, this creek is not considered to be a potential receptor.

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs were included in the Lotsearch report (attached in the appendices). EIS has reviewed the photographs and summarised relevant information in the following table:

Table 4-1: Summary of Historical Aerial Photographs

Year	Details
1943	The southern section of the school appeared to be vacant and grassed with a large area covered with trees and vegetation. The north-eastern section of the school appeared to be used as the school with some small residential properties along the eastern boundary and the main school building visible in the north-west corner. The surrounds appeared similar to the school and were most likely used for residential and agricultural purposes.
1956	The school appeared generally similar to the 1943 photograph. More residential properties were visible in the surrounding areas.
1961	The school and surrounds appeared generally similar to the 1956 photograph.
1965	The school appeared generally similar to the 1961 photograph. The immediate surrounds now appeared to be all residential with the open agricultural areas no longer visible.
1970	The central section of the school appeared to have been excavated in some areas, potentially to clear the area for a new playing field. The buildings in the north of the school appeared unchanged.
1982	The central section of the school now appeared to be mostly grassed and cleared of any trees. The remaining areas of the school appeared generally similar to the 1970 photograph.
1991	The school and surrounds appeared generally similar to the 1982 photograph.
2003	The school and surrounds appeared generally similar to the 1991 photograph.
2009	The western boundary of the school appeared to have been converted into a car park. Additional buildings were visible in the central section of the school, immediately north of the grassed area.
2016	The school and surrounds appeared similar to the present day.

4.2 Review of Historical Land Title Records

Historical land title records were reviewed for the assessment. The record search was undertaken by Advance Legal Searchers Pty Ltd. Copies of the title records are attached in the appendices.

The historical land title records did not identify any particular land uses which could have resulted in significant contamination. The school has been owned by the Loreto Property Association since 1933.

4.3 Review of Council Records

Council records were sourced under an informal access to information request and were reviewed for the assessment. The records indicated some additions to school buildings and car parks between 2004 and 2007. From the council records viewed as part of this investigation, EIS did not identify any historical on-site activities that would have resulted in significant contamination at the site.

4.4 SafeWork NSW Records

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

Table 4-2: Summary of SafeWork NSW Records

Record Number	License Details
35/034456 Renewal 17/06/2000	Depot 1 – Above Ground Tank for storage of 1,500L of Sodium Hypochlorite Depot 2 – Above Ground Tank for storage of 218L Carbon Dioxide Depot 3 – Roofed storage of 80L petrol Depot 4 – Roofed storage of 60L diesel fuel Depot 5 – Roofed storage of 50Kg Ammonium Nitrate Depot 6 – Roofed storage of total 50L of various pesticides and insecticides
35/034456 Renewal 17/06/2004	As above.

4.5 NSW EPA Records

The Lotsearch report (attached in the appendices) included information from the NSW EPA databases for the following:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;
- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[12]; and
- Licensed activities under the Protection of the Environment Operations Act (1997)[13].

The search included the site area and surrounding areas in the report buffer of 1,000m. The search indicated the following:

[12] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997.* (referred to as Duty to Report Contamination)

[13] Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

- There were no records for the site or any properties in the report buffer under Section 58 of the CLM Act 1997;
- The site has not been notified with regards to the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997. There were no notified properties in the report buffer;
- There was one activity currently licensed under the POEO Act 1997 that related to the school. This was the North Connex Project that appeared to impact the north section of the school. Another licensed activity was associated with a corridor for Sydney Trains located approximately 370m to the north of the school. These activities are unlikely to pose a contamination risk to the school; and
- There were three records associated with delicensed activities under the POEO Act 1997 related to the school. These were all associated with the application of herbicides to waterways throughout NSW. These are unlikely to pose a contamination risk to the school.

4.6 Historical Business Directory and Additional Lotsearch Information

Historical business records for the site and surrounding areas in the report buffer were included in the Lotsearch report (attached in the appendices). The records indicated the following:

- There was one motor mechanics business registered within the report buffer during the 1960s. This business was located over 400m down-gradient of the site; and
- There were two dry cleaner businesses registered within the report buffer during the 1950s to the 1980's. These businesses were located over 300m down-gradient of the site.

The motor mechanic business identified in the historical business directory are considered unlikely to be a contamination risk due to the location down-gradient of the site.

The dry cleaner businesses identified are considered unlikely to pose a contamination risk to the site due to their location down-gradient and their distance from the site.

EIS are of the opinion that the historical businesses in the report buffer are unlikely to represent potential off-site sources of site contamination.

In addition to the above, EIS have reviewed additional information contained within the Lotsearch report and note the following:

- There were no local or state heritage items at the site or in the immediate surrounds; and
- There were no significant ecological constraints at the site or in the immediate surrounds.

4.7 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the table below. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by EIS.

Table 4-3: Summary of Historical Land Uses

Year(s)	Potential Land Use / Activities
Pre-1933	The majority of the school was vacant grassed land in the south section with residential properties in the northern section of the site. The site was owned by various individuals with professions unlikely to be associated with on-site activities.
1933	The site was purchased by The Loreto Property Association.
1933-2018	The site has been operational as Loreto Normanhurst School since 1933 with construction and various additions to the school buildings during this time.

4.8 Integrity of Site History Information

The majority of the site history information was obtained from government organisations as outlined in the relevant sections of this report. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the lack of specific land use details over time. EIS have relied upon the Lotsearch report and have not independently verified any information contained within. However, it is noted that the Lotsearch report is generated based on databases maintained by various government agencies and is expected to be reliable.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Fill material – Based on data obtained from the 2018 PSI, fill material is known to be present at the site within the proposed boarding house area (Site 1A). Elevated levels of PAHs were encountered within the fill material in this area. Other areas of the site appeared to have been historically filled to achieve existing levels.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site.	Heavy metals and OCPs
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/structures on site.	Asbestos, lead and PCBs

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried industrial infrastructure) is present, although this is considered to be the least likely mechanism for contamination.

	The mechanisms for contamination from off-site sources could have occurred via 'top down' impacts and spills, or sub-surface release. Impacts to the site could occur via the migration of contaminated groundwater.
Affected media	Soil/soil vapour and groundwater have been identified as potentially affected media. The potential for groundwater impacts is considered to be relatively low. However, groundwater would need to be considered in the event significant contamination was identified in soil.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users. Ecological receptors include terrestrial organisms and plants within unpaved areas.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings and basements.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and • Migration of groundwater off-site into areas where groundwater is being utilised as for recreational purposes.

5.3 Assessment of Data Gaps

EIS has undertaken a preliminary data gap analysis based on the findings of assessment. The data gaps and our comments are outlined in the following table:

Table 5-3: Data Gap Assessment

Data Gap	EIS Comments
Sampling Density	The six locations sampled as part of 2018 PSI will not meet the minimum density recommended in the NSW EPA Sampling Design Guidelines (1995) for the total Master Plan area of 13.35ha (132,500m^2). Soil sampling should be undertaken to properly characterise the contamination for each subsequent stage of the Master Plan development.
Groundwater Sampling	Groundwater sampling was not undertaken as part of the 2018 PSI. Groundwater sampling should be undertaken as part of each subsequent stage of the Master Plan development.

6 CONCLUSIONS

6.1 Contamination Sources/AEC and Potential for Site Contamination

Based on the scope of work undertaken for this assessment, EIS identified the following potential contamination sources/AEC:

- Fill material - From the EIS 2018 investigation, fill material is known to be present at the site within the proposed boarding house (Site 1A). Elevated levels of PAHs were encountered within the fill material in this area. Other areas of the site appeared to have been historically filled to achieve existing levels;
- Use of Pesticides - Pesticides may have been used beneath the buildings and/or around the site; and
- Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, EIS are of the opinion that there is a moderate potential for site contamination.

6.2 Assessment of the Need for Further Investigation

Based on the potential contamination sources/AEC identified, and the potential for contamination, and the known contamination previously identified, further investigation of the contamination conditions is considered to be required.

6.3 Conclusions and Recommendations

Based on the findings of the preliminary investigation and subject to the recommendations below, EIS are of the opinion that the site can be made suitable for the proposed developments within the Loreto Normanhurst's Master Plan as described in Section 1.1.

EIS recommend the implementation of Remediation Concept Plan (RCP) for the ongoing stages of work as outlined in the Master Plan. The RCP will include the following steps for all future stages of the development:

- Detailed Site Investigation (DSI) to be undertaken to better characterise the site contamination issues for each individual stage within the Master Plan; and
- Consultation with the Remediation Concept Plan to implement remediation strategies tailored for each stage making them suitable for their respective developments.

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

7 LIMITATIONS

The following limitation apply to this assessment:

- 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 assessment; scope of work and limitation outlined in the EIS proposal; and terms of contract between EIS and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- The preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- EIS accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- EIS have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. EIS should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

LIST OF IN-TEXT TABLES

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

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 29 DEC 2018.

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

Title: **SITE LOCATION PLAN**

Location: LORETO NORMANHURST, 91-93 PENNANT HILLS ROAD NORMANHURST, NSW

Report No: E31772KL

Figure No: 1

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 6/02/2019 5:15:34 PM DWG FILE: S:\5 EIS\5C EIS JOBS\31000'S\E31772KL NORMANHURST\CAD\E31772KL2.DWG

LEGEND

- APPROXIMATE SITE BOUNDARY
- BH (Fill Depth) — BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- APPROXIMATE OUTLINE OF PROPOSED BUILDING

0 20 40 60 80 100
SCALE 1:2000 @A3 METRES

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

Title: **SAMPLE LOCATION PLAN**

Location: LORETO NORMANHURST, 91-93 PENNANT HILLS ROAD NORMANHURST, NSW

Report No: E31772KL

Figure No: 2

ENVIRONMENTAL INVESTIGATION SERVICES

EIS

PLOT DATE: 6/02/2019 5:36:25 PM DWG FILE: S:\5 EIS\5C EIS JOBS\31000'S\E31772KL NORMANHURST\CAD\E31772KL2.DWG

KEY

1	NEW BOARDING HOUSE	5	MARY WARD BUILDING UPGRADE	9	MOUNT PLEASANT PAVILION
2	SENIOR SCHOOL UPGRADE	6	GYMNASIUM	10	BUSH CHAPEL
3	FUTURE SCHOOL USE	7	GONZAGA BARRY CENTRE EXTENTION	11	ELC SUBJECT OF HORNSBY SHIRE COUNCIL DEVELOPMENT APPLICATION
4	JUNIOR SCHOOL UPGRADE	8	ALL WEATHER PLAYING FIELD AND UNDERGROUND CARPARK	12	PEDESTRIAN BRIDGE LINK FROM LRC TO MARY WARD WING

Revisions

No.	Date	Description	Ver	App'd
1	30.11.2018	DRAFT MASTERPLAN ISSUE		
2	10.12.2018	ISSUED FOR COORDINATION		
3	18.12.2018	CONCEPT PROPOSAL		
4	10.01.2019	CONCEPT PROPOSAL - SUBMISSION		

Key

N

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Project
LORETO NORMANHURST
CONCEPT PROPOSAL
91-93 PENNANT HILLS ROAD
NORMANHURST. NSW 2076
Proj. No. 18008

Drawing Title
PROPOSED BUILDING ENVELOPE SITE PLAN
Sheet Status
NOT FOR CONSTRUCTION

Scale
1:1000 @ A1
Drawing No.
A0002
Issue
4

0 10 20 40 80 m

PLOT DATE & TIME: 10/01/2019 3:43:52 PM
PLOTTED & CHECKED BY: Author
REF: C:\Users\ahurstable\Documents\18008_MasterPlan_ahurstable.rvt

REPORT APPENDICES

Appendix A: Site Information

Selected Site Photos

Project Ref: E31772KL
Site Address: Loreto Normanhurst Girls School
Selected Site Photos Dated: 11 January 2019

Photograph 1: Taken showing the Mary Ward Wing in the central section of the site, facing north. This is the location of the proposed landscaped portion of Site 1B.

Photograph 2: Taken showing the maintenance shed in the northern portion of the site. Note the storage of gas and other materials.

	**Photograph 3:** Taken showing the storage sheds along the western boundary of the site. The storage sheds were locked at the time of inspection.
	**Photograph 4:** Taken showing the administration and reception building in the north-east corner of the site.

Lotsearch Environmental Risk and Planning Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 24 Aug 2018 18:20:36

Reference: LS004062

Address: 91-93 Pennant Hills Road, Normanhurst, NSW 2076

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Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a confidence is given under the field heading “LocConf” or “Location Confidence”.

Location Confidence	Description
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced with the confidence of the general/approximate area
Road Match	Georeferenced to the road or rail
Road Intersection	Georeferenced to the road intersection
Buffered Point	Feature is a buffered point
Network of Features	Georeferenced to a network of features

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Dept. Finance, Services & Innovation	24/08/2018	24/08/2018	Daily	-	-	-	-
Topographic Data	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	07/08/2018	02/08/2018	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	01/08/2018	01/08/2018	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	01/08/2018	11/10/2017	Monthly	1000	0	0	0
National Waste Management Site Database	Geoscience Australia	07/08/2018	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	07/08/2018	07/08/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	11/01/2018	11/01/2018	As required	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	02/08/2018	02/08/2018	Monthly	1000	1	1	2
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	02/08/2018	02/08/2018	Monthly	1000	0	1	1
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	02/08/2018	02/08/2018	Monthly	1000	3	3	4
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	0	0	1
UBD Business to Business Directory 1991 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business to Business Directory 1991 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business to Business Directory 1986 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business to Business Directory 1986 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1978 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1978 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1975 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1975 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	1	1
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1965 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	2	2
UBD Business Directory 1965 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	2	2
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	2	2
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	5
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Points of Interest	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	1	3	41
Tanks (Areas)	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	0	0	0
Tanks (Points)	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	Quarterly	1000	0	0	0
Major Easements	Dept. Finance, Services & Innovation	17/07/2018	17/07/2018	As required	1000	0	7	63
State Forest	Dept. Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	18/01/2018	30/09/2017	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Botany Groundwater Management Zones	NSW Department of Primary Industries	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	10
Geological Units 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	2
Geological Structures 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	2	-	5
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	1
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	500	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	Dept. Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	1000	0	0	0
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	1000	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	1000	0	0	0
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	1000	0	1	1
SEPP Strategic Land Use Areas	NSW Planning and Environment	01/08/2017	28/01/2014	Annually	1000	0	0	0
LEP - Land Zoning	NSW Planning and Environment	23/07/2018	29/06/2018	Quarterly	1000	1	8	71
LEP - Minimum Subdivision Lot Size	NSW Planning and Environment	23/07/2018	13/07/2018	Quarterly	0	1	-	-
LEP - Height of Building	NSW Planning and Environment	09/08/2018	22/06/2018	Quarterly	0	1	-	-
LEP - Floor Space Ratio	NSW Planning and Environment	23/07/2018	06/07/2018	Quarterly	0	0	-	-
LEP - Land Application	NSW Planning and Environment	23/07/2018	29/06/2018	Quarterly	0	1	-	-
LEP - Land Reservation Acquisition	NSW Planning and Environment	23/07/2018	13/07/2018	Quarterly	0	0	-	-
State Heritage Items	NSW Office of Environment & Heritage	04/04/2018	30/09/2016	Quarterly	1000	0	0	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Local Heritage Items	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	1000	2	3	40
Bush Fire Prone Land	NSW Rural Fire Service	08/08/2018	31/07/2018	Quarterly	1000	2	2	3
Remnant Vegetation of the Cumberland Plain	NSW Office of Environment & Heritage	07/10/2014	04/08/2011	Unknown	1000	4	4	9
RAMSAR Wetlands	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	2
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	20/08/2018	20/08/2018	Daily	10000	-	-	-

Aerial Imagery 2017

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Scale:
0 50 100 200
Meters

Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 24 August 2018

Contaminated Land & Waste Management Facilities

91-93 Pennant Hills Road, Normanhurst, NSW 2076

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist (m)	Direction
N/A	No records in buffer								

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land & Waste Management Facilities

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority

Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia

EPA PFAS Investigation Program

91-93 Pennant Hills Road, Normanhurst, NSW 2076

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Id	Site	Address	Location Confidence	Distance	Direction
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

EPA Other Sites with Contamination Issues

91-93 Pennant Hills Road, Normanhurst, NSW 2076

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill

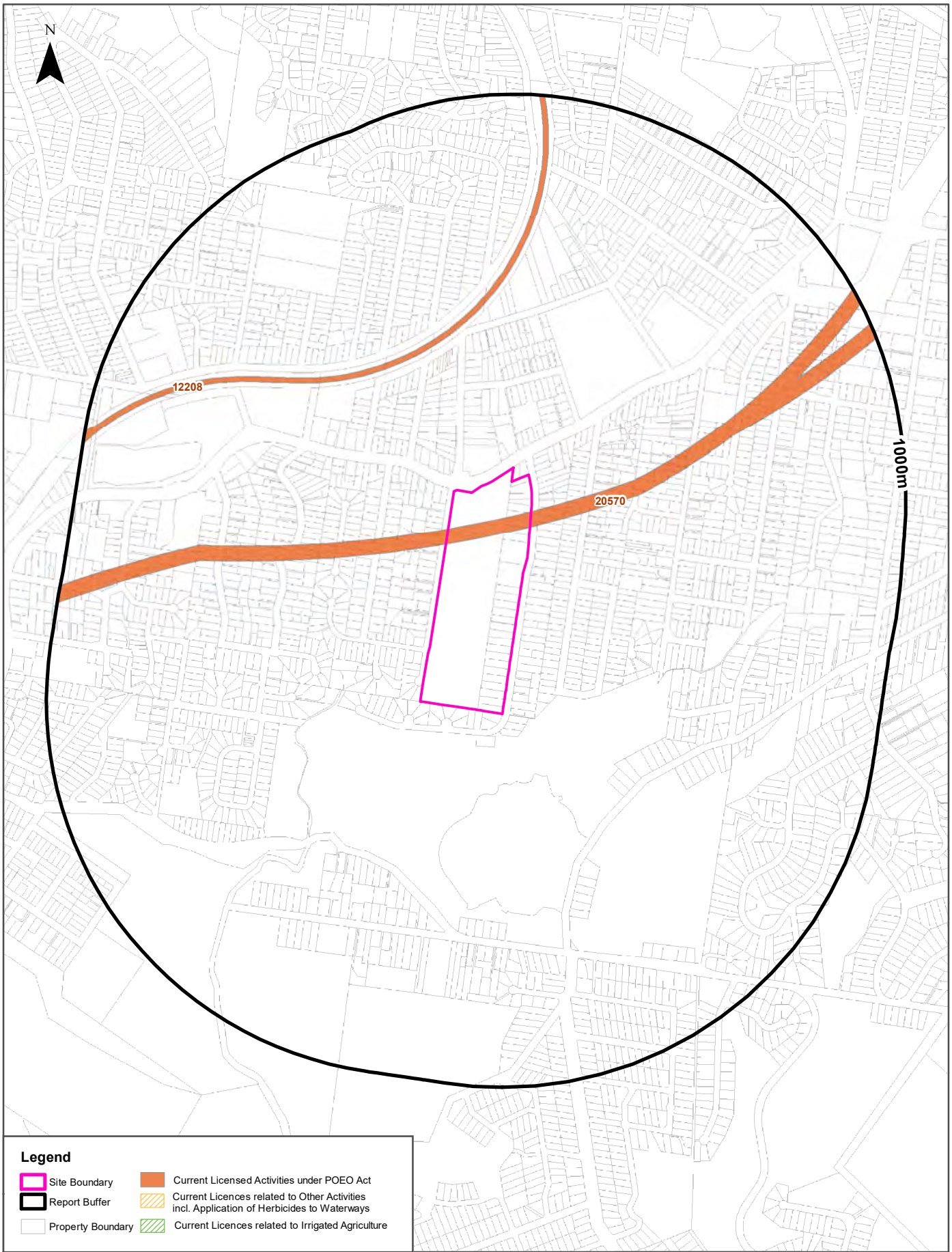
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority

Current EPA Licensed Activities

91-93 Pennant Hills Road, Normanhurst, NSW 2076



EPA Activities

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Licensed Activities under the POEO Act 1997

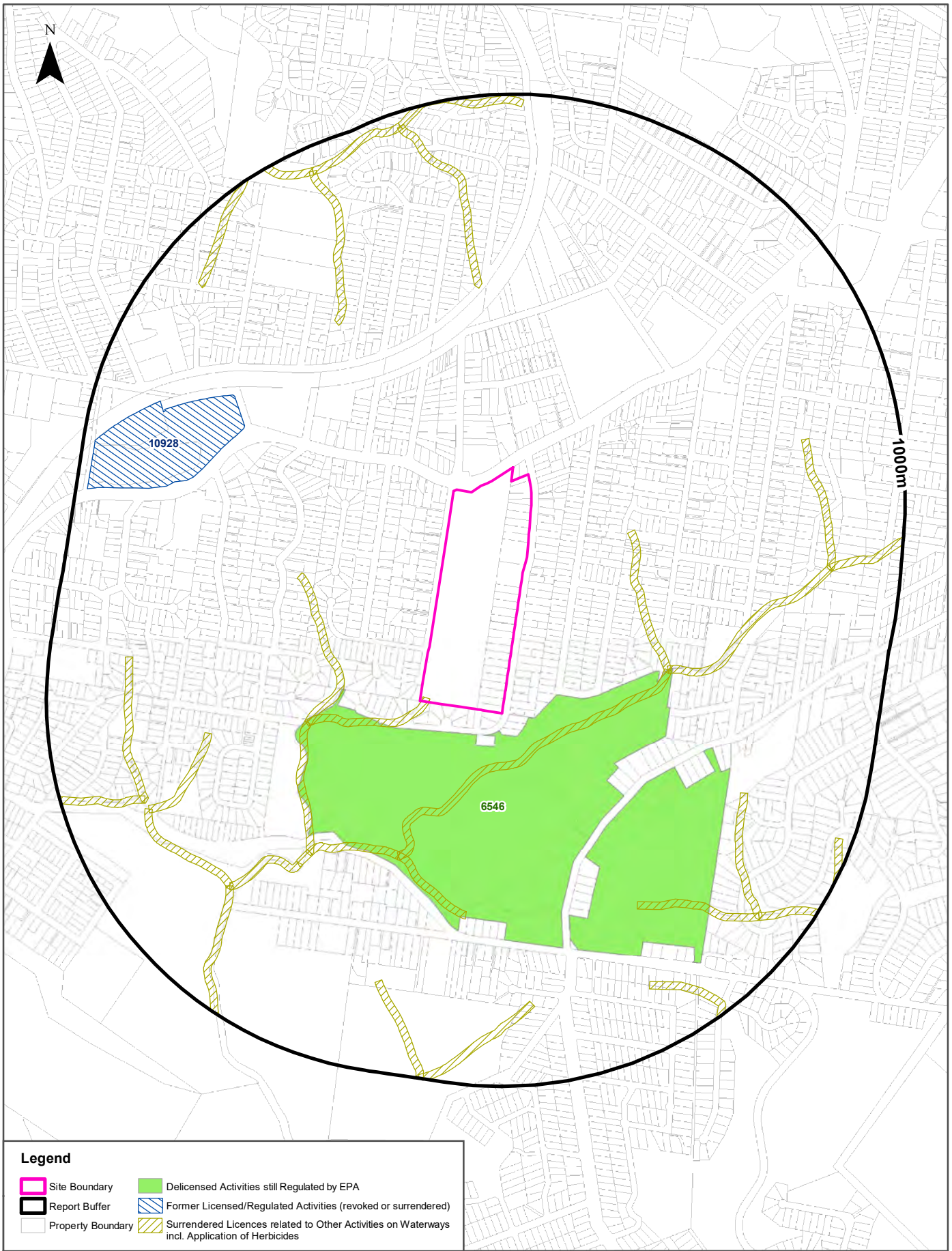
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
20570	LENDLEASE ENGINEERING PTY LIMITED	NorthConnex Project	BETWEEN WINDSOR ROAD, BAULKHAM HILLS and M2 MOTORWAY, PENNANT HILLS AND M1 MOTORWAY., WAHROONGA, NSW 2076	WAHROONGA	Road construction	Road Match	0m	Onsite
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	Road Match	371m	North

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

91-93 Pennant Hills Road, Normanhurst, NSW 2076



EPA Activities

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
6546	ADVENTIST HEALTHCARE LIMITED	SYDNEY ADVENTIST HOSPITAL	185 FOX VALLEY ROAD	WAHROONGA	Hazardous, Industrial or Group A Waste Generation or Storage	Premise Match	47m	South

Delicensed Activities Data Source: Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

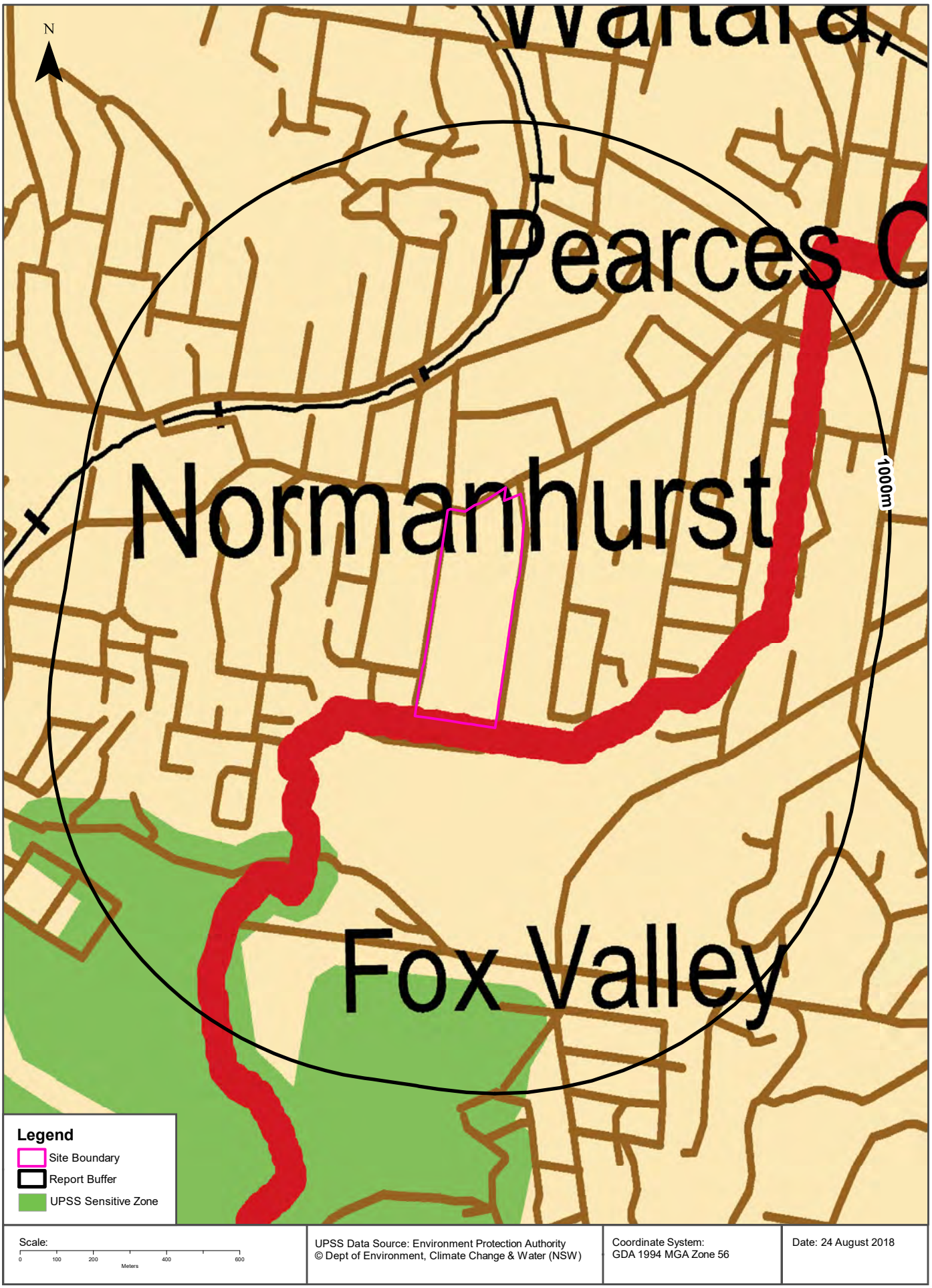
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	Onsite
10928	HORNSBY SHIRE COUNCIL	Cnr Dartford and Pennant Hills Roads, THORNLEIGH, NSW 2120	Surrendered	05/09/2000	Waste disposal by application to land	Premise Match	586m	North West

Former Licensed Activities Data Source: Environment Protection Authority

UPSS Sensitive Zones

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1991 Business to Business Directory Records Premise or Road Intersection Matches

Records from the 1991 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1991 Business to Business Directory Records Road or Area Matches

Records from the 1991 UBD Business to Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1986 Business to Business Directory Records Premise or Road Intersection Matches

Records from the 1986 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1986 Business to Business Directory Records Road or Area Matches

Records from the 1986 UBD Business to Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1982 Business Directory Records
Premise or Road Intersection Matches

Records from the 1982 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1982 Business Directory Records
Road or Area Matches

Records from the 1982 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1978 Business Directory Records
Premise or Road Intersection Matches

Records from the 1978 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1978 Business Directory Records
Road or Area Matches

Records from the 1978 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1975 Business Directory Records
Premise or Road Intersection Matches

Records from the 1975 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1975 Business Directory Records
Road or Area Matches

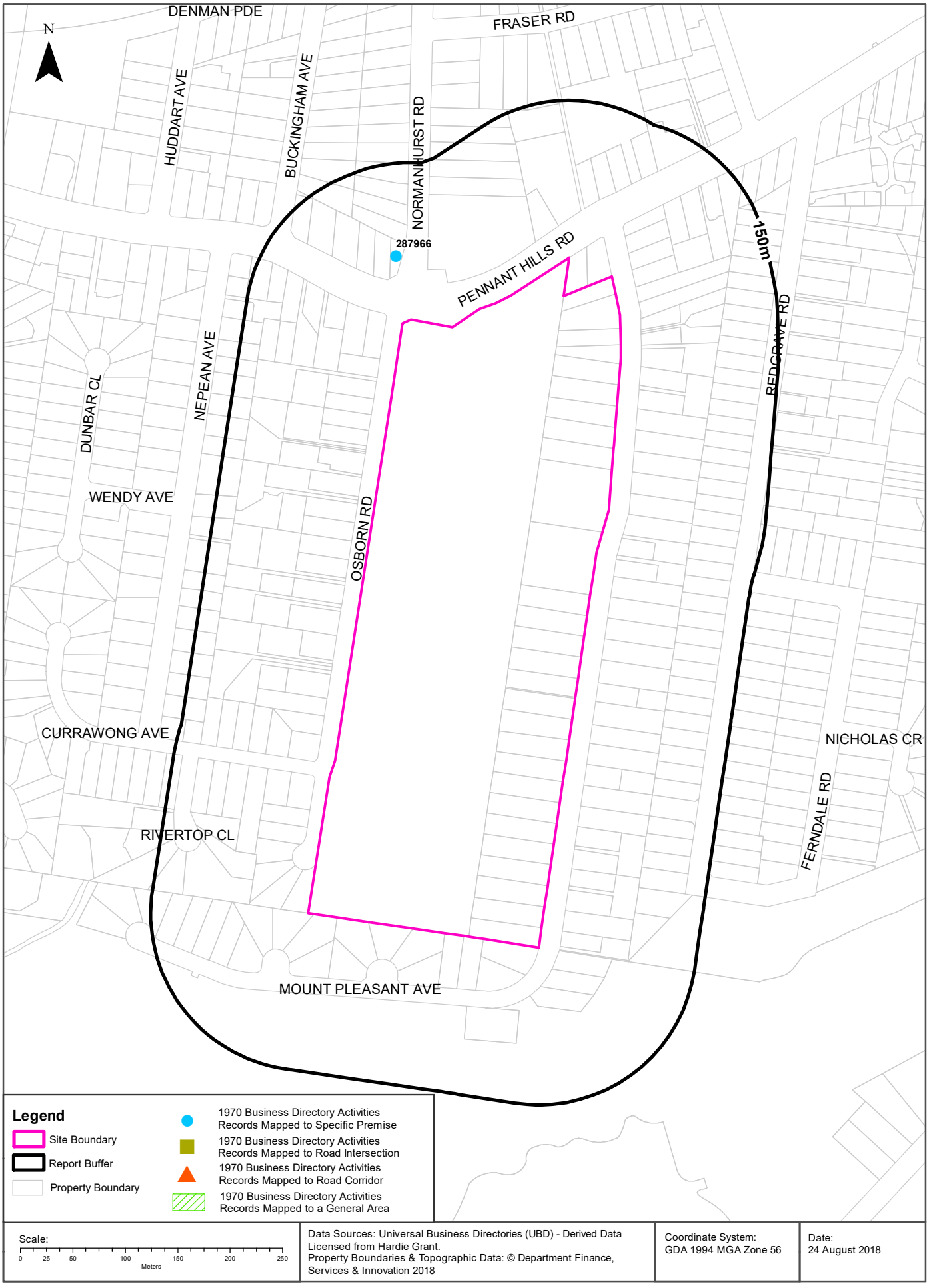
Records from the 1975 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Historical Business Directory Records

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1970 Business Directory Records
Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
DELICATESSENS (D080)	Spark,A.L., 100 Pennant Hills Rd., Normanhurst	287966	Premise Match	62m	North

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Business Directory Records
Road or Area Matches

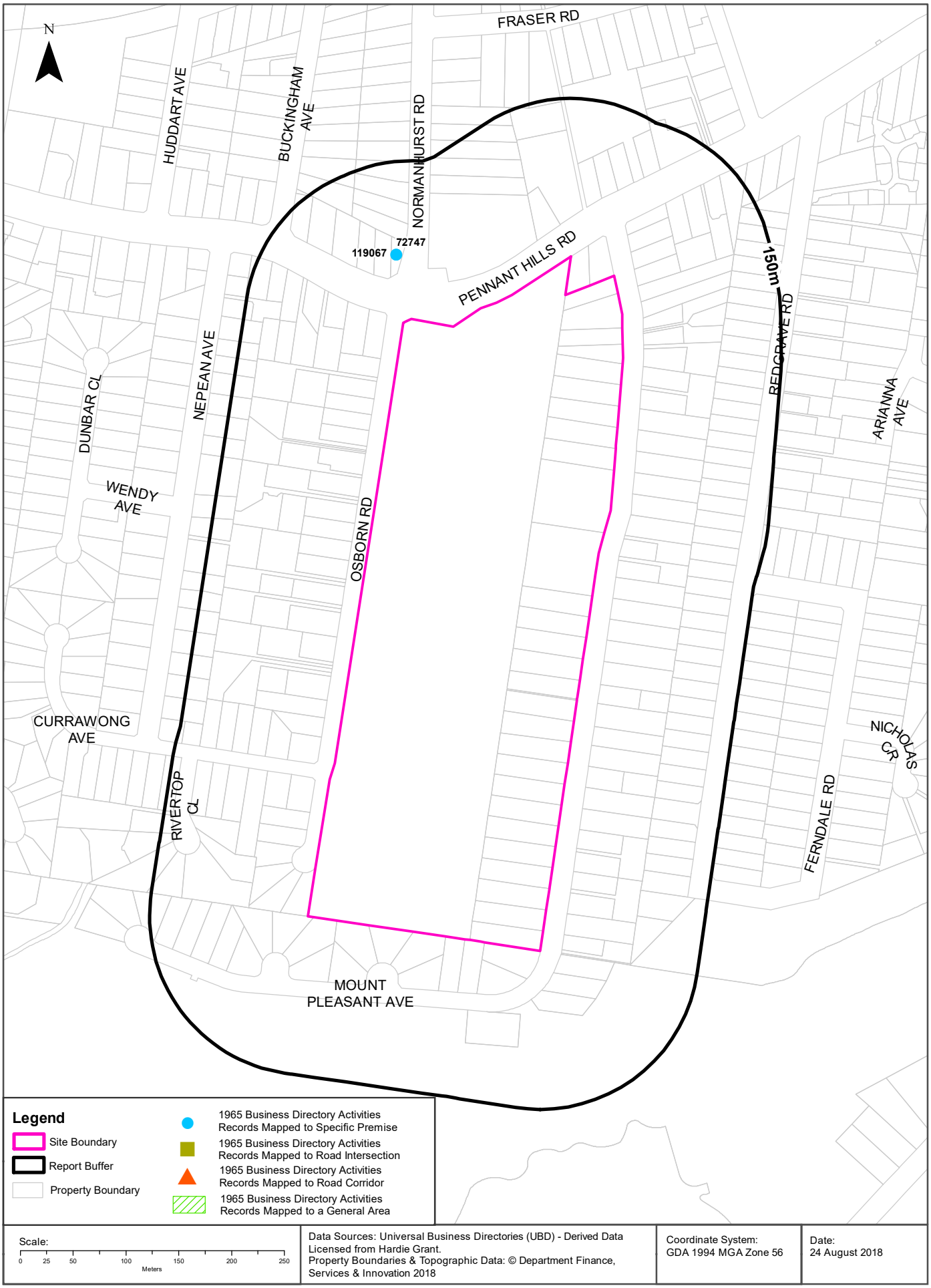
Records from the 1970 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1965 Historical Business Directory Records

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1965 Business Directory Records
Premise or Road Intersection Matches

Records from the 1965 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
DELICATESSENS	Spark, A. L., 100 Pennant Hills Rd., Normanhurst	72747	Premise Match	62m	North
Mixed Businesses	Woodage, L. A. , 100 Pennant Hills Rd., Normanhurst	119067	Premise Match	62m	North

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1965 Business Directory Records
Road or Area Matches

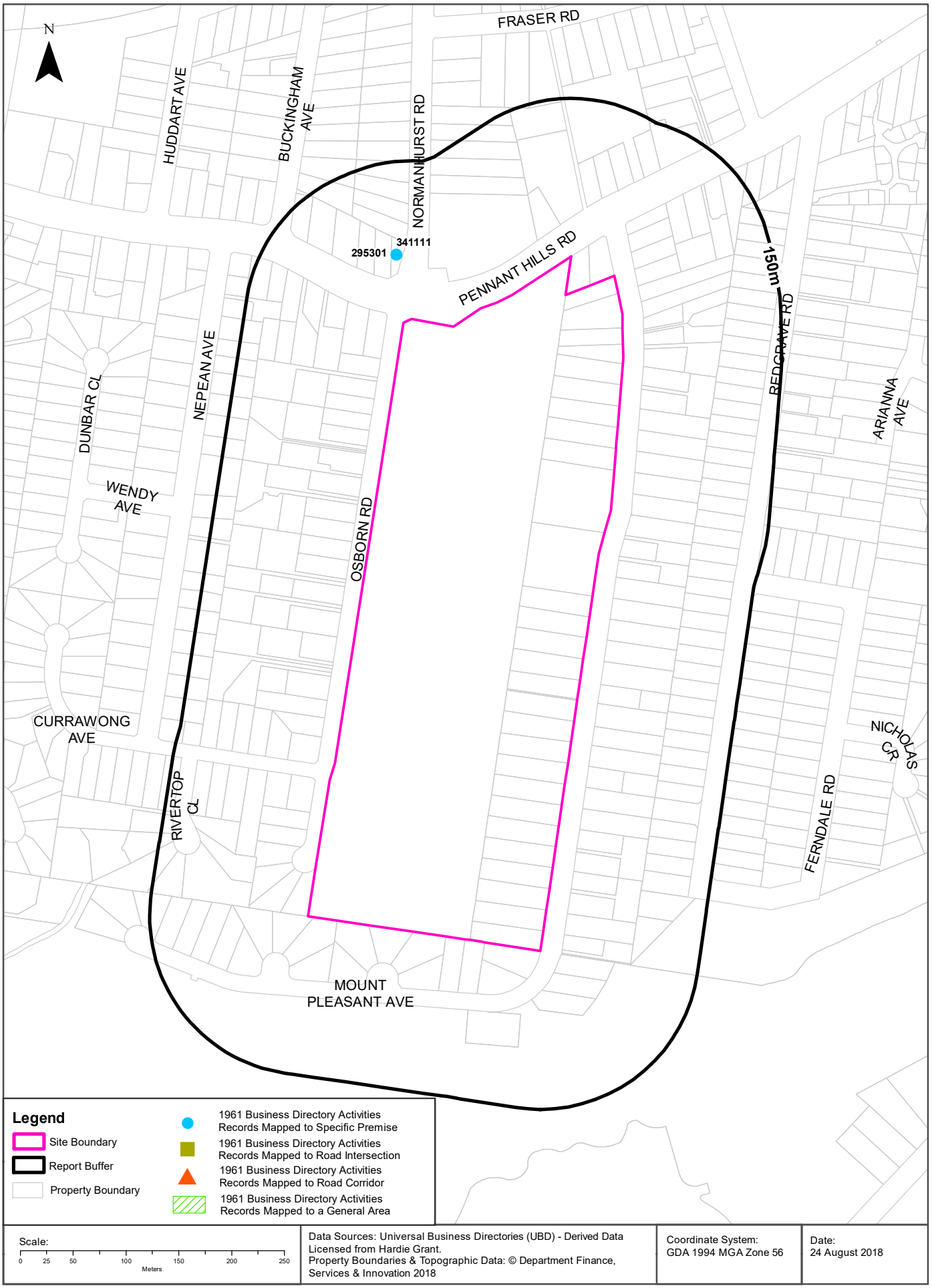
Records from the 1965 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1961 Historical Business Directory Records

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1961 Business Directory Records
Premise or Road Intersection Matches

Records from the 1961 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
MIXED BUSINESS	Hamilton, J. I., 100 Pennant Hills Rd., Normanhurst	341111	Premise Match	62m	North
DELICATESSENS	Spark, A. L., 100 Pennant Hills Rd., Normanhurst	295301	Premise Match	62m	North

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1961 Business Directory Records
Road or Area Matches

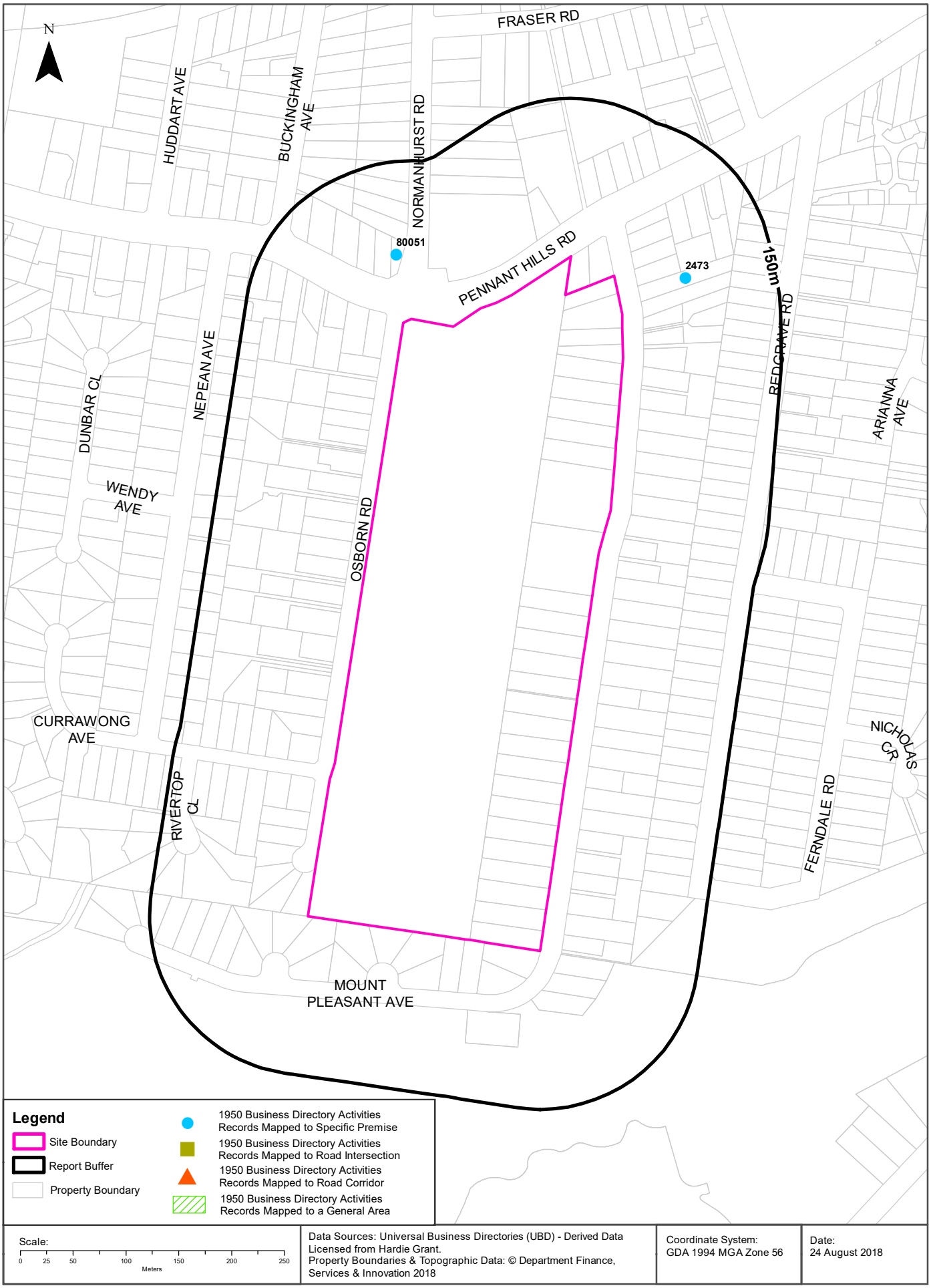
Records from the 1961 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Historical Business Directory Records

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

1950 Business Directory Records
Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
MIXED BUSINESSES & GENERAL STORES	Grattan, C., 100 Pennant Hills Rd., Normanhurst	80051	Premise Match	62m	North
ARCHITECTS	Vine Hall, J., 9 Mount Pleasant Ave., Normanhurst	2473	Premise Match	66m	North East

1950 Business Directory Records
Road or Area Matches

Records from the 1950 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer			

Historical Business Directories

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Feature Point	Direction
DRY CLEANERS, PRESSERS & DYERS	Hornsby Dry Cleaners, 50 Denman Pde., Normanhurst	35291	1950	Premise Match	341m	North
DRY CLEANERS & PRESSERS.	Normanhurst Dry Cleaners, 54 Denman Pde., Normanhurst.	25458	1986	Premise Match	342m	North
DRY CLEANERS & PRESSERS. (D8500)	Normanhurst Dry Cleaners, 54 Denman Pde., Normanhurst. 2076.	23991	1982	Premise Match	342m	North
DRY CLEANERS, PRESSERS&/OR DYERS.	Country Club, 54 Denman Pde., Normanhurst	23983	1975	Premise Match	356m	North
Motor Service Stations - Petrol, Oil, Etc.	Total Service Station, Cnr. Campbell St. & Pennant Hills Rd. Normanhurst	125970	1965	Road Intersection	414m	North West

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Aerial Imagery 2016

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 2009

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Scale:
0 50 100 200
Meters

Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 24 August 2018

Aerial Imagery 2003

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1991

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1982

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1970

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1965

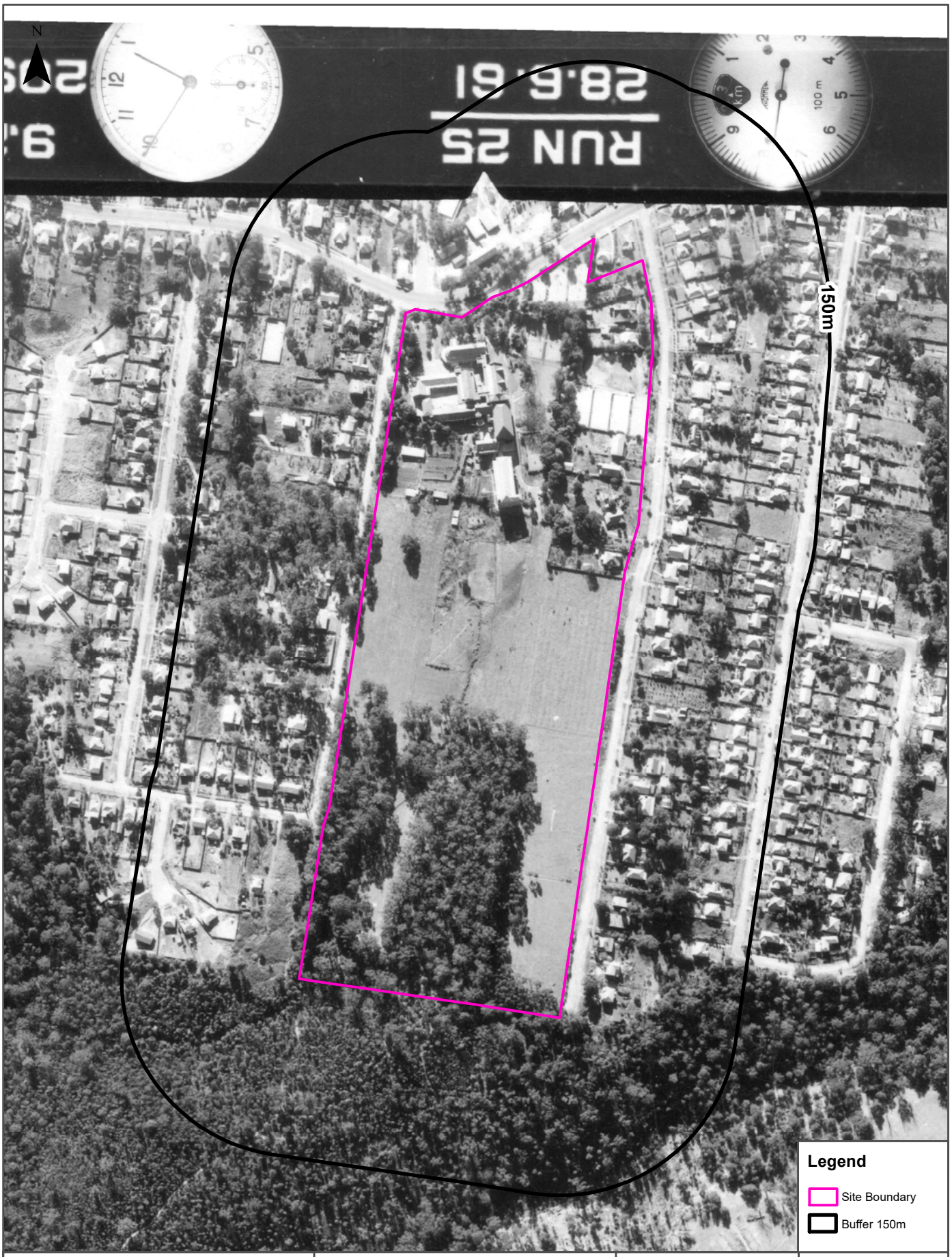
91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1961

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1961

91-93 Pennant Hills Road, Normanhurst, NSW 2076

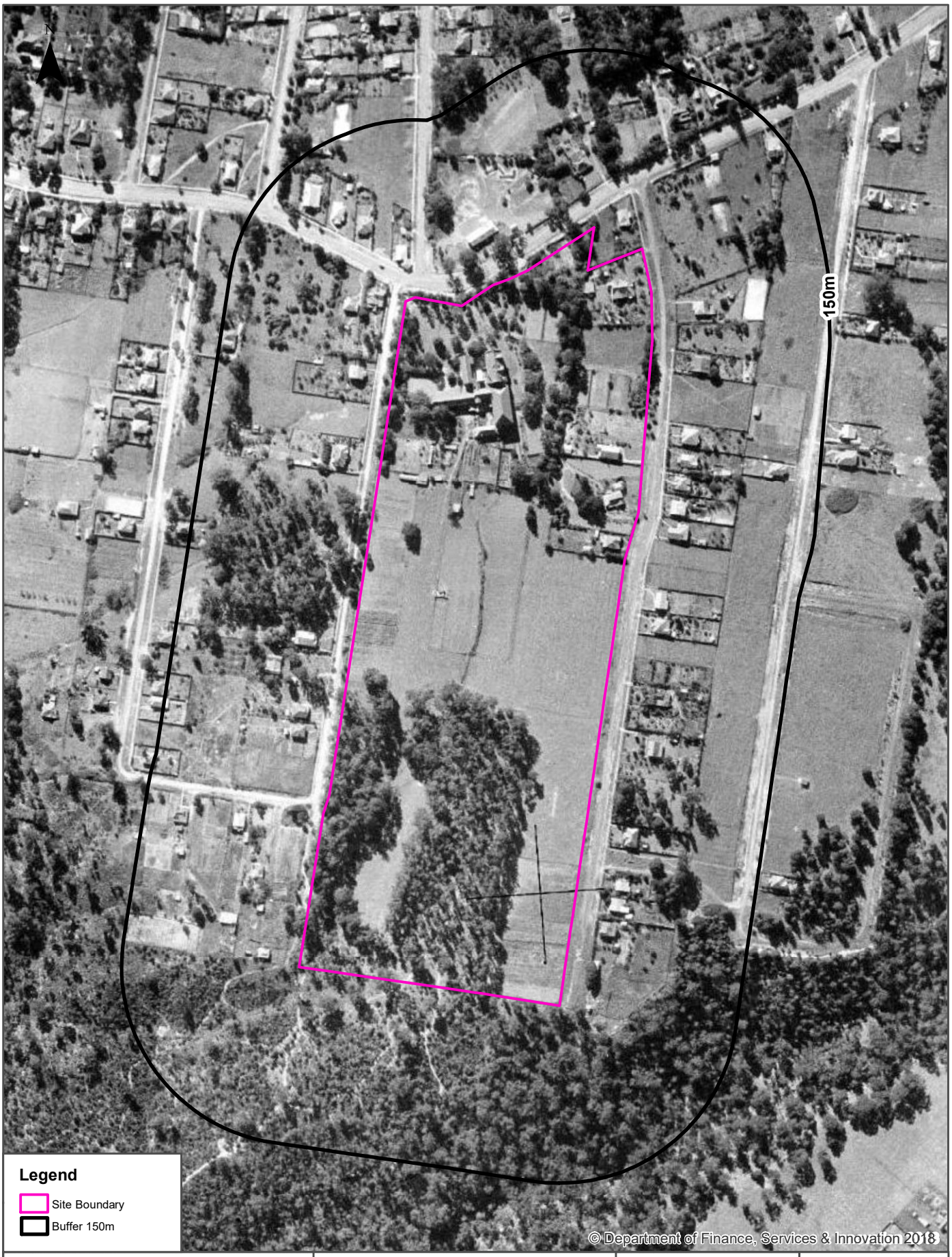


Aerial Imagery 1956

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Aerial Imagery 1943

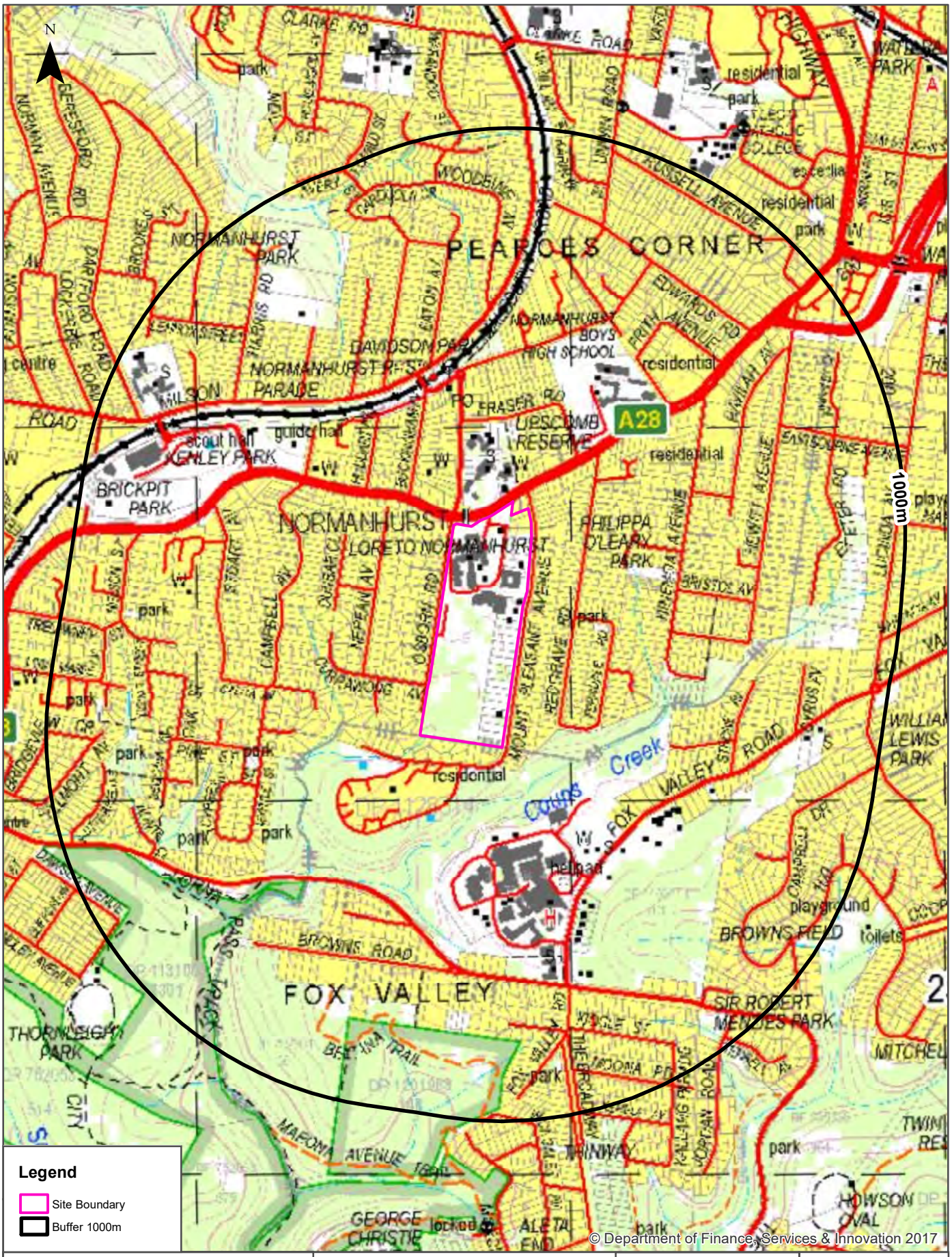
91-93 Pennant Hills Road, Normanhurst, NSW 2076



Scale: 0 25 50 100 150 200 Meters	Data Sources: Aerial Imagery © Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 24 August 2018

Topographic Map 2015

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Scale: 0 100 200 400 600 Meters

Data Sources: Topographic Map Data © NSW Land and Property Information

Coordinate System: GDA 1994 MGA Zone 56

Date: 24 August 2018

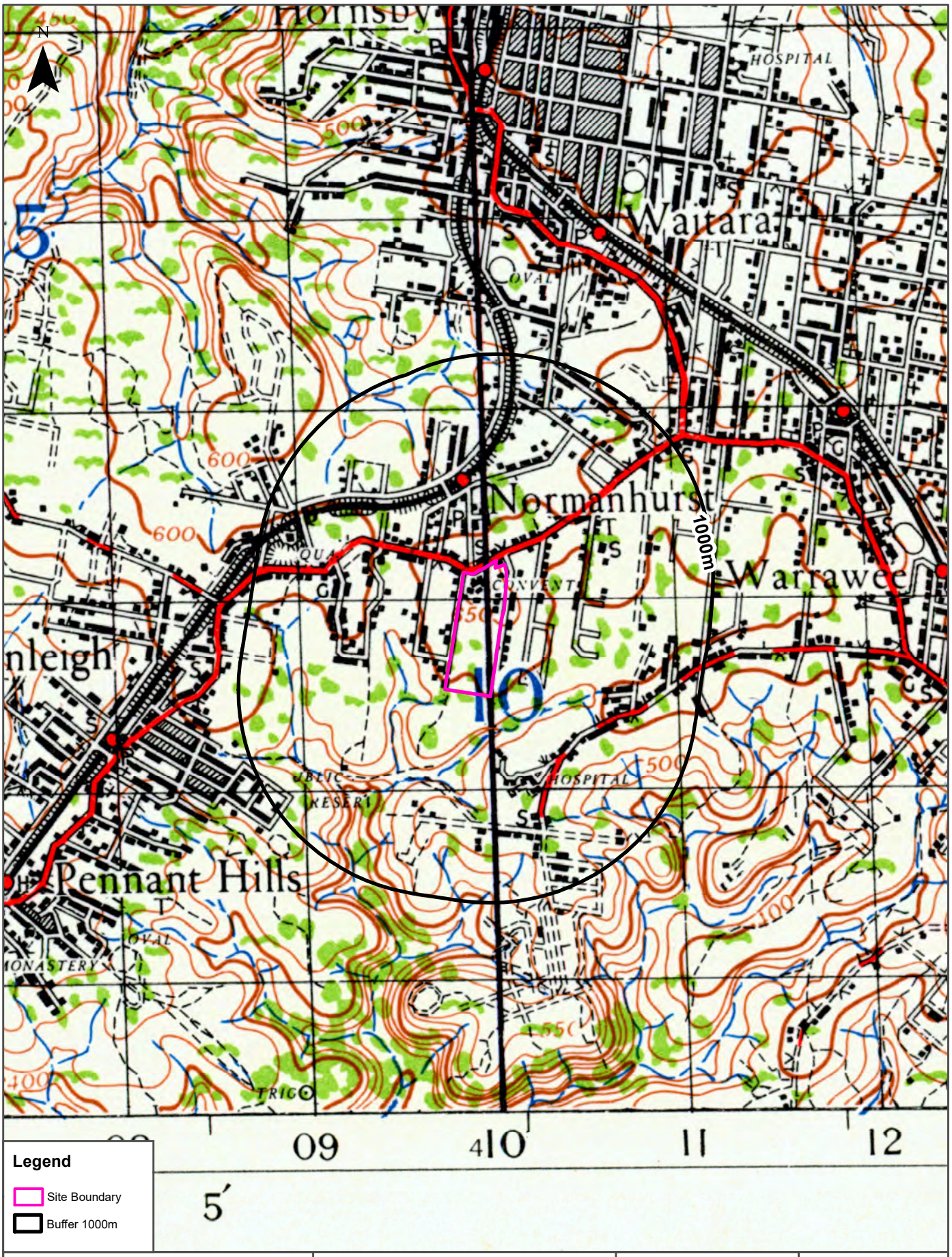
Historical Map 1975

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Scale: 0 200 400 800 Meters	Data Sources: Sheet 9130, Sydney (Edition 1) NATMAP 1:100,000 Topographic Maps Geoscience Australia	Coordinate System: GDA 1994 MGA Zone 56	Date: 24 August 2018

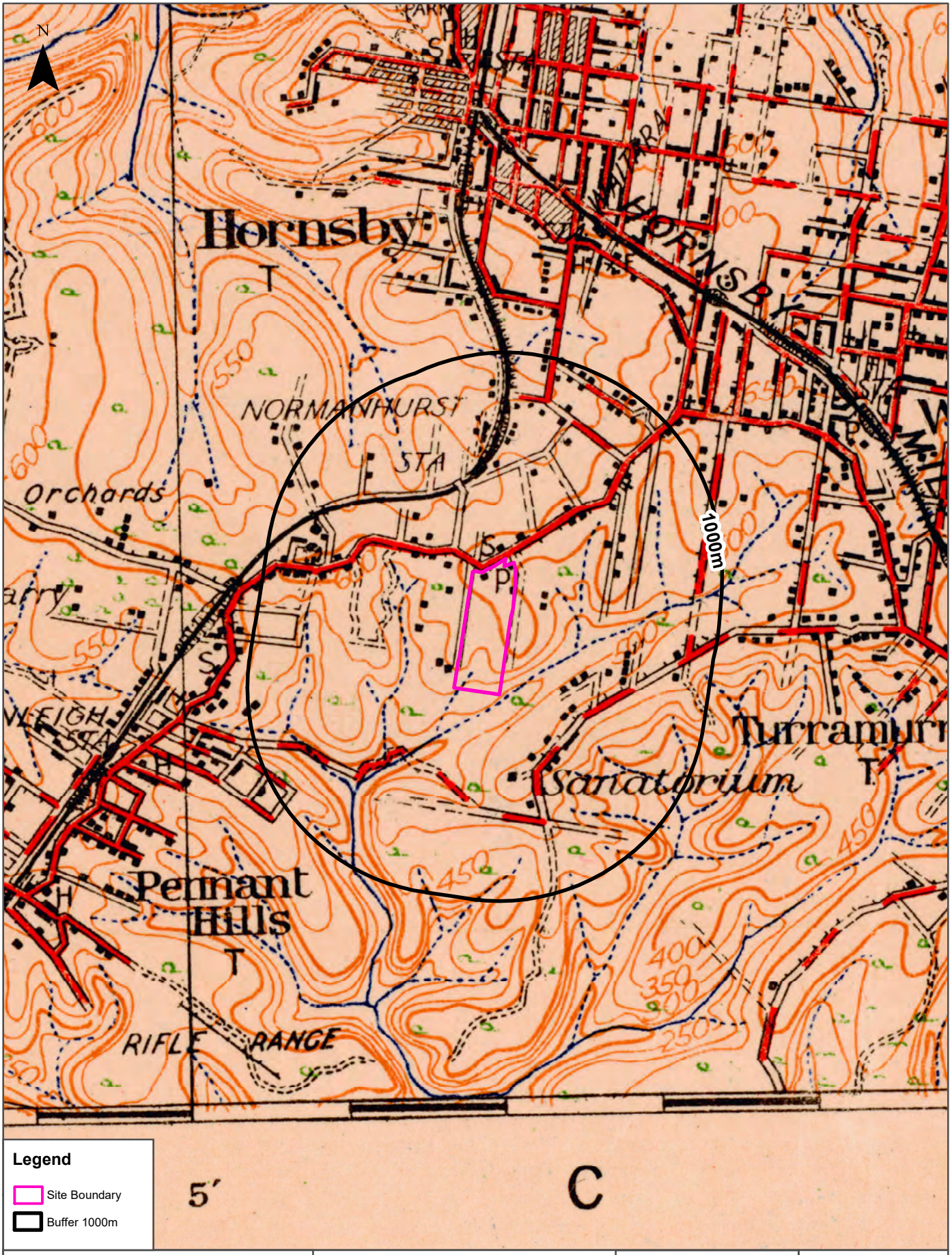
Historical Map c.1942

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Historical Map c.1920

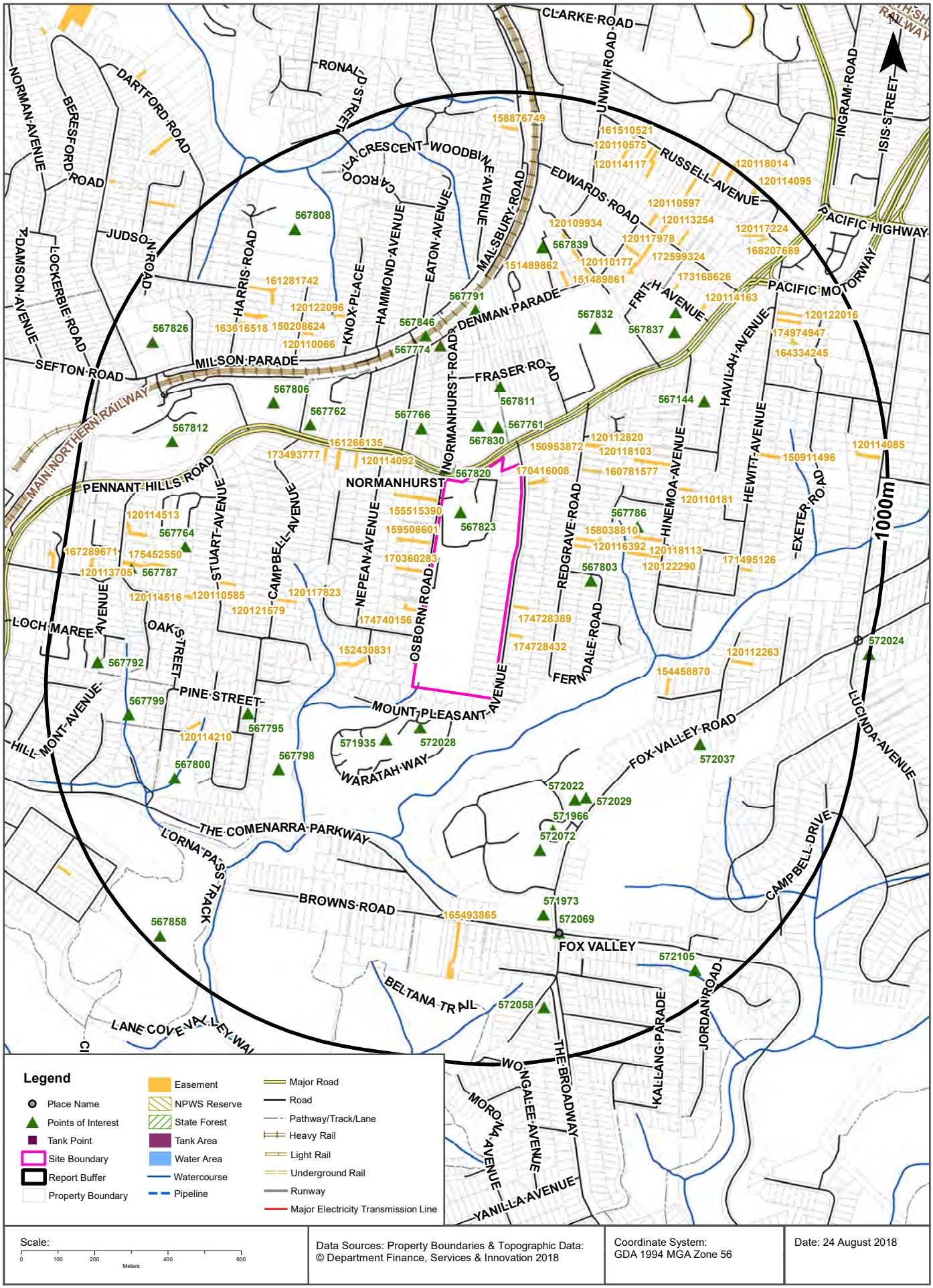
91-93 Pennant Hills Road, Normanhurst, NSW 2076



Scale: 0 200 400 800 1,200 Meters	Data Sources: Australia 1:63360 Sheet 417 Broken Bay, New South Wales Prepared by Commonwealth Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 24 August 2018

Topographic Features

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Topographic Features

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
567823	High School	LORETO NORMANHURST	0m	Onsite
567820	Suburb	NORMANHURST	28m	North
567761	Place Of Worship	MORMON CHURCH	85m	North
572028	Community Home	ELIZABETH LODGE HOSTEL	108m	South
567830	Primary School	NORMANHURST PUBLIC SCHOOL	111m	North
567766	Place Of Worship	UNITING CHURCH	157m	North
571935	Community Facility	ESTHER SOMERVILLE	161m	South West
567811	Park	LIPSCOMB RESERVE	196m	North
567803	Park	Park	218m	East
567786	Park	PHILIPPA O'LEARY PARK	323m	East
567774	Post Office	NORMANHURST POST OFFICE	351m	North
572022	Place Of Worship	SEVENTH DAY ADVENTIST CHURCH	355m	South East
572029	Primary School	WAHROONGA ADVENTIST SCHOOL 181 FOX VALLEY RD	371m	South East
571966	Helipad	Helipad	395m	South
567846	Railway Station	NORMANHURST RAILWAY STATION	395m	North
567762	Place Of Worship	ANGLICAN CHURCH	399m	North West
567791	Park	DAVIDSON PARK	411m	North
567832	High School	NORMANHURST BOYS HIGH SCHOOL	427m	North East
567798	Park	Park	429m	South West
572072	General Hospital	SYDNEY ADVENTIST PRIVATE HOSPITAL	433m	South
567795	Park	Park	454m	South West
567806	Park	KENLEY PARK	515m	North West
567144	Nursing Home	GREENWOOD AGED CARE	535m	North East
567837	Retirement Village	BOWDEN BRAE VILLAGE	558m	North East
572037	Child Care Centre	FOX VALLEY PRE-SCHOOL	578m	South East
567839	Retirement Village	BRAMBLEWOOD RETIREMENT VILLAGE	585m	North
567149	Nursing Home	UNITING BOWDEN BRAE NORMANHURST	596m	North East
571973	Combined Primary-Secondary School	WAHROONGA ADVENTIST SCHOOL	607m	South
572069	Locality	FOX VALLEY	665m	South
567764	Place Of Worship	CATHOLIC CHURCH	673m	West

Map Id	Feature Type	Label	Distance	Direction
567800	Park	Park	694m	South West
567812	Park	BRICKPIT PARK	752m	North West
567799	Park	Park	777m	West
567808	Park	NORMANHURST PARK	800m	North West
567787	Park	Park	809m	West
572058	Park	Park	854m	South
567792	Park	Park	861m	West
567826	Primary School	NORMANHURST WEST PUBLIC SCHOOL	884m	North West
572105	Park	SIR ROBERT MENZIES PARK	924m	South East
567858	Park	Park	968m	South West
572024	Park	WILLIAM LEWIS PARK	998m	East

Topographic Features

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
	No records in buffer					

Major Easements

What Major Easements exist within the dataset buffer?
Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
155515390	Primary	Right of way	6.095m	16m	North West
159508601	Primary	Right of way	variable	16m	North West
170360283	Primary	Right of way	3.66m	16m	West
174740156	Primary	Right of way	3.5m & var	16m	South West
174728389	Primary	Right of way	3.5m	20m	South East
174728432	Primary	Right of way	4m	20m	South East
170416008	Primary	Right of way	Var	20m	North East
152430831	Primary	Right of way		137m	South West
120116392	Primary	Undefined		147m	East
158038810	Primary	Right of way	1.7m and VAR	148m	East
160781577	Primary	Right of way	4	168m	North East
120112820	Primary	Undefined		191m	North East
150953872	Primary	Right of way	4 WIDE	192m	North East

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120114092	Primary	Undefined		248m	North West
161266135	Primary	Right of way	6.095	295m	North West
120122290	Primary	Undefined		298m	East
120118103	Primary	Undefined		313m	North East
120118113	Primary	Undefined		317m	East
173493777	Primary	Right of way		332m	North West
120117823	Primary	Undefined		351m	West
120121579	Primary	Undefined		373m	West
120110181	Primary	Undefined		419m	North East
154458870	Primary	Right of way	variable	464m	South East
151489862	Primary	Right of way	2.865m & var	501m	North
151489861	Primary	Right of way	1.135m & var	503m	North
120122096	Primary	Undefined		518m	North West
120110585	Primary	Undefined		523m	West
120110066	Primary	Undefined		538m	North West
120109934	Primary	Undefined		548m	North
120114516	Primary	Undefined		568m	West
120114210	Primary	Undefined		586m	South West
172599324	Primary	Right of way	3.5m, 4m & VAR	601m	North East
171495126	Primary	Right of way	3.5 Wide & Vari	615m	East
165493865	Primary	Right of way	4m & Variable	620m	South
120112263	Primary	Undefined		630m	East
173168626	Primary	Right of way	3.5	631m	North East
150208624	Primary	Right of way	4,5,var	634m	North West
150911496	Primary	Right of way	4 WIDE	648m	North East
120114163	Primary	Undefined		648m	North East
120110177	Primary	Undefined		657m	North East
163616518	Primary	Right of way	3.655m & var	661m	North West
161281742	Primary	Right of way	VAR	672m	North West
175452550	Primary	Right of way	4.57 & Variable	720m	West
120117978	Primary	Undefined		741m	North East
174056262	Primary	Right of way	3.6m	743m	North East
120113254	Primary	Right of way		746m	North East
120114513	Primary	Undefined		783m	West
164334245	Primary	Right of way	3.655m and var	783m	North East
120113705	Primary	Undefined		803m	West
174974947	Primary	Right of way	3.5m	807m	North East

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120122016	Primary	Undefined		819m	North East
120114117	Primary	Undefined		860m	North East
120110597	Primary	Undefined		867m	North East
161510521	Primary	Right of way		868m	North
120117224	Primary	Undefined		874m	North East
120110575	Primary	Undefined		892m	North
168207689	Primary	Right of way	3metres wide	895m	North East
158876749	Primary	Right of way		897m	North
167289671	Primary	Right of way	4m & Var	912m	West
120114085	Primary	Undefined		914m	East
120121543	Primary	Undefined		950m	North East
120118014	Primary	Undefined		953m	North East
120114095	Primary	Undefined		968m	North East

Topographic Features

91-93 Pennant Hills Road, Normanhurst, NSW 2076

State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

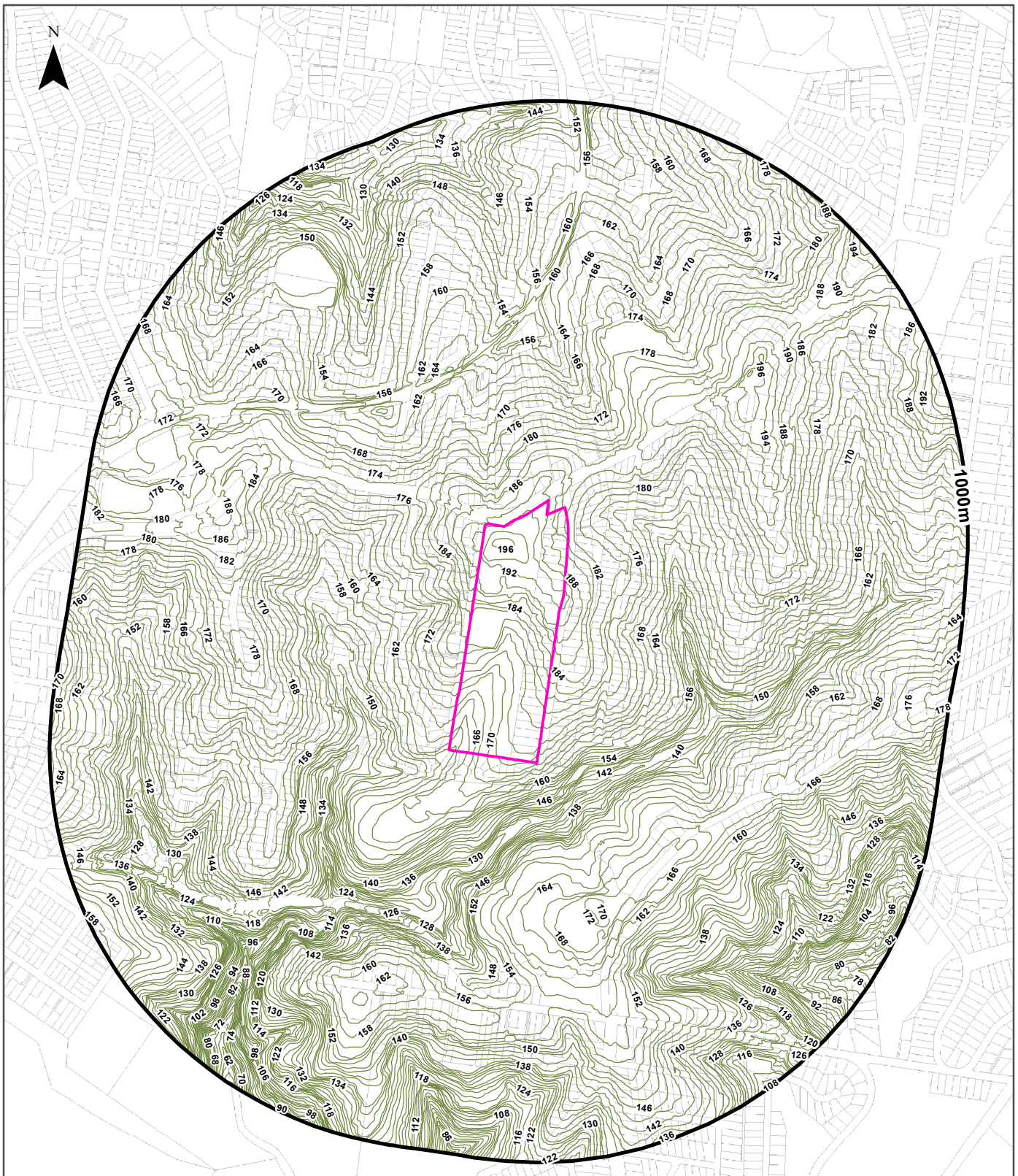
National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

Elevation Contours (m AHD)

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Legend

- Elevation Contour (m AHD)
- Site Boundary
- Report Buffer
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale: 0 100 200 400 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2018	Coordinate System: GDA 1994 MGA Zone 56	Date: 24 August 2018

Hydrogeology & Groundwater

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Porous, extensive aquifers of low to moderate productivity

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)

Botany Groundwater Management Zones

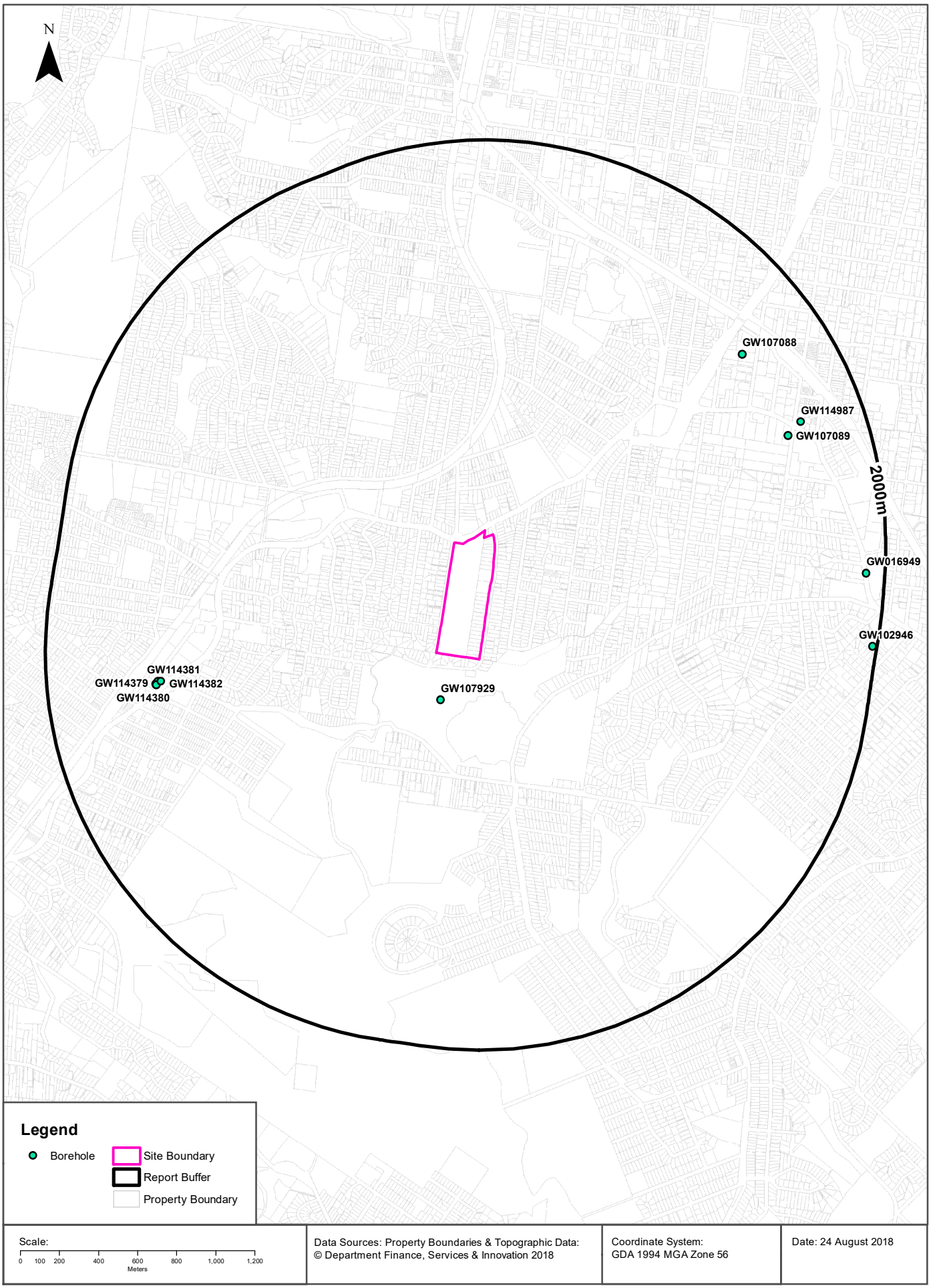
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Hydrogeology & Groundwater

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW107929	10BL164420, 10BL165856, 10WA109473	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		18/03/2005	180.00	180.00	1800	58.00	0.100		234m	South
GW114382	10BL604932	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Thornleig	28/07/2011	7.00	7.00		1.84			1414m	West
GW114381	10BL604932	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Thornleig	28/07/2011	8.00	8.00		2.43			1430m	West
GW114380	10BL604932	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Thornleig	28/07/2011	8.00	8.00		2.90			1441m	West
GW114379	10BL604932	Bore	Private	Monitoring Bore	Monitoring Bore	BP - Thornleig	28/07/2011	8.00	8.00		2.43			1442m	West
GW107088	10BL164779, 10BL165192, 10WA109443	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		11/01/2005	162.00	162.00	670	78.50	1.000		1574m	North East
GW107089	10BL164780, 10BL165191, 10WA109445	Bore		Recreation (groundwater), Test Bore	Recreation (groundwater)		13/01/2005	216.00	216.00	470	65.00	0.100		1591m	North East
GW114987	10BL604934			Monitoring Bore	Monitoring Bore		17/08/2011	10.00	10.00		1.87			1677m	North East
GW016949	10BL008051	Well	Private	Recreation (groundwater)	Irrigation		01/01/1958	11.70	11.70	Very Poor				1906m	East
GW102946	10BL159554, 10WA108455	Bore		Domestic, Stock	Domestic, Stock		15/03/2000	186.50	186.50	843				1977m	East

Hydrogeology & Groundwater

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Driller's Logs

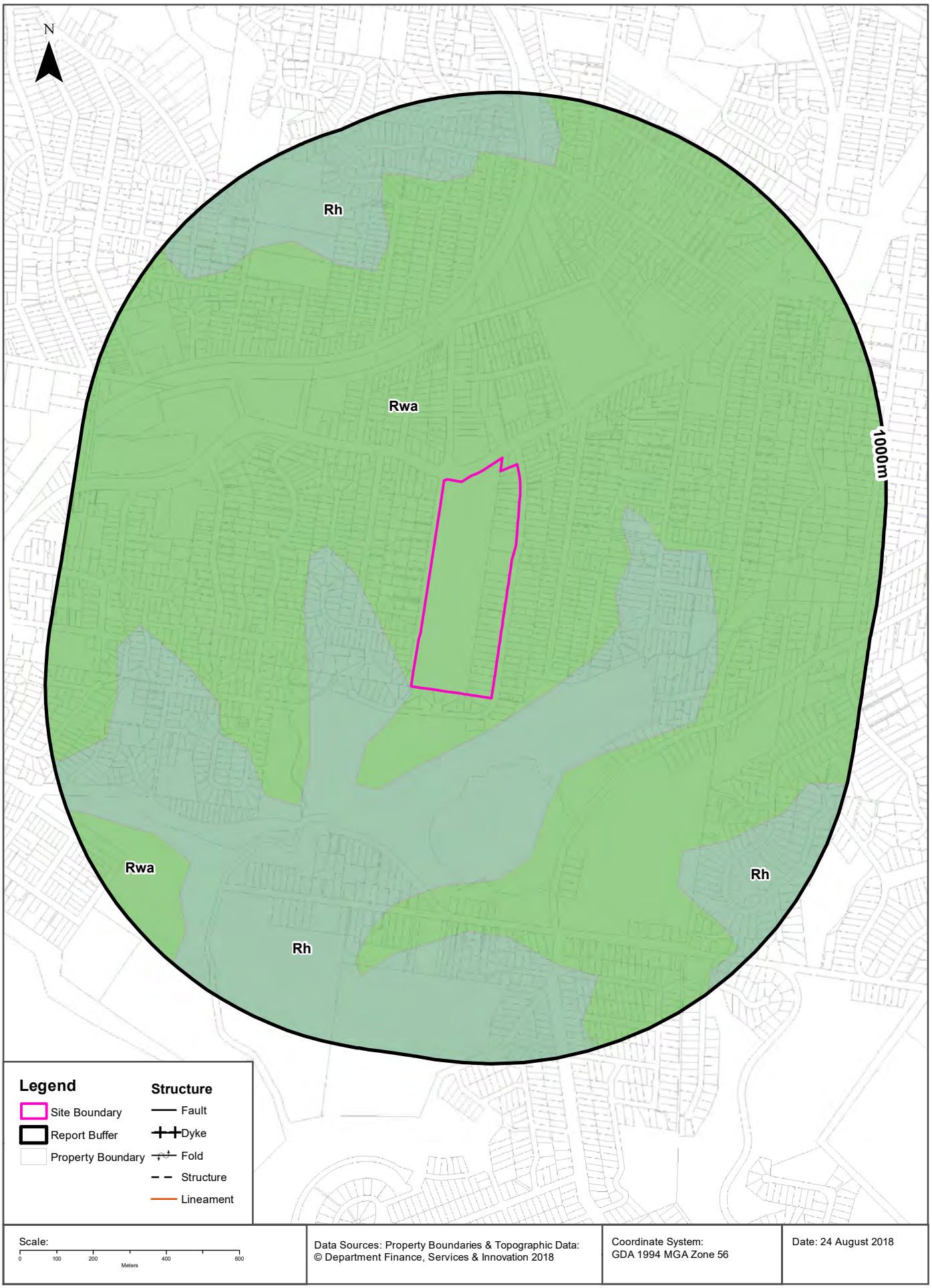
Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW107929	0.00m-16.00m SANDSTONE L./B 16.00m-17.00m SANDSTONE,FRACTURED, SOFT 17.00m-35.00m SANDSTONE GREY 35.00m-35.50m SHALE 35.50m-73.00m SANDSTONE GREY 73.00m-74.50m SANDSTONE FINE QUARTZ 74.50m-83.00m SANDSTONE GREY 83.00m-88.00m SANDSTONE D/G 88.00m-92.00m SANDSTONE GREY 92.00m-92.50m SANDSTONE F/Q 92.50m-117.00m SANDSTONE D/G 117.00m-117.20m SANDSTONE FRACTURED 117.20m-124.00m SANDSTONE GREY 124.00m-124.50m SANDSTONE F/Q 124.50m-133.00m SANDSTONE GREY 133.00m-135.00m SANDSTONE / QUARTZ 135.00m-153.00m SANDSTONE GREY 153.00m-156.50m SANDSTOHNE FINE QUARTZ 156.50m-180.00m SANDSTONE GREY	234m	South
GW114382	0.00m-0.14m CONCRETE 0.14m-0.20m GRAVELLY SAND,MINOR SILT,GREY BROWN 0.20m-0.60m SILTY SAND,MINOR CLAY 0.60m-1.55m SILTY SAND,FINE SAND,ORANGE,GREY,BROWN 1.55m-7.00m SANDSTONE,WEATHERED,ORANGE GREY	1414m	West
GW114381	0.00m-0.15m CONCRETE 0.15m-0.25m SANDY GRAVEL,MINOR SILT GREY BROWN 0.25m-2.70m SILTY CLAY,MINOR SANDSTONE GRAVEL 2.70m-8.00m SANDSTONE,HIGLY TO M/WEATHERED	1430m	West
GW114380	0.00m-0.23m CONCRETE 0.23m-0.50m SANDY GRAVEL 0.50m-0.80m SANDY SILTY GRAVELLY CLAY 0.80m-2.30m SILTY SANDSTONE GRAVEL 2.30m-8.00m SANDSTONE,WEATHERED ORANGE RED BROWN	1441m	West
GW114379	0.00m-0.15m CONCRETE 0.15m-1.03m SILTY CLAY MINOR GRAVEL 1.03m-2.40m SANDY SILTY CLAY,GRAVEL ORANGEY BROWN 2.40m-8.00m SANDSTONE,WEATHERED	1442m	West
GW107088	0.00m-5.50m CLAY BROWN 5.50m-11.00m CLAY WHITE 11.00m-40.00m SANDSTONE L/GREY 40.00m-43.00m SANDSTONE,SHALE BEDDING 43.00m-47.50m SANDSTONE GREY 47.50m-48.30m SANDSTONE QUARTZ 48.30m-61.00m SANDSTONE GREY 61.00m-63.50m SANDSTONE,D/GREY 63.50m-67.50m SANDSTONE GREY 67.50m-68.00m SANDSTONE,FINE QUARTZ 68.00m-113.00m SANDSTONE GREY 113.00m-113.50m SANDSTONE,QUARTZ 113.50m-145.00m SANDSTONE GREY 145.00m-147.00m SANDSTONE QUARTZ 147.00m-153.00m SANDSTONE GREY 153.00m-154.00m SANDSTONE FINE QUARTZ 154.00m-157.00m SANDSTONE GREY 157.00m-157.20m SANDSTONE FRACTURED 157.20m-162.00m SANDSTONE GREY	1574m	North East

Groundwater No	Drillers Log	Distance	Direction
GW107089	0.00m-1.00m FILL 1.00m-5.00m CLAY BROWN 5.00m-21.00m SHALE 21.00m-57.00m SANDSTONE GREY 57.00m-58.00m SANDSTONE F/QUARTZ 58.00m-71.00m SANDSTONE GREY 71.00m-72.00m SANDSTONE ,SHALE BEDDING 72.00m-74.00m SHALE HARD 74.00m-121.50m SANDSTONE GREY 121.50m-123.50m SANDSTONE F/QUARTZ 123.50m-125.00m SANDSTONE GREY 125.00m-126.00m SANDSTONE QUARTZ 126.00m-175.00m SANDSTONE GREY 175.00m-175.30m SANDSTONE, QUARTZ 175.30m-181.00m SANDSTONE GREY 181.00m-181.50m SANDSTONE QUARTZ 181.50m-191.00m SANDSTONE GREY 191.00m-192.00m SANDSTONE QUARTZ 192.00m-200.00m SANDSTONE GREY 200.00m-201.50m SANDSTONE F/QUARTZ 201.50m-216.00m SANDSTONE GREY	1591m	North East
GW016949	0.00m-1.21m Topsoil 1.21m-2.13m Clay 2.13m-11.73m Shale	1906m	East
GW102946	0.00m-7.00m FILL 7.00m-10.00m WEATHERED SHALE 10.00m-13.00m WEATHERED SANDSTONE 13.00m-38.00m SANDSTONE M.G. 38.00m-40.00m SANDSTONE QUARTZ 40.00m-67.00m SANDSTONE M.G. 67.00m-69.50m HARD SHALE 69.50m-82.00m SANDSTONE M.G. 82.00m-84.50m SANDSTONE AND SHALE 84.50m-92.00m SANDSTONE M.G. 92.00m-95.00m SHALE AND SANDSTONE 95.00m-95.50m QUARTZ 95.50m-98.00m SANDSTONE M.G. 98.00m-113.50m SANDSTONE M.G. 113.50m-115.00m SANDSTONE AND QUARTZ 115.00m-154.00m SANDSTONE M.G. 154.00m-157.00m SANDSTONE AND QUARTZ 157.00m-160.50m SANDSTONE M.G. 160.50m-163.00m SANDSTONE AND QUARTZ 163.00m-165.00m SANDSTONE M.G. 165.00m-167.00m SANDSTONE AND QUARTZ 167.00m-169.00m SANDSTONE M.G. 169.00m-171.00m SANDSTONE QUARTZ 171.00m-172.50m SANDSTONE M.G. 172.50m-173.00m HARD SHALE 173.00m-178.00m SANDSTONE F/G 178.00m-179.00m SANDSTONE AND QUARTZ 179.00m-186.50m HARD SHALE	1977m	East

Geology 1:100,000

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Geology

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	1:100,000
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Naturally Occurring Asbestos Potential

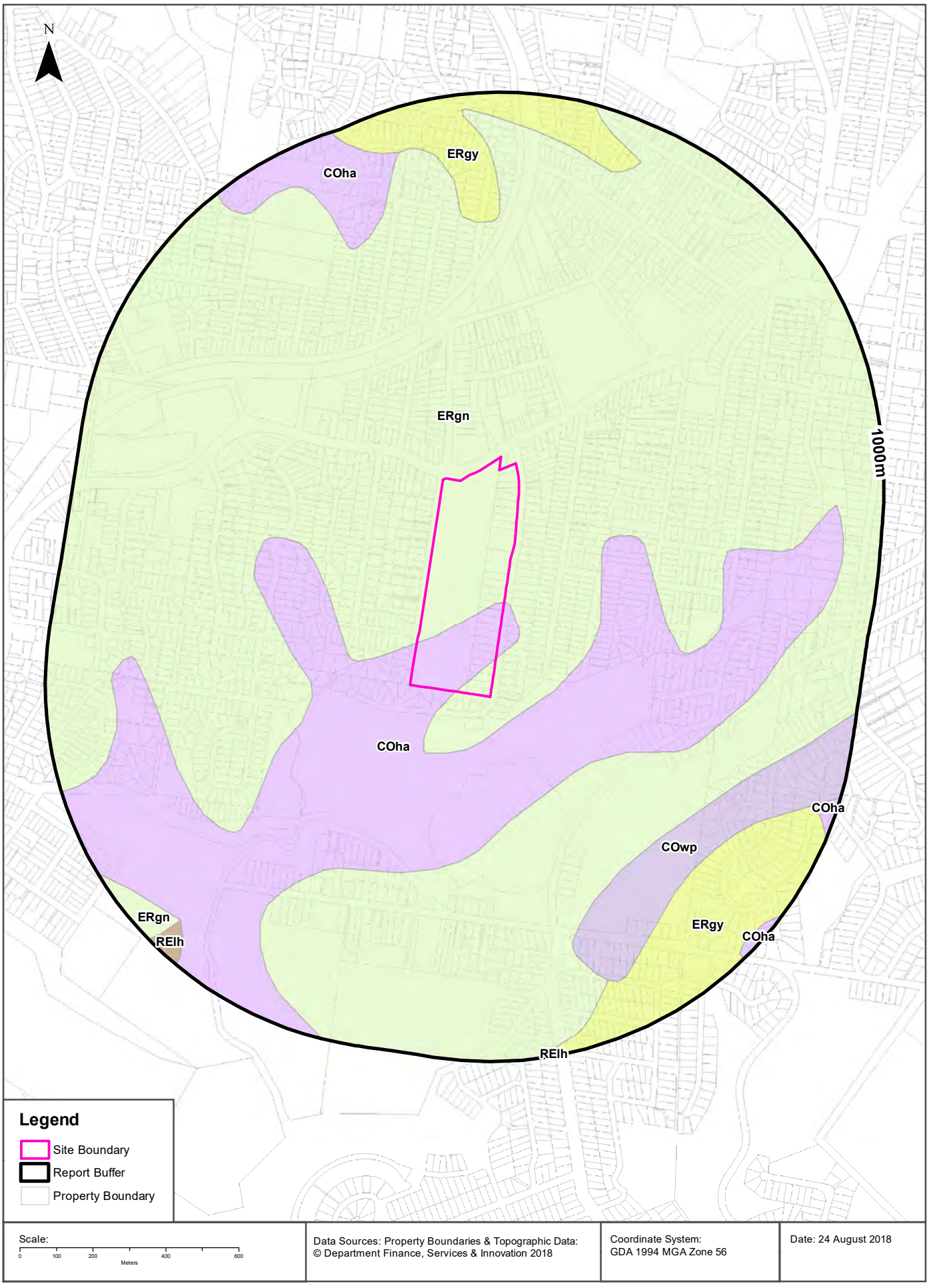
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Soil Landscapes

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Soil Landscapes

What are the onsite Soil Landscapes?

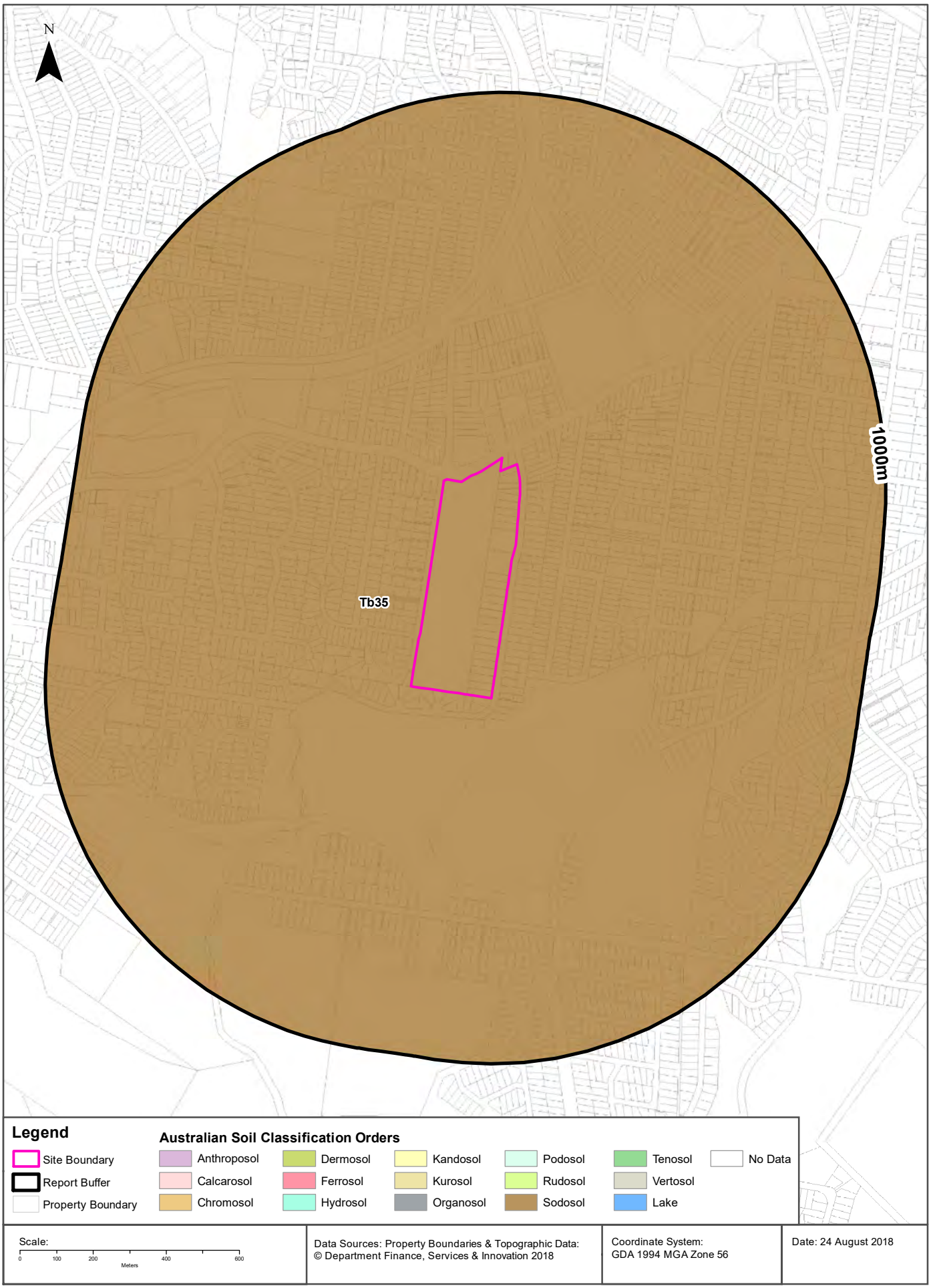
Soil Code	Name	Group	Process	Map Sheet	Scale
COha	HAWKESBURY		COLLUVIAL	Sydney	1:100,000
ERgn	GLENORIE		EROSIONAL	Sydney	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
COha	HAWKESBURY		COLLUVIAL	Sydney	1:100,000
COwp	WEST PENNANT HILLS		COLLUVIAL	Sydney	1:100,000
ERgn	GLENORIE		EROSIONAL	Sydney	1:100,000
ERgy	GYMEA		EROSIONAL	Sydney	1:100,000
RElh	LUCAS HEIGHTS		RESIDUAL	Sydney	1:100,000

Atlas of Australian Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076

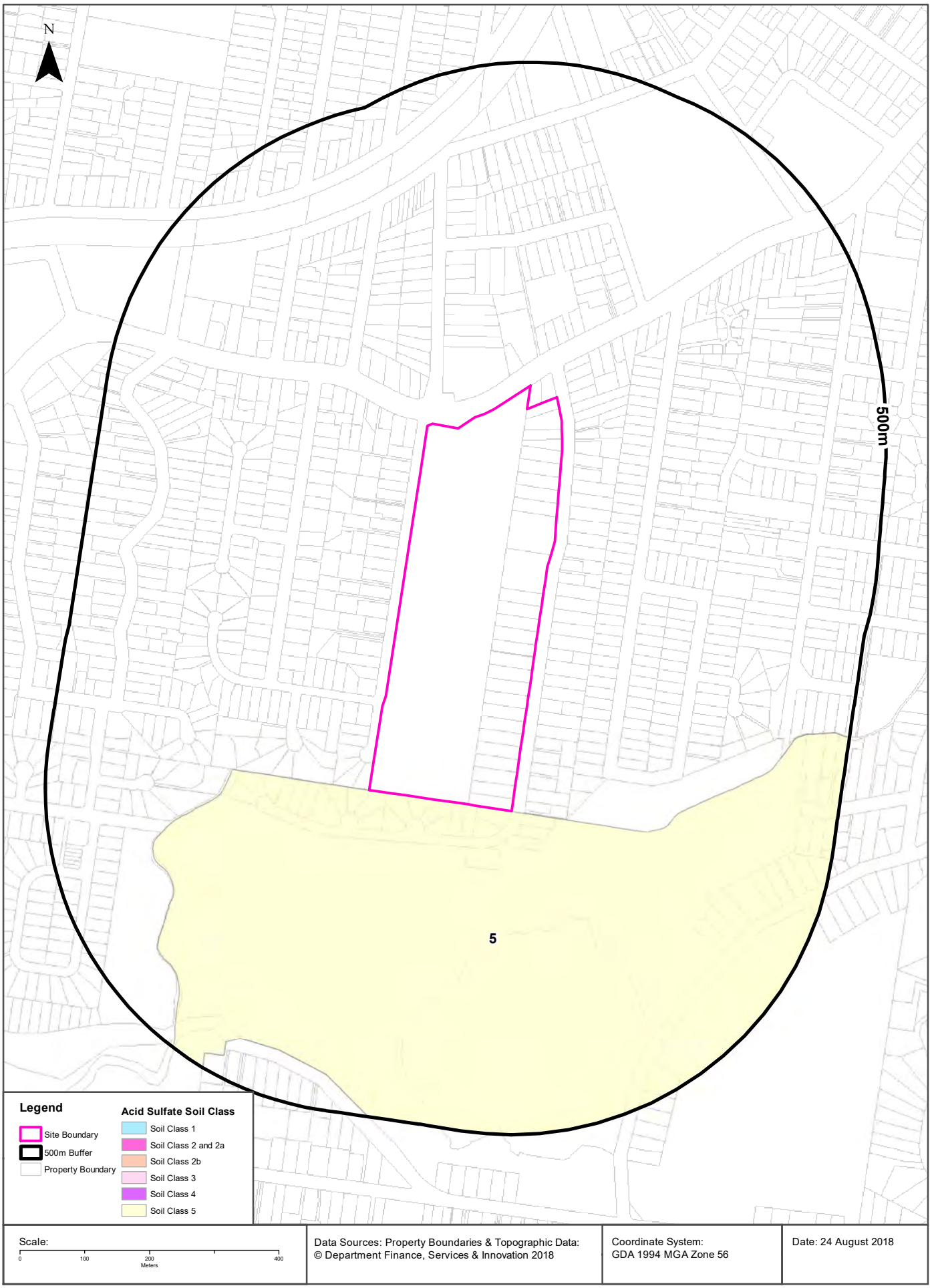
Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance
Tb35	Sodosol	Dissected plateau remnants--flat to undulating ridge tops with moderate to steep side slopes: chief soils are hard acidic yellow and yellow mottled soils (Dy3.41), (Dy2.21), and (Dy2.41) and hard acidic red soils (Dr2.21); many shallow profiles occur and profile thickness varies considerably over short distances. Associated are: (Gn3.54), (Gn3.14), and possibly other (Gn3) soils; (Db1.2) soils on some ridges; (Dy5.81) soils in areas transitional to unit Mb2; soils common to unit Mb2; and eroded lateritic remnants. Small areas of other soils are likely. Flat ferruginous shale or sandstone fragments are common on and/or in and/or below the soils of this unit.	0m

Acid Sulfate Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Acid Sulfate Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Standard Local Environmental Plan Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

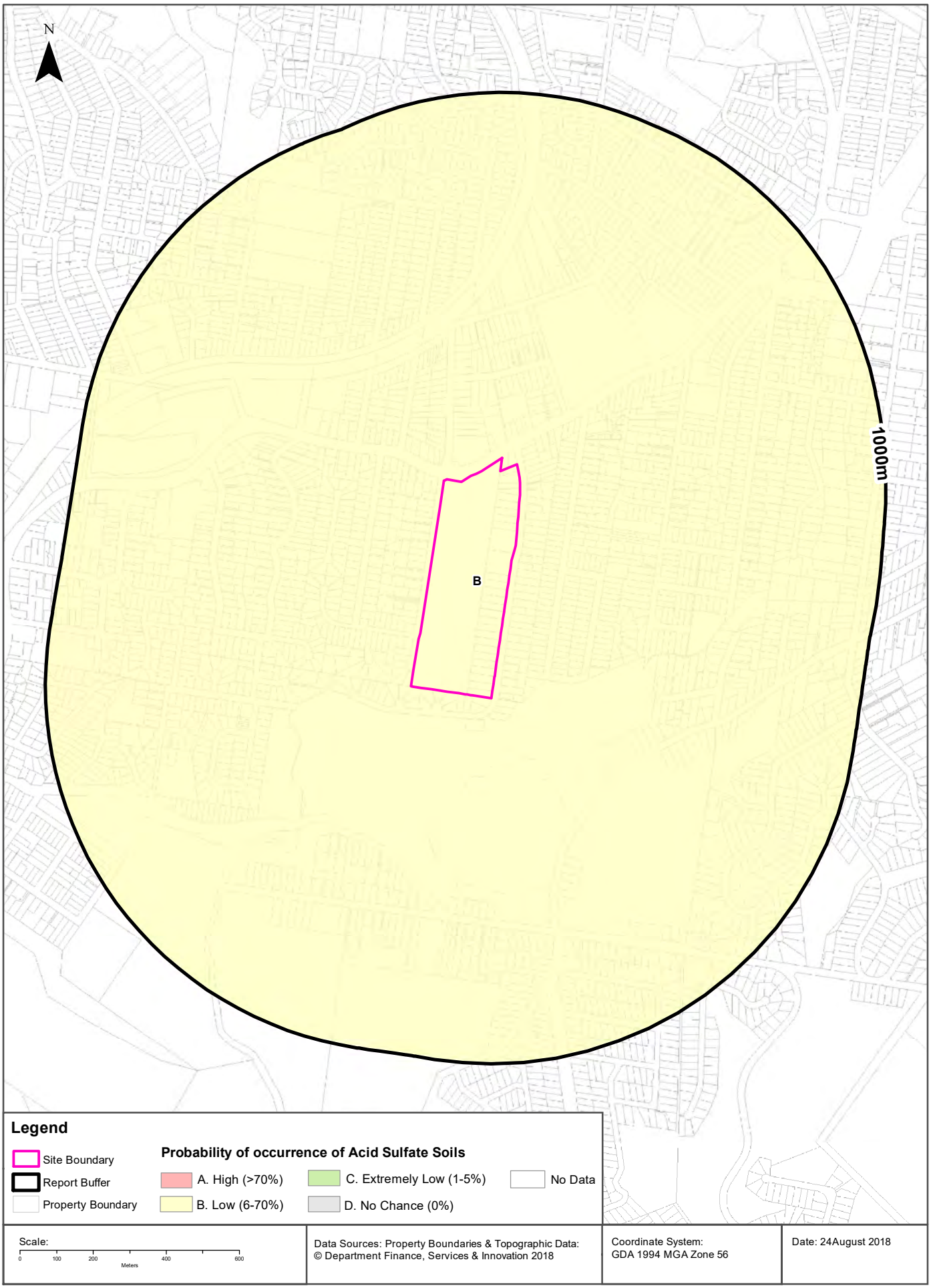
Soil Class	Description	LEP
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Ku-ring-gai Local Environmental Plan 2015

If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	LEP	Distance	Direction
None				

Atlas of Australian Acid Sulfate Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Acid Sulfate Soils

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m

Dryland Salinity

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage

Mining Subsidence Districts

91-93 Pennant Hills Road, Normanhurst, NSW 2076

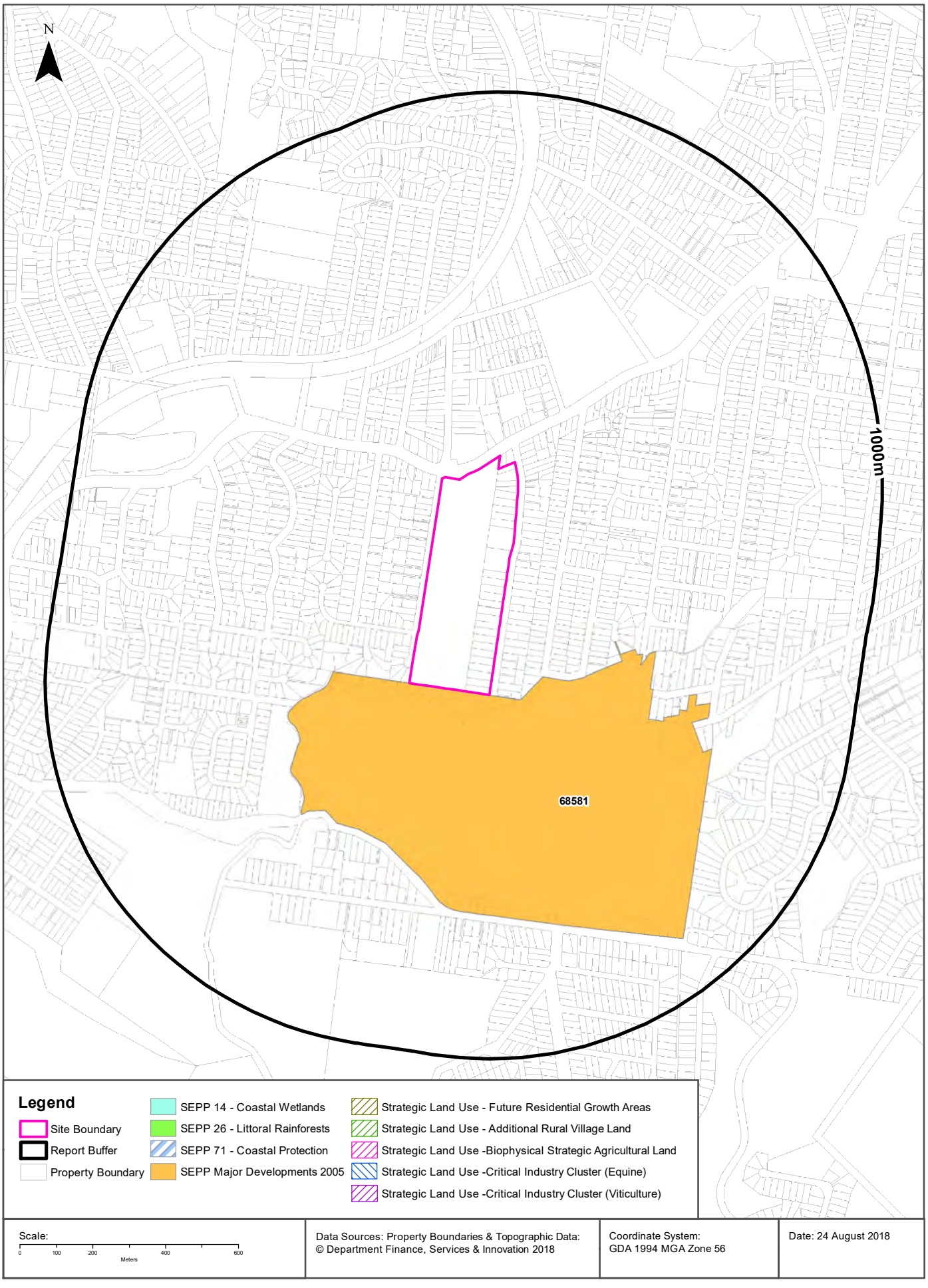
Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

State Environmental Planning Policy

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Environmental Zoning

91-93 Pennant Hills Road, Normanhurst, NSW 2076

State Environmental Planning Policy Protected Areas

Are there any State Environmental Planning Policy Protected Areas onsite or within the dataset buffer?

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	No	No	N/A

SEPP Protected Areas Data Source: NSW Department of Planning & Environment

State Environmental Planning Policy Major Developments (2005)

State Environmental Planning Policy Major Developments within the dataset buffer:

Map Id	Feature	Effective Date	Distance	Direction
68581	Wahroonga Estate	18/12/2009	0m	South

SEPP Major Development Data Source: NSW Department of Planning & Environment

State Environmental Planning Policy Strategic Land Use Areas

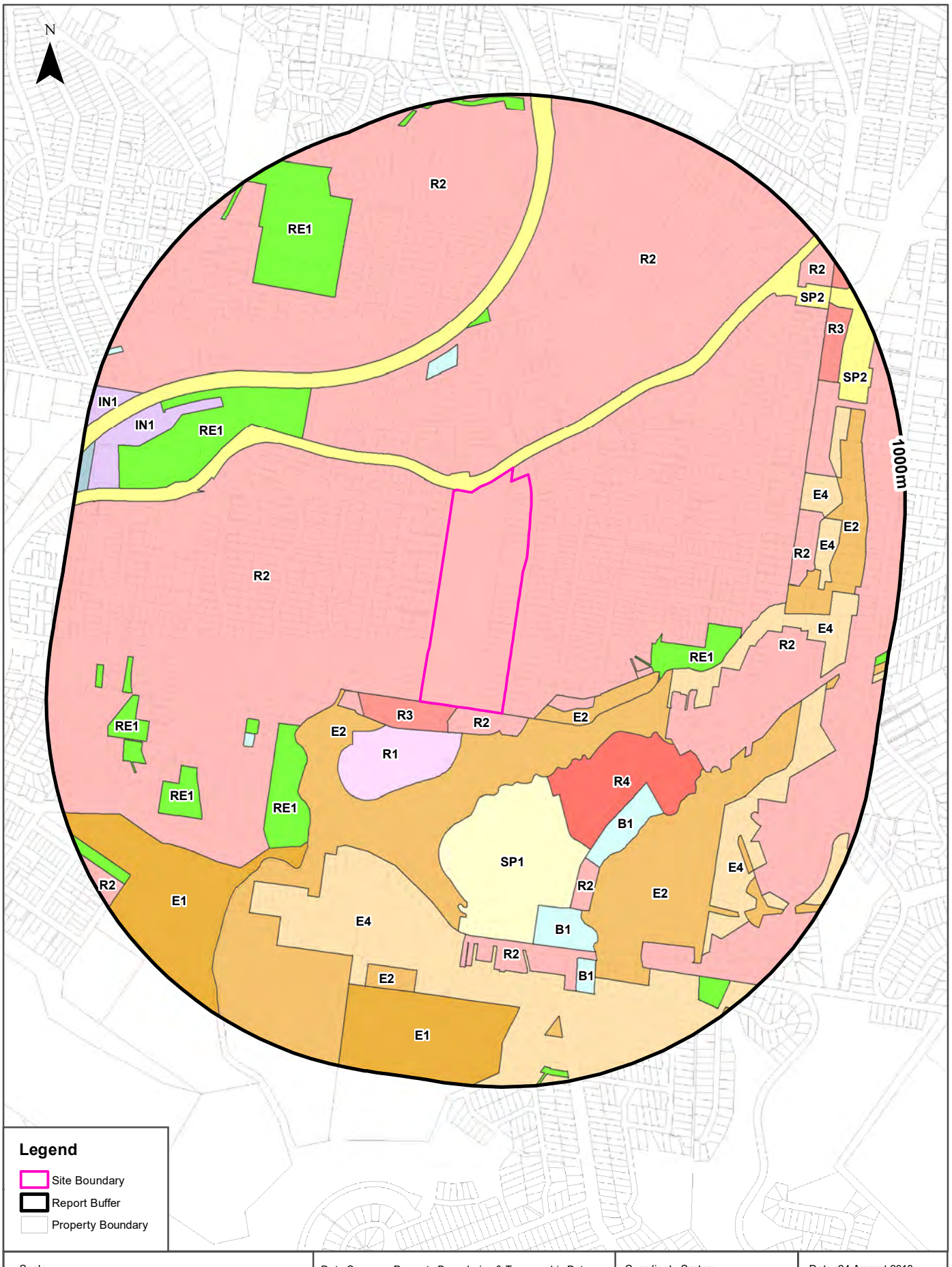
State Environmental Planning Policy Strategic Land Use Areas onsite or within the dataset buffer:

Strategic Land Use	SEPPNo	Effective Date	Amendment	Amendment Year	Distance	Direction
No records within buffer						

SEPP Strategic Land Use Data Source: NSW Department of Planning & Environment

LEP Planning Zones

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Local Environmental Plan

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Land Zoning

What Local Environmental Plan Land Zones exist within the dataset buffer?

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		0m	Onsite
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		0m	South
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		0m	South West
SP2	Infrastructure	Road	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		0m	North West
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		29m	North
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		47m	South
R1	General Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		69m	South West
E2	Environmental Conservation		State Environmental Planning Policy (State Significant Precincts) 2005	05/08/2011	05/08/2011	21/12/2012	State Environmental Planning Policy (Major Development) Amendment (UTS Ku-ring-gai Campus and Wahroonga Estate) 2012	86m	South East
R2	Low Density Residential		State Environmental Planning Policy (State Significant Precincts) 2005	05/08/2011	05/08/2011	30/12/1899	State Environmental Planning Policy (Major Development) Amendment (UTS Ku-ring-gai Campus and Wahroonga Estate) 2012	116m	South East
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		155m	South West
SP1	Special Activities	Health Services Facilities	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		187m	South
R4	High Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		207m	South East
B1	Neighbourhood Centre		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		306m	North
R2	Low Density Residential		State Environmental Planning Policy (State Significant Precincts) 2005	05/08/2011	05/08/2011	30/12/1899	State Environmental Planning Policy (Major Development) Amendment (UTS Ku-ring-gai Campus and Wahroonga Estate) 2012	318m	South East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		328m	South West
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		330m	East
SP2	Infrastructure	Railway	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		359m	South West

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		394m	North
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		398m	North West
B1	Neighbourhood Centre		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		409m	South East
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	19/01/2018	19/01/2018	19/01/2018	Amendment No 14	426m	South
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		429m	North West
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		434m	East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		434m	South West
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	19/01/2018	19/01/2018	19/01/2018	Amendment No 14	442m	South East
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		445m	South
B1	Neighbourhood Centre		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		450m	South West
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		477m	South East
E1	National Parks and Nature Reserves		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		481m	South West
B1	Neighbourhood Centre		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		521m	South
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	19/01/2018	19/01/2018	19/01/2018	Amendment No 14	599m	South
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	29/09/2017	29/09/2017	29/09/2017	Amendment No 8	609m	North West
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		622m	South West
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		644m	South East
IN1	General Industrial		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		658m	North West
B1	Neighbourhood Centre		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		685m	South
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		703m	East
R2	Low Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		703m	East
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		713m	South East
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		714m	South
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		718m	East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		726m	West
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		751m	South West
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		767m	East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		771m	West
E1	National Parks and Nature Reserves		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		773m	South
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		801m	North East
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		803m	South East
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		816m	North East
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	19/01/2018	19/01/2018	19/01/2018	Amendment No 14	822m	South
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		847m	East

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		849m	South East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		852m	West
SP2	Infrastructure	Classified Road	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		854m	North East
IN1	General Industrial		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		874m	West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		879m	South East
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		880m	North East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		904m	South West
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		940m	South East
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		950m	South East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	19/01/2018	19/01/2018	19/01/2018	Amendment No 14	953m	South
R3	Medium Density Residential		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		955m	North East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		956m	North
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		958m	North
B1	Neighbourhood Centre		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		960m	North West
E2	Environmental Conservation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		968m	East
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		968m	East
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		968m	East
B6	Enterprise Corridor		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		969m	West
RE1	Public Recreation		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		995m	South East
E4	Environmental Living		Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018		997m	South East

Local Environmental Plan

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Minimum Subdivision Lot Size

What are the onsite Local Environmental Plan Minimum Subdivision Lot Sizes?

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
I	500 m²	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		99.99

Maximum Height of Building

What are the onsite Local Environmental Plan Maximum Height of Buildings?

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
9	8.50 m	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		99.9

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	11/10/2013		100

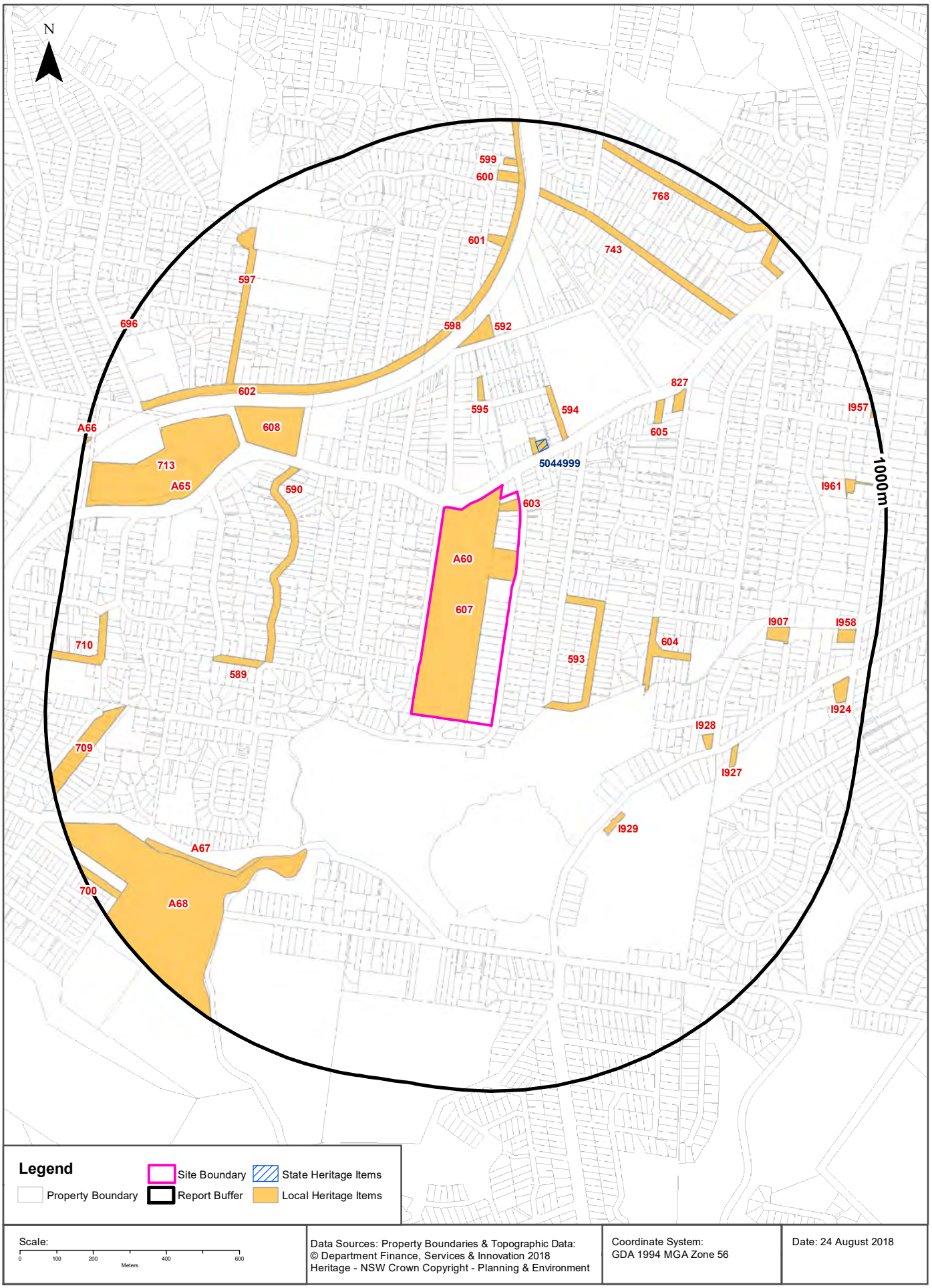
Land Reservation Acquisition

What are the onsite Local Environmental Plan Land Reservation Acquisitions?

Reservation	LEP	Published Date	Commenced Date	Currency Date	Amendment	Comments	Percentage of Site Area
No Data							

Heritage Items

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Heritage

91-93 Pennant Hills Road, Normanhurst, NSW 2076

State Heritage Items

What are the State Heritage Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5044999	Gilligaloola	82-84 Pennant Hills Road Normanhurst	Hornsby	02/04/1999	271	664	124m	North East

Local Heritage Items

What are the Local Heritage Items located within the dataset buffer?

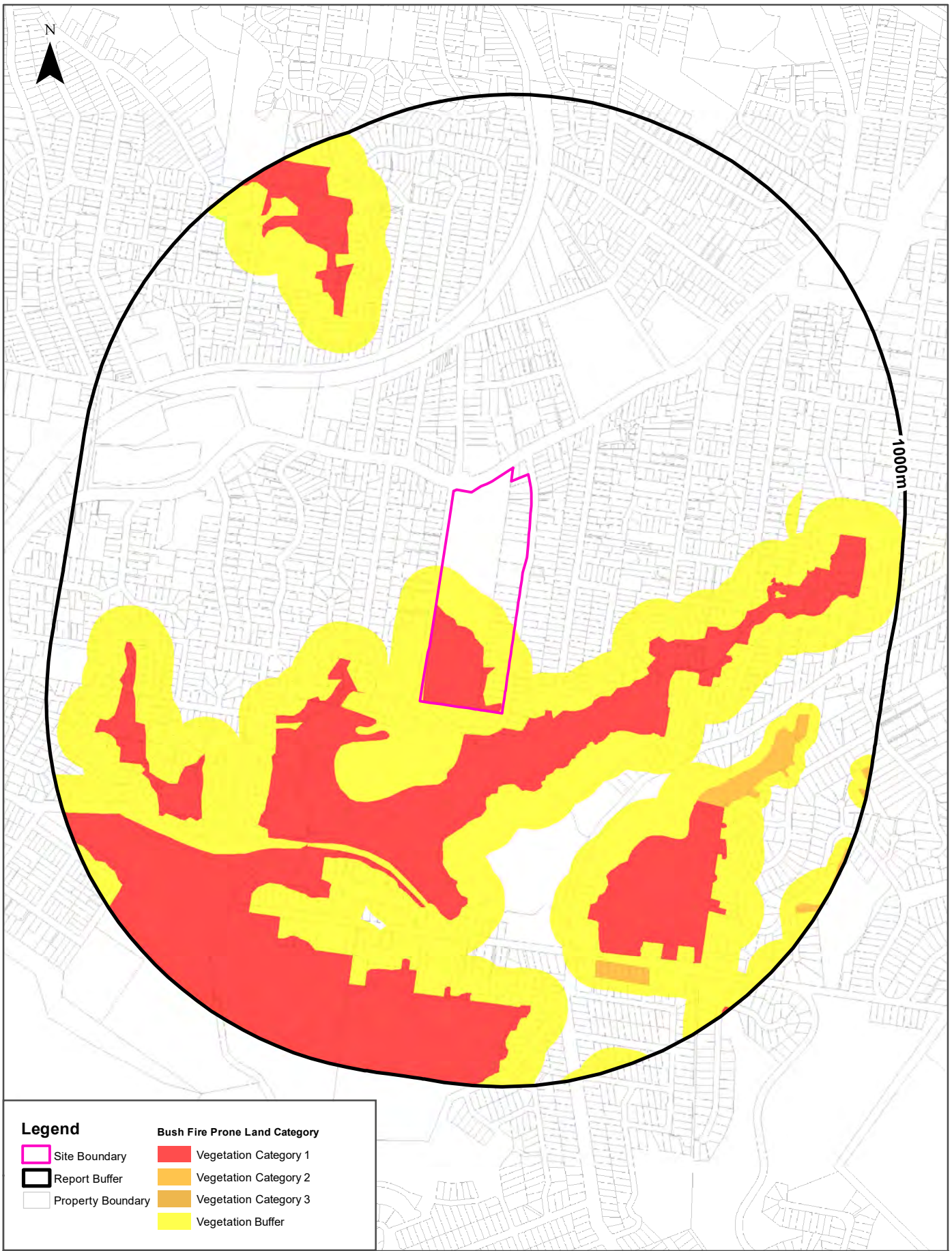
Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
607	Loretto Convent group,grounds, gates and cemetery	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	0m	Onsite
603	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	0m	Onsite
A60	Loretto Convent group,grounds, gates and cemetery	Item - Archaeological	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	0m	North
606	'Gilligaloola' and garden	Item - General	State	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	109m	North East
593	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	131m	East
594	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	185m	North East
595	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	238m	North
590	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	378m	West
604	Roadside trees and bushland	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	392m	East
592	Davidson Park	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	394m	North
602	Roadside trees and bushland	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	399m	North West
589	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	417m	West
605	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	417m	North East
598	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	417m	North

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I929	Administrative headquarters, Seventh Day Adventist Church	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018	417m	South East
I929	Hospital - Sanitarium	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	19/01/2018	417m	South East
608	Kenley Park and Hornsby Shire Historical Society drill hall	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	429m	North West
A68	Pennant Hills Park,Lorna Pass within Thornleigh	Item - Archaeological	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	468m	South West
827	Chislehurst	Item - General	Local	Hornsby Local Environmental Plan 2013	19/09/2014	19/09/2014	29/09/2017	476m	North East
A67	1830s road remains	Item - Archaeological	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	562m	South West
I928	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	19/01/2018	574m	South East
713	Brickworks wall and bushland	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	586m	North West
601	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	651m	North
I927	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018	659m	South East
597	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	667m	North West
I907	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018	704m	East
A65	Brickworks wall and bushland	Item - Archaeological	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	719m	North West
743	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	720m	North East
709	Trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	778m	West
600	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	828m	North
710	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	851m	West
599	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	874m	North
I961	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	19/01/2018	891m	East
I958	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	05/03/2015	02/04/2015	19/01/2018	896m	East
I924	Dwelling house	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	04/12/2015	04/12/2015	19/01/2018	908m	East
768	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	914m	North East
700	Sandstone kerb and gutter	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	931m	South West
A66	Remains of maltworks	Item - Archaeological	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	983m	West

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I957	Dwelling House "Mansfield"	Item - General	Local	Ku-ring-gai Local Environmental Plan 2015	21/10/2016	21/10/2016	19/01/2018	986m	North East
696	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	997m	North West

Natural Hazards - Bush Fire Prone Land

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2018. Property Boundaries: © Department Finance, Services & Innovation 2018

Coordinate System: GDA 1994 MGA Zone 56

Date: 24 August 2018

Natural Hazards

91-93 Pennant Hills Road, Normanhurst, NSW 2076

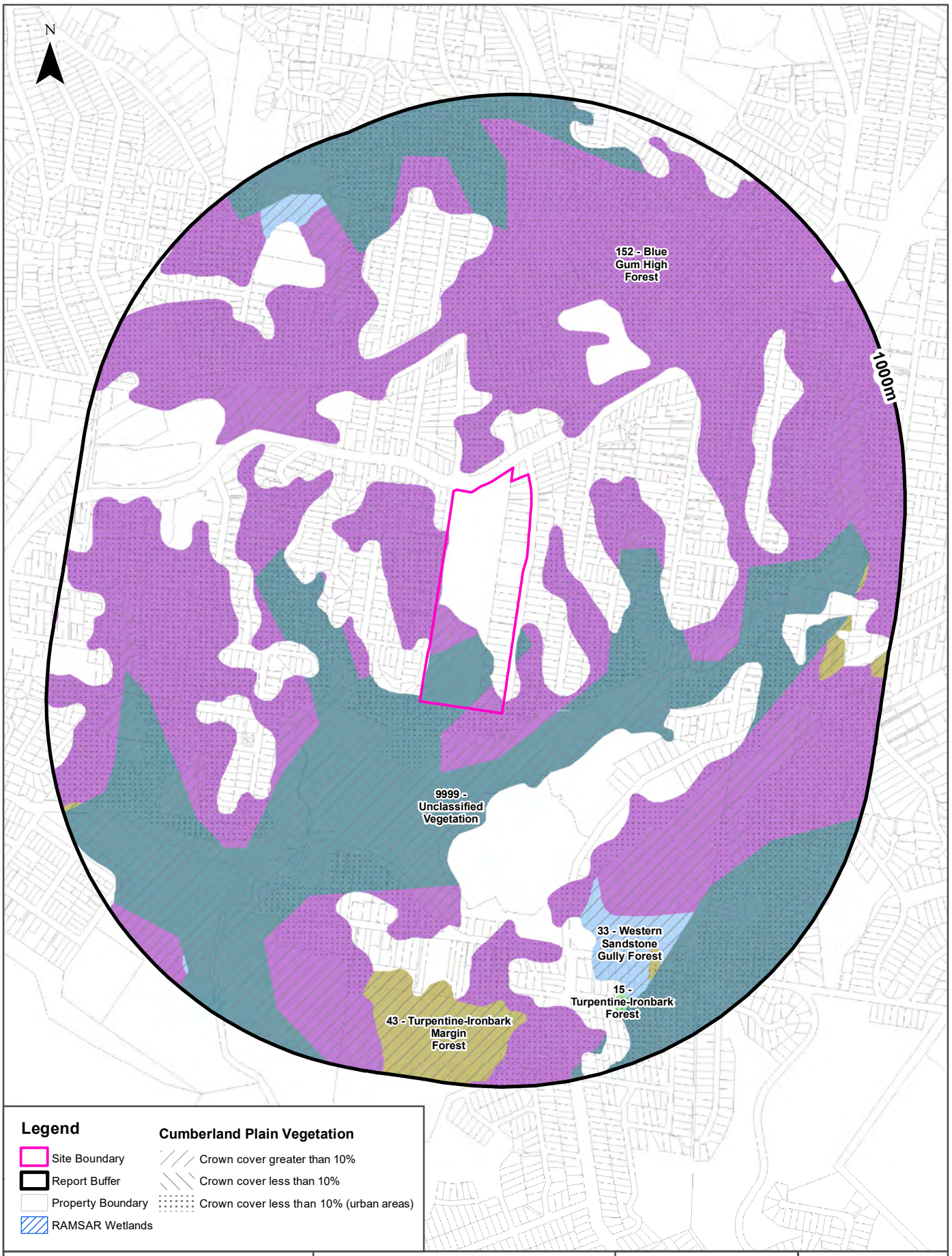
Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 1	0m	Onsite
Vegetation Category 2	570m	South East

Ecological Constraints - Remnant Vegetation of the Cumberland Plain

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Ecological Constraints

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Remnant Vegetation of the Cumberland Plain

What remnant vegetation of the Cumberland Plain exists within the dataset buffer?

Description	Crown Cover	Distance	Direction
152 - Blue Gum High Forest	Crown cover greater than 10%	0m	Onsite
9999 - Unclassified Vegetation	Crown cover greater than 10%	0m	Onsite
152 - Blue Gum High Forest	Crown cover less than 10% (urban areas)	0m	Onsite
9999 - Unclassified Vegetation	Crown cover less than 10% (urban areas)	0m	Onsite
33 - Western Sandstone Gully Forest	Crown cover greater than 10%	504m	South East
43 - Turpentine-Ironbark Margin Forest	Crown cover less than 10% (urban areas)	572m	East
43 - Turpentine-Ironbark Margin Forest	Crown cover greater than 10%	715m	South
15 - Turpentine-Ironbark Forest	Crown cover less than 10% (urban areas)	791m	South
33 - Western Sandstone Gully Forest	Crown cover less than 10% (urban areas)	828m	South East

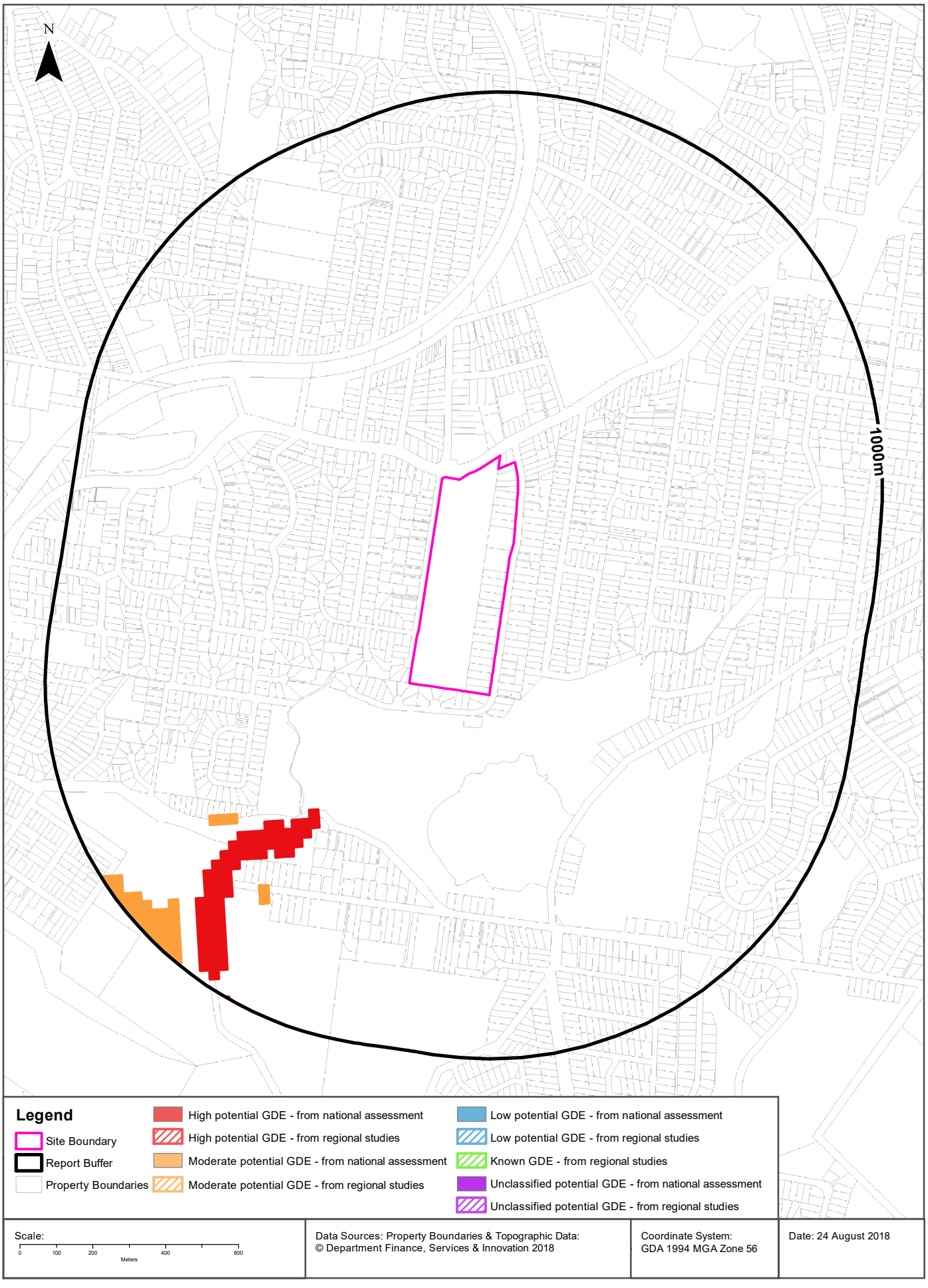
RAMSAR Wetlands

What RAMSAR Wetland areas exist within the dataset buffer?

Map Id	RAMSAR Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Ecological Constraints

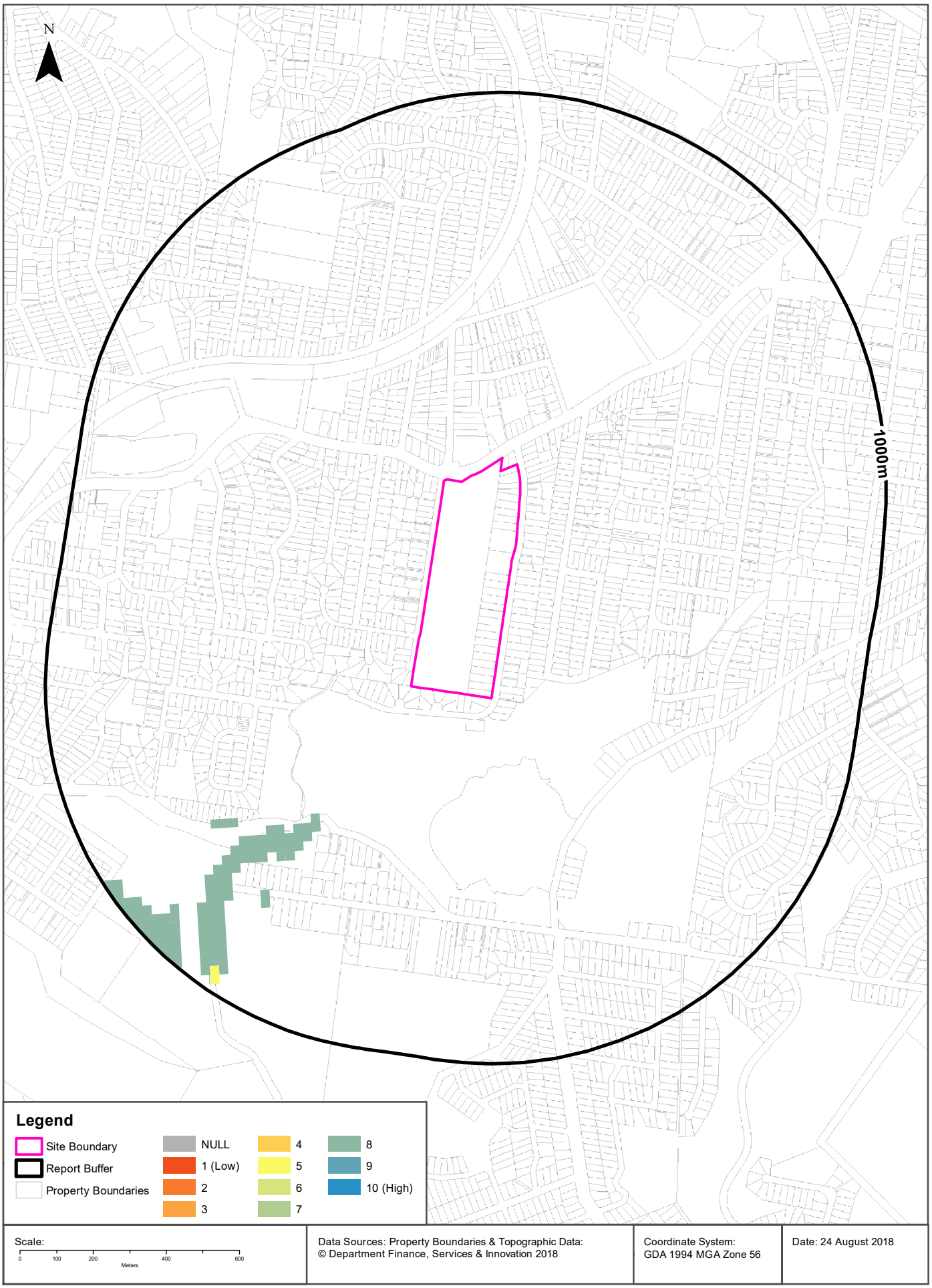
91-93 Pennant Hills Road, Normanhurst, NSW 2076

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	427m
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	594m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

91-93 Pennant Hills Road, Normanhurst, NSW 2076



Ecological Constraints

91-93 Pennant Hills Road, Normanhurst, NSW 2076

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	8	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	427m
Terrestrial	5	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	926m

Ecological Constraints

91-93 Pennant Hills Road, Normanhurst, NSW 2076

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Data does not include NSW category 1 sensitive species.

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered Population, Vulnerable	Category 3	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Cecropis daurica	Red-rumped Swallow	Not Listed	Not Sensitive	Not Listed	ROKAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Falco hypoleucos	Grey Falcon	Endangered	Category 2	Not Listed	
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Nettapus coromandelianus	Cotton Pygmy-Goose	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius minutus	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pachycephala olivacea	Olive Whistler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica rodinogaster	Pink Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	Pommerhelix duralensis	Dural Woodland Snail	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Miniopterus australis	Little Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Mormopterus norfolkensis	Eastern Freetail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Myuchelys bellii	Bell's Turtle, Western Sawshelled Turtle	Endangered	Not Sensitive	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia cluniesrossiae	Kanangra Wattle	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia gordonii		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Argyrotegium nitidulum	Shining Cudweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Darwinia biflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Darwinia peduncularis		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Deyeuxia appressa		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Epacris purpurascens subsp. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Galium australe	Tangled Bedstraw	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Genoplesium plumosum	Tallong Midge Orchid	Critically Endangered	Category 2	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Grevillea hilliana	White Yiel Yiel	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Haloragodendron lucasii		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Hibbertia spanantha	Julian's Hibbertia	Critically Endangered	Category 2	Critically Endangered	
Plantae	Flora	Hibbertia superans		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Kunzea rupestris		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Lasiopetalum joyceae		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Leptospermum deanei		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia mollis subsp. maxima		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pimelea curviflora subsp. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pomaderris prunifolia	Plum-leaf Pomaderris	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pterostylis nigricans	Dark Greenhood	Vulnerable	Category 2	Not Listed	
Plantae	Flora	Senecio behrianus		Presumed Extinct	Not Sensitive	Endangered	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Tetratheca juncea	Black-eyed Susan	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not Sensitive	Not Listed	

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Appendix B: Site History Information

EIS

Historical Land Title Records

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

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Manly NSW 2095

Telephone: +612 9977 6713
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Email: search@alsearchers.com.au

27th August 2018

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

Attention: Harley Wang,

RE: **91 – 93 Pennant Hills Road,**
Normanhurst
Reference E31772KL

Note 1:	**Lot 1**	**DP 1218765**	(page 1)
Note 2:	**Lot 16**	**DP 6612**	(page 3)

Note 1:

Current Search

Folio Identifier Auto Consol 4570-1 (title attached)
Lot 1 DP 1218765 & Lot B DP 327538 (plan attached)
Dated 24th August 2018
Registered Proprietor:
TRUSTEES OF THE LORETO PROPERTY ASSOCIATION

Title Tree
Lot 1 DP 1218765 & Lot B DP 327538

Folio Identifier Auto Consol 4570-1

Certificate of Title Volume 4570 Folio 1

Certificate of Title Volume 3978 Folio 214

Certificate of Title Volume 1760 Folio 29

****

Summary of proprietor(s)
Lot 1 DP 1218765 & Lot B DP 327538

Year	**Proprietor(s)**
	(Lot 1 DP 1218765 & Lot B DP 327538 – A/C 4570-1)
2016 – todate	Trustees of the Loreto Property Association
	(Lot 11 DP 6612 & Lot B DP 327538 – Area 2 Roods 2 ¼ Perches – CTVol 4570 Fol 1)
1986 – 2016	Trustees of the Loreto Property Association
1933 – 1986	The Loreto Property Association
	(Lot 11 DP 6612 – Area 1 Rood 10 ¼ Perches – CTVol 3978 Fol 214)
1927 – 1933	Mary O'Sullivan, spinster & teacher Rose Strange, spinster & teacher Mary Walker, spinster & teacher Marion Ochiltree, spinster & teacher Christina Fagan, spinster & teacher
	(Part Portion 28 Parish South Colah – Area 27 Acres 34 ¾ Perches – CTVol 1760 Fol 29)
1907 – 1927	William Mutch, builder

****

Note 2:

Current Search

Folio Identifier 16/6612 (title attached)
DP 6612 (plan attached)
Dated 24th August 2018
Registered Proprietor:
TRUSTEES OF THE LORETO PROPERTY ASSOCIATION

Title Tree
Lot 16 DP 6612

Folio Identifier 16/6612

Certificate of Title Volume 2340 Folio 153

Certificate of Title Volume 1760 Folio 29

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Summary of proprietor(s)
Lot 16 DP 6612

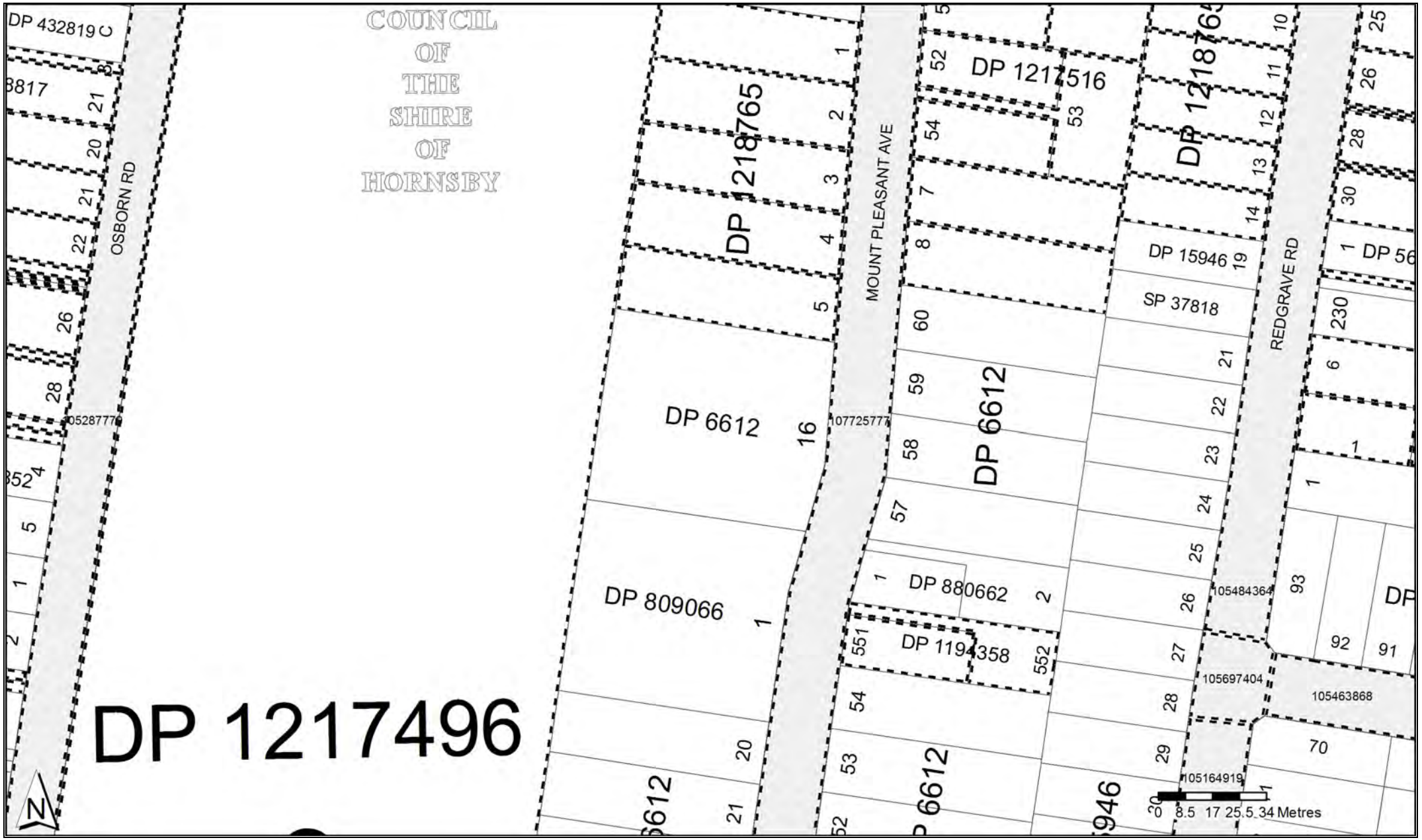
Year	Proprietor(s)
	(Lot 16 DP 6612)
1988 – todate	Trustees of the Loreto Property Association
	(Lot 16 DP 6612 – Area 1 Acre 8 Perches – CTVol 2340 Fol 153)
1986 – 1988	Trustees of the Loreto Property Association
1933 – 1986	The Loreto Property Association
1933 – 1933	Catherine Mary Frizelle Catherine Felkins Annie Fallon Christina Fagan
1920 – 1933	Catherine Mary Frizelle Catherine Felkins Annie Fallon Christina Fagan Barbara Mulhall
1913 – 1920	Arthur James Hethersett Marshall, wool expert
	(Part Portion 28 Parish South Colah – Area 27 Acres 34 ¾ Perches – CTVol 1760 Fol 29)
1907 – 1913	William Mutch, builder

****

Cadastral Records Enquiry Report : Lot 16 DP 6612

Ref : NOUSER

Locality : NORMANHURST
Parish : SOUTH COLAH
LGA : HORNSBY
County : CUMBERLAND



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP215946			
Lot(s): 3			
DP1022684	REGISTERED	SURVEY	EASEMENT
DP1048817	REGISTERED	SURVEY	SUBDIVISION
DP1104120	REGISTERED	SURVEY	SUBDIVISION
DP262038			
Lot(s): 8			
DP1104120	REGISTERED	SURVEY	SUBDIVISION
DP519954			
Lot(s): 1			
DP1234655	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP563529			
Lot(s): 2			
DP1211909	REGISTERED	COMPILATION	ROADS ACT, 1993
DP1048817			
Lot(s): 21			
DP215946	HISTORICAL	SURVEY	SUBDIVISION
DP1104120	REGISTERED	SURVEY	SUBDIVISION
DP1111962			
Lot(s): 1, 2, 6			
DP16368	HISTORICAL	SURVEY	UNRESEARCHED
DP1169079			
Lot(s): 52			
DP28463	HISTORICAL	SURVEY	UNRESEARCHED
DP1194358			
Lot(s): 551, 552			
DP6612	HISTORICAL	COMPILATION	UNRESEARCHED
DP1211909			
Lot(s): 27, 28			
DP863934	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 29, 30			
DP863933	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 31			
DP563529	HISTORICAL	SURVEY	SUBDIVISION
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 48 AND 65 DP1211909			
Lot(s): 25, 26			
DP242447	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 25			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 42 AND 59 DP1211909			
Lot(s): 26			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 43 AND 60 DP1211909			
Lot(s): 28			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 45 AND 62 DP1211909			
Lot(s): 27			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 44 AND 61 DP1211909			
Lot(s): 30			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 47 AND 64 DP1211909			

	Status	Surv/Comp	Purpose
Lot(s): 29			
NSW GAZ. 18-12-2015 Folio : 4091 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 46 AND 63 DP1211909			
DP1217496			
Lot(s): 3			
DP734965	HISTORICAL	SURVEY	OLD SYSTEM CONVERSION
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 6 AND 9 DP1217496 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
DP1217516			
Lot(s): 52, 53, 54			
DP731152	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 50, 51			
DP566425	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 54			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 59 AND 64 DP1217516 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 53			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 58 AND 63 DP1217516 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 52			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 57 AND 62 DP1217516 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 51			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 56 AND 61 DP1217516 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 50			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 55 AND 60 DP1217516 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
DP1218765			
Lot(s): 10, 11, 12, 13, 14			
DP15946	HISTORICAL	SURVEY	UNRESEARCHED
Lot(s): 1, 2, 3, 4, 5, 7, 8			
DP6612	HISTORICAL	COMPILATION	UNRESEARCHED
Lot(s): 5			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 19 AND 33 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 4			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 18 AND 32 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 3			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 17 AND 31 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 2			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 16 AND 30 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 1			
NSW GAZ. 26-08-2016 Folio : 2301 ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 15 AND 29 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			

	Status	Surv/Comp	Purpose
Lot(s): 8			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 22 AND 36 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 7			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 21 AND 35 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 10			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 24 AND 38 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 11			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 25 AND 39 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 12			
NSW GAZ.	26-08-2016		Folio : 2304
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 26 AND 40 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 13			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 27 AND 41 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 14			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 28 AND 42 DP1218765 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
DP1218788			
Lot(s): 30			
DP1120186	HISTORICAL	SURVEY	SUBDIVISION
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 41 AND 52 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 29, 30			
DP1115010	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 26, 27			
DP579913	HISTORICAL	COMPILATION	SUBDIVISION
Lot(s): 24, 25			
DP549485	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 23			
DP414195	HISTORICAL	SURVEY	UNRESEARCHED
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 34 AND 45 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 21, 22			
DP365331	HISTORICAL	COMPILATION	UNRESEARCHED
Lot(s): 20			
DP215946	HISTORICAL	SURVEY	SUBDIVISION
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 31 AND 42 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 28, 29, 30			
DP201852	HISTORICAL	SURVEY	SUBDIVISION
Lot(s): 29			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 40 AND 51 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			
Lot(s): 28			
NSW GAZ.	26-08-2016		Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993 LOTS 39 AND 50 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181			

	Status	Surv/Comp	Purpose

Lot(s): 24

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 35 AND 46 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Lot(s): 25

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 36 AND 47 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Lot(s): 27

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 38 AND 49 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Lot(s): 26

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 37 AND 48 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Lot(s): 22

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 33 AND 44 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Lot(s): 21

NSW GAZ. 26-08-2016 Folio : 2301
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 32 AND 43 DP1218788 (STRATUM REQUIRED FOR ROAD PURPOSES) SEE AK780181

Road

Polygon Id(s): 105287779

NSW GAZ. 15-07-2016 Folio : 2001
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 5-10 DP1217496 (STRATUM LOTS)

PA83350 - LOTS 5 AND 10 DP1217496

NSW GAZ. 09-03-2018 Folio : 1465
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 4 AND 7 DP1217496 (STRATUM LOTS)

PA83428 - PENDING

Polygon Id(s): 105484364

NSW GAZ. 09-03-2018 Folio : 1465
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 37 AND 54 DP1211909 (STRATUM LOTS)

Polygon Id(s): 107725777

DP1218765 REGISTERED COMPILATION ROADS ACT, 1993

NSW GAZ. 09-03-2018 Folio : 1465
ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993
LOTS 20 AND 34 DP1218765 (STRATUM LOTS)

Polygon Id(s): 105164919, 105697404, 107725777

EX-SUR 70/11 DP939826

Polygon Id(s): 105164919, 105463868, 105484364, 105697404

EX-SUR 29/10 DP983393

Plan	Surv/Comp	Purpose
DP6612	COMPILATION	UNRESEARCHED
DP15946	SURVEY	UNRESEARCHED
DP28463	SURVEY	UNRESEARCHED
DP201852	SURVEY	SUBDIVISION
DP215946	SURVEY	SUBDIVISION
DP262038	SURVEY	RESUMPTION OR ACQUISITION
DP327538	COMPILATION	UNRESEARCHED
DP432819	COMPILATION	UNRESEARCHED
DP519954	COMPILATION	SUBDIVISION
DP541189	SURVEY	SUBDIVISION
DP563529	SURVEY	SUBDIVISION
DP593033	COMPILATION	SUBDIVISION
DP629202	SURVEY	SUBDIVISION
DP809066	SURVEY	CONSOLIDATION
DP880662	SURVEY	SUBDIVISION
DP1048817	SURVEY	SUBDIVISION
DP1111962	SURVEY	SUBDIVISION
DP1169079	SURVEY	SUBDIVISION
DP1169079	UNRESEARCHED	SUBDIVISION
DP1194358	SURVEY	SUBDIVISION
DP1194358	UNRESEARCHED	SUBDIVISION
SP37818	COMPILATION	STRATA PLAN

6612

DP6612 E

JAD

S. HORNSBY

For check survey see Plan catd. E.S. 12/25

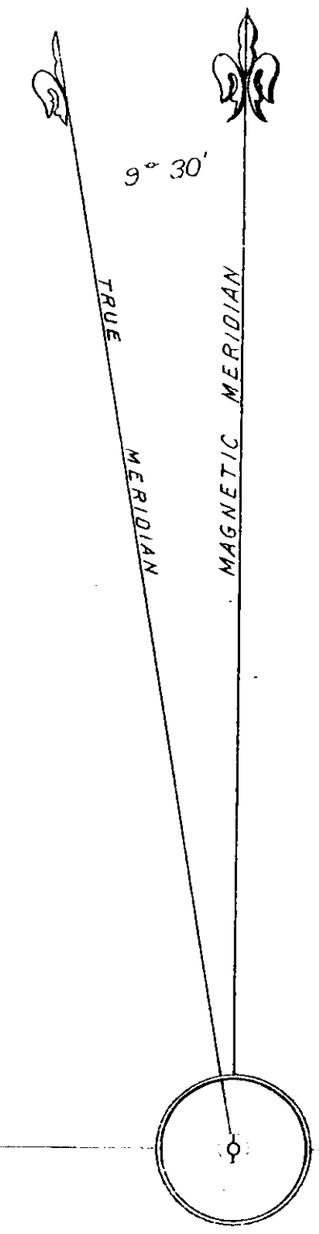
PLAN

Showing Subdivision of land in Appn 14432

HORNSBY SHIRE

Parish of South Colah . County of Cumberland

Scale 80 Ft to an Inch



CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 6612

FEET	INCHES	METRES
2	-	0.61
4	-	1.22
4	6 1/4	1.38
4	6 3/4	1.39
9		2.665
19	4	5.495
21	-	6.4
21	9 3/8	6.64
24	9	7.545
25	3	7.695
26	2	7.975
31	10 1/4	9.71
34	1 3/4	10.41
40	4	12.295
44	1	13.435
52	6	16
57	3	17.45
61	3 1/2	18.68
61	5 1/2	18.73
61	5 3/4	18.74
64	0 1/2	19.52
64	10 3/4	19.78
65	10 1/2	20.08
65	11 3/4	20.11
66	-	20.115
66	1 3/4	20.16
66	7 1/2	20.305
67	11	20.7
68	9	20.955
69	5 1/2	21.17
70	-	21.335
71	1 3/4	21.685
72	-	21.945
75	5	22.985
78	5	23.9
79	6 3/4	24.25
83	5	25.425
91	3	27.815
100	-	30.48
106	7 1/4	32.495
110	-	33.53
127	1 1/4	38.74
175	-	53.34
178	7 1/4	54.44
194	4 1/4	59.24
198	-	60.35
198	5 1/2	60.49
200	-	60.96
202	2 1/4	61.63
205	8 1/4	62.69
206	7	62.97
207	4 1/2	63.21
207	8	63.3
210	0 1/4	64.01
211	-	64.31
212	5 3/4	64.76
214	4 1/4	65.34
214	10	65.48
215	0 1/4	65.54
215	4 1/2	65.65
215	5	65.66
215	8 1/2	65.75
215	10 1/4	65.79
216	0 1/2	65.85
216	4 3/4	65.96
216	5	65.96
216	8 3/4	66.06
216	10 1/2	66.1
217	1	66.17
217	5	66.27
217	6 1/2	66.31
217	8	66.34
217	8 1/2	66.36
217	9 1/4	66.38
217	10	66.4
217	10 1/2	66.41
218	-	66.45

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

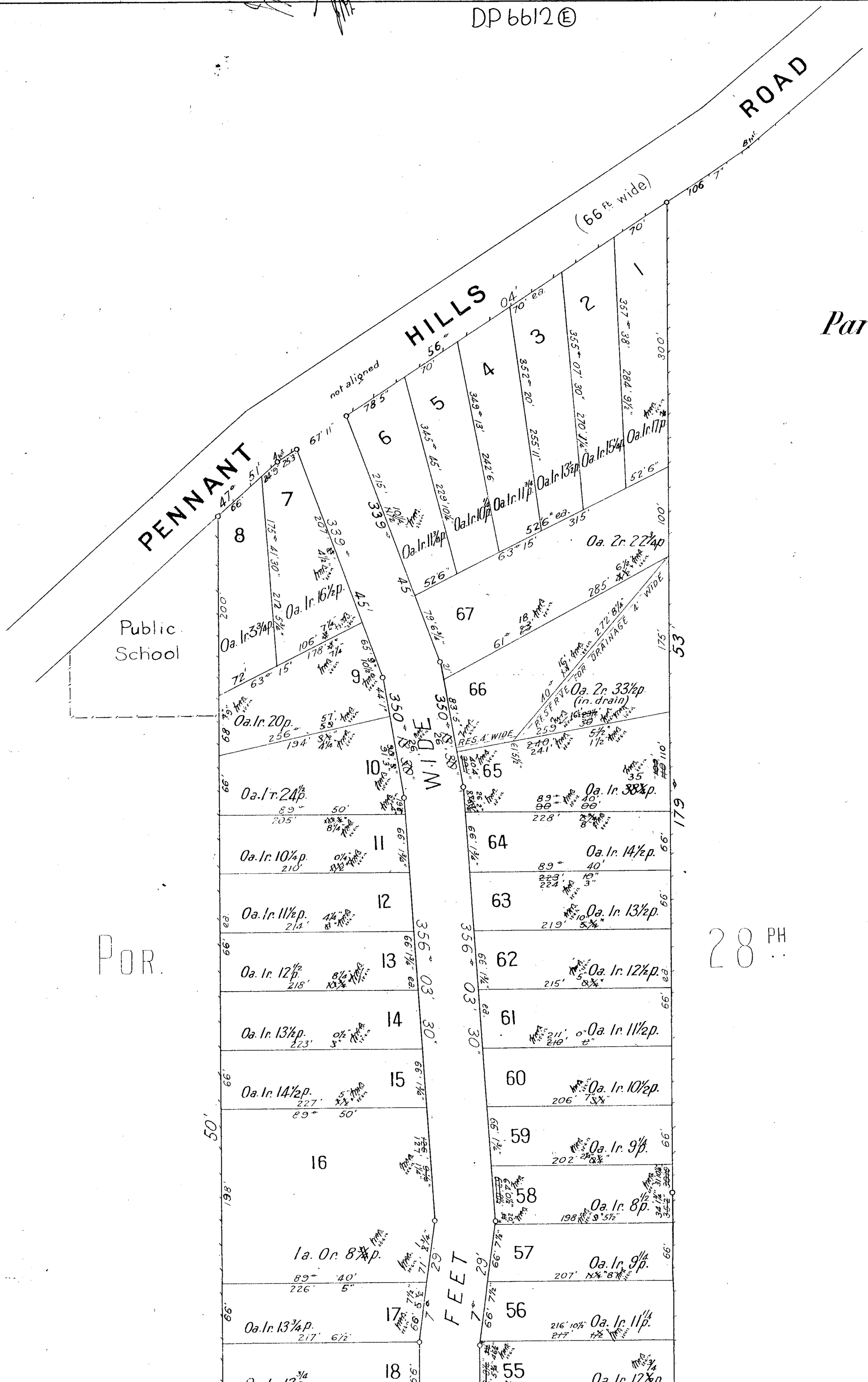
DP 6612 CONTINUED

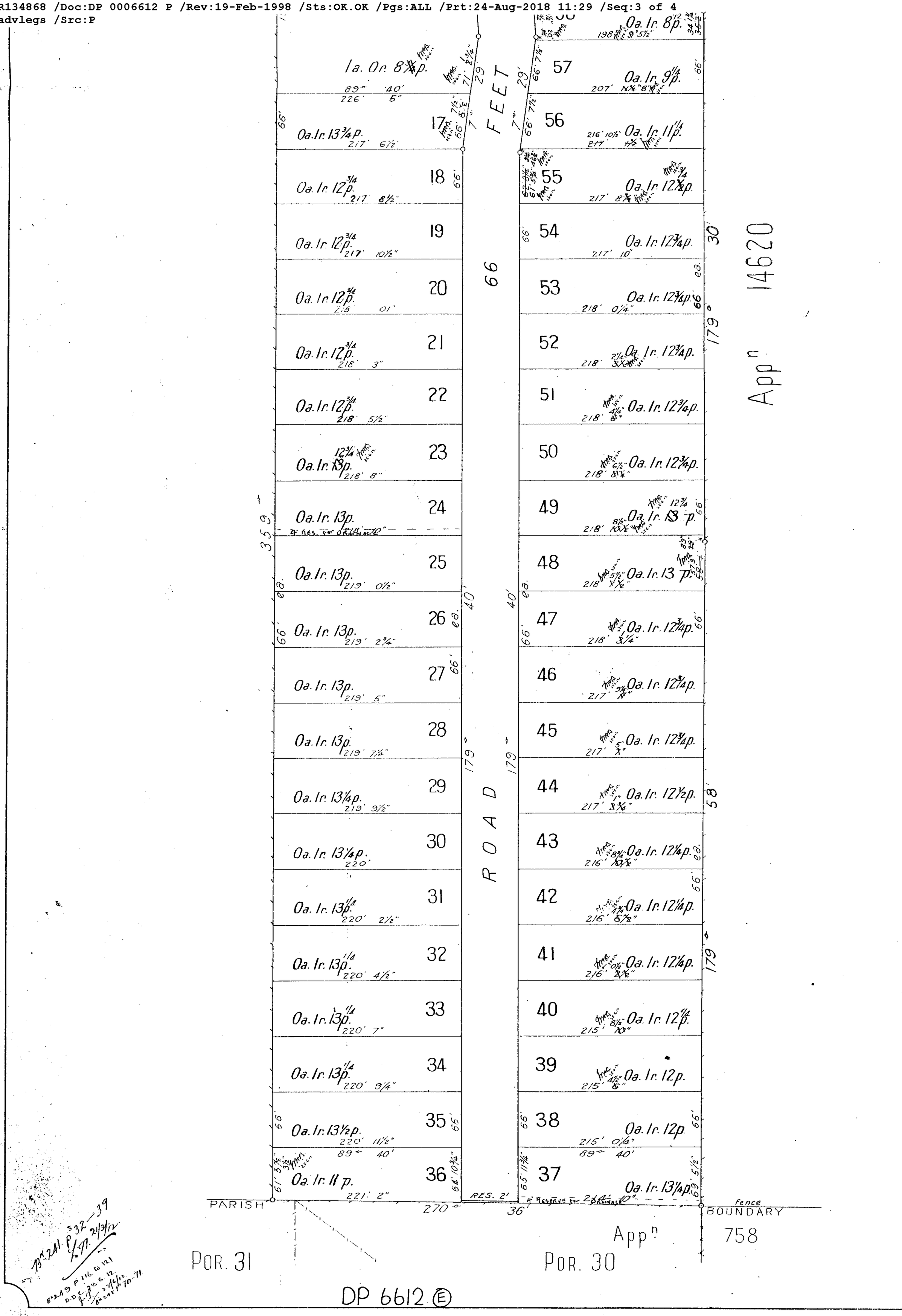
FEET	INCHES	METRES
218	0 1/8	66.45
218	0 1/4	66.45
218	1	66.47
218	1 1/4	66.48
218	2 1/4	66.5
218	3	66.52
218	4 1/4	66.55
218	5 1/2	66.59
218	6 1/2	66.61
218	8	66.65
218	8 1/4	66.66
218	8 1/2	66.66
218	10	66.7
219	0 1/2	66.76
219	2 3/4	66.82
219	5	66.88
219	7 1/4	66.94
219	9 1/2	66.99
219	9 5/8	67
219	10	67.01
220	-	67.06
220	2 1/2	67.12
220	4 1/2	67.17
220	7	67.23
220	8 1/8	67.26
220	9 1/4	67.29
220	11 1/2	67.35
221	2	67.41
223	0 1/2	67.98
224	3	68.35
226	5	69.01
227	5	69.32
228	8	69.7
229	10 1/4	70.06
241	-	73.46
241	1 1/2	73.49
242	6	73.91
255	11	78
259	-	78.94
270	1 1/4	82.33
272	8 1/4	83.12
284	9 1/2	86.8
285	6 1/2	87.03
300	-	91.44
315	-	96.01
2110	-	643.1

AC	RD	P	SQ M
-	1	3 3/4	1107
-	1	8 1/2	1227
-	1	9 1/4	1246
-	1	10 1/4	1271
-	1	10 1/2	1277
-	1	11	1290
-	1	11 1/4	1296
-	1	11 1/2	1303
-	1	11 3/4	1309
-	1	12	1315
-	1	12 1/4	1322
-	1	12 1/2	1328
-	1	12 3/4	1334
-	1	13	1341
-	1	13 1/4	1347
-	1	13 1/2	1353
-	1	13 3/4	1359
-	1	14 1/2	1378
-	1	15 1/4	1397
-	1	16 1/2	1429
-	1	17	1442
-	1	20	1518
-	1	24 1/2	1631
-	1	35	1897
-	2	22 3/4	2599
-	2	33 1/2	2871
1	-	8	4249

5/ 5. 3. 12

DP 6612 (E)





DP6612 ©

DECLARATION

I, William Hy Binstead of Hornsby
Licensed Surveyor specially licensed under the Real Property Act, do hereby solemnly and sincerely declare that the boundaries and measurements shown on this Plan are correct for the purposes of the said Act and that the said Plan and the survey of the land to which the same relates, have been prepared and made by me or under my immediate supervision and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900

Subscribed and declared before me at Hornsby
this 28th day of Dec A.D. 1911

Edmund Thornburn J.P.

W H Binstead
Licensed Surveyor

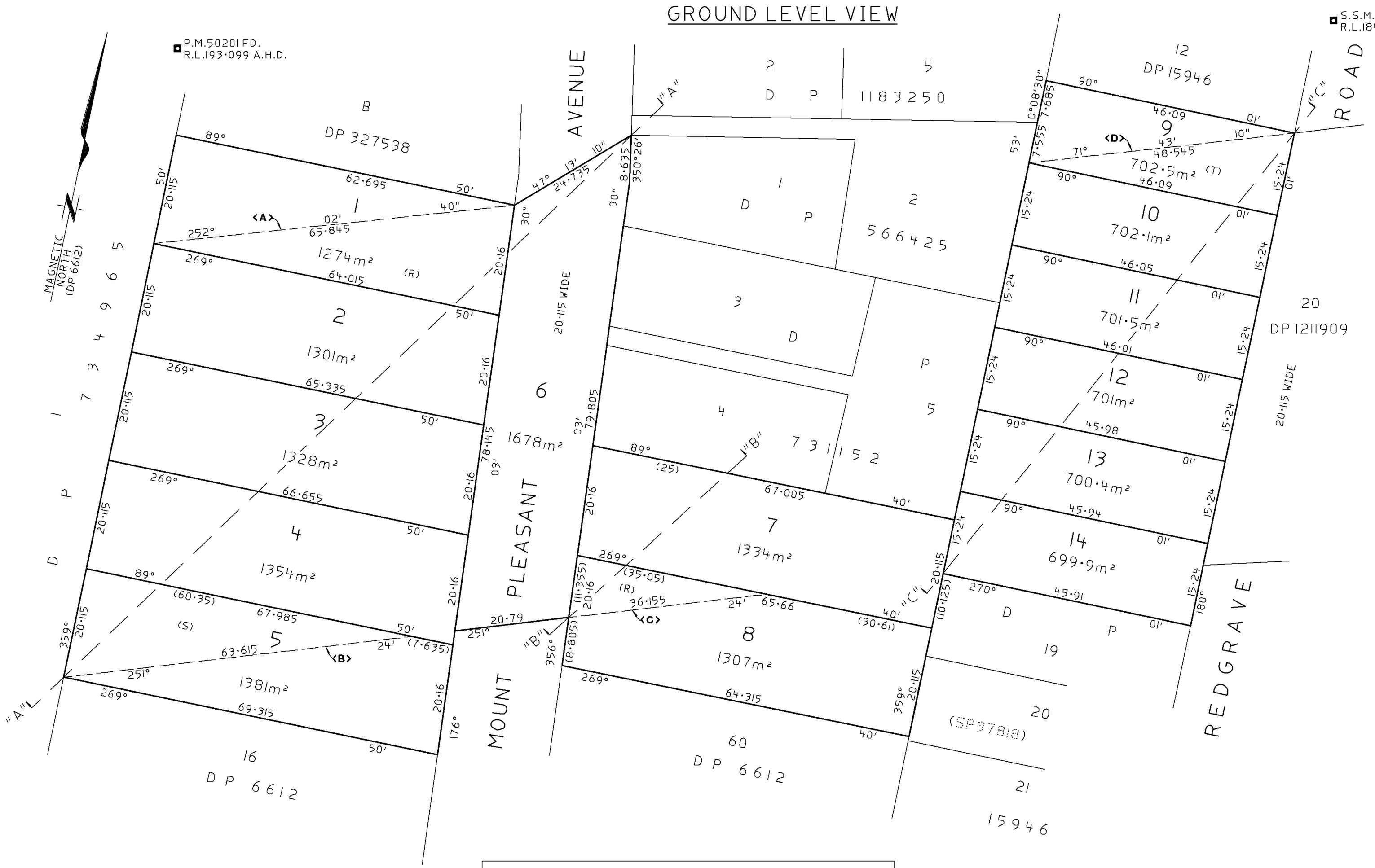
Date of Survey. Dec 1911

Assumed Magnetic Variation 9° 30' E.
Azimuth taken from Survey of Pennant Hills Rd (Line A.B.)

Re-declared this 25th June 1912
before me

E MacDermott J.P.

GROUND LEVEL VIEW



LOTS 1, 15 & 29
LOT 11 DP 6612
AUTO CONSOL 4570-1

LOTS 2, 16 & 30
LOT 12 DP 6612
AUTO CONSOL 3811-215

LOTS 3, 17 & 31
LOT 13 DP 6612
AUTO CONSOL 3811-215

LOTS 4, 18 & 32
LOT 14 DP 6612
C.T.14/6612

LOTS 5, 19 & 33
LOT 15 DP 6612
C.T.15/6612

LOTS 6, 20 & 34
PRIVATE SUBDIVISION ROAD
C.T.VOL.1760 FOL.29

LOTS 7, 21 & 35
LOT 62 DP 6612
C.T.62/6612

LOTS 8, 22 & 36
LOT 61 DP 6612
C.T.61/6612

LOTS 9, 23 & 37
LOT 13 DP 15946
C.T.13/15946

LOTS 10, 24 & 38
LOT 14 DP 15946
C.T.14/15946

LOTS 11, 25 & 39
LOT 15 DP 15946
C.T.15/15946

LOTS 12, 26 & 40
LOT 16 DP 15946
C.T.16/15946

LOTS 13, 27 & 41
LOT 17 DP 15946
C.T.17/15946

LOTS 14, 28 & 42
LOT 18 DP 15946
C.T.18/15946

LOTS 1 & 8 ARE UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THOSE PARTS DESIGNATED (R) WHICH ARE STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AT R.L.162 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 15 & 22 BELOW.

LOTS 2, 3, 4 & 6 ARE STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AT R.L.162 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 16, 17, 18 & 20 BELOW.

LOTS 7 & 10 TO 14 INCLUSIVE ARE STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AT R.L.163 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 21 & 24 TO 28 INCLUSIVE BELOW.

LOT 5 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (S) WHICH IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AT R.L.161 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS A BOUNDARY OF LOT 19 BELOW.

LOT 9 IS UNLIMITED IN HEIGHT AND DEPTH EXCEPT FOR THAT PART DESIGNATED (T) WHICH IS A STRATUM UNLIMITED IN HEIGHT LYING ABOVE A HORIZONTAL PLANE AT R.L.163 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS A BOUNDARY OF LOT 23 BELOW.

<A> BOUNDARY OF LOT 15 BELOW
<B> BOUNDARY OF LOT 19 BELOW
<C> BOUNDARY OF LOT 22 BELOW
<D> BOUNDARY OF LOT 23 BELOW

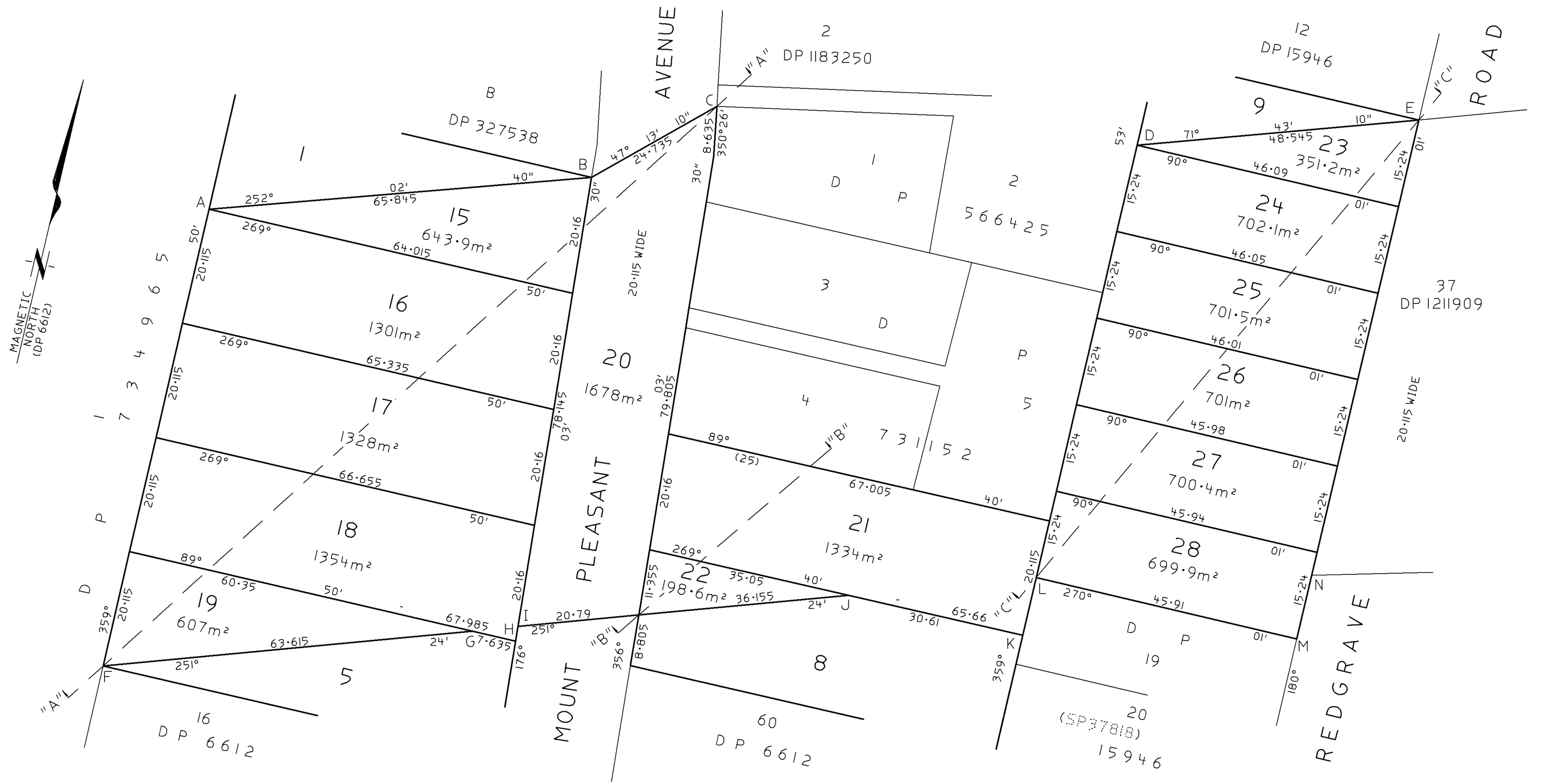
Surveyor : DAVID KENNETH BURKE Date of Survey : N/A Surveyor's Ref : C11132B, CHECKLIST EXEMPTION : 2015M7100(119)RMS	PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.	L.G.A. : HORNSBY Locality : NORMANHURST Subdivision No : N/A Lengths are in metres. Reduction Ratio 1:500	Registered 12.04.2016	DP1218765

10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE : SF 2014/076318

PLAN: 6012 201 SS 4113

STRATUM VIEW AT R.L.161 A.H.D.



LOTS 15 TO 18 INCLUSIVE, 20 & 22 ARE STRATUM LIMITED IN HEIGHT LYING BELOW A HORIZONTAL PLANE AT R.L.162 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 1 TO 4 INCLUSIVE, 6 & 8 ABOVE AND LIMITED IN DEPTH LYING ABOVE A HORIZONTAL PLANE AT R.L.122 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 29 TO 32 INCLUSIVE, 34 & 36 BELOW.

LOT 19 IS A STRATUM LIMITED IN HEIGHT LYING BELOW A HORIZONTAL PLANE AT R.L.161 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS A BOUNDARY OF LOT 5 ABOVE AND LIMITED IN DEPTH LYING ABOVE A HORIZONTAL PLANE AT R.L.121 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS A BOUNDARY OF LOT 33 BELOW.

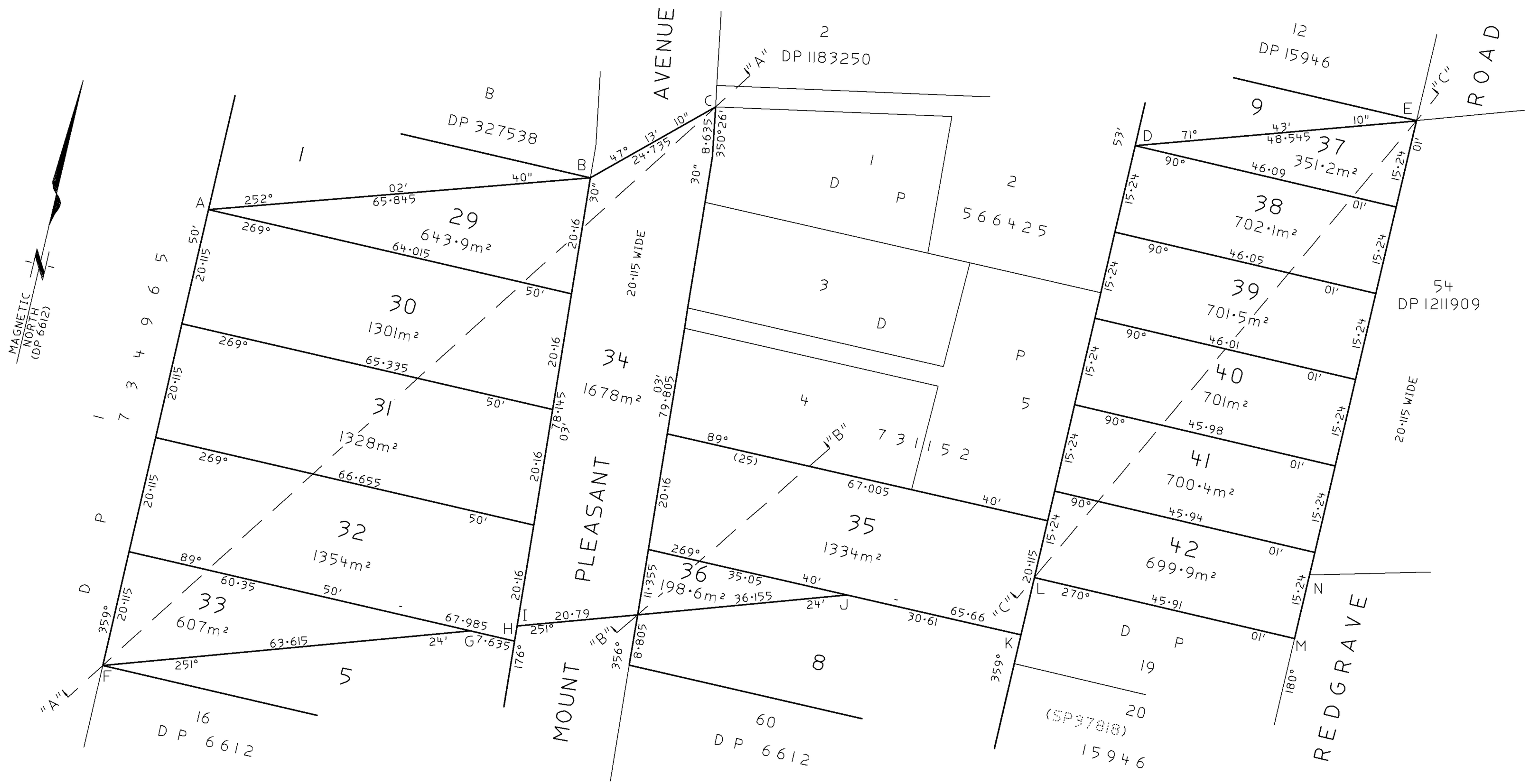
LOTS 21 & 23 TO 28 INCLUSIVE ARE STRATUM LIMITED IN HEIGHT LYING BELOW A HORIZONTAL PLANE AT R.L.163 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 7 & 9 TO 14 INCLUSIVE ABOVE AND LIMITED IN DEPTH LYING ABOVE A HORIZONTAL PLANE AT R.L.123 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 35 & 37 TO 42 INCLUSIVE BELOW.

Surveyor : DAVID KENNETH BURKE Date of Survey : N/A Surveyor's Ref : C11132B, CHECKLIST EXEMPTION : 2015M7100(119)RMS	PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.	L.G.A. : HORNSBY Locality : NORMANHURST Subdivision No : N/A Lengths are in metres. Reduction Ratio 1:500	Registered 12.04.2016	DP1218765

10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE : SF 2014/076318 PLAN: 6012 201 SS 4113

STRATUM VIEW AT R.L.121 A.H.D.



LOT 33 IS A STRATUM UNLIMITED IN DEPTH LYING BELOW A HORIZONTAL PLANE AT R.L.121 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS A BOUNDARY OF LOT 19 ABOVE.

LOTS 29 TO 32 INCLUSIVE, 34 & 36 ARE STRATUM UNLIMITED IN DEPTH LYING BELOW A HORIZONTAL PLANE AT R.L.122 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 15 TO 18 INCLUSIVE, 20 & 22 ABOVE.

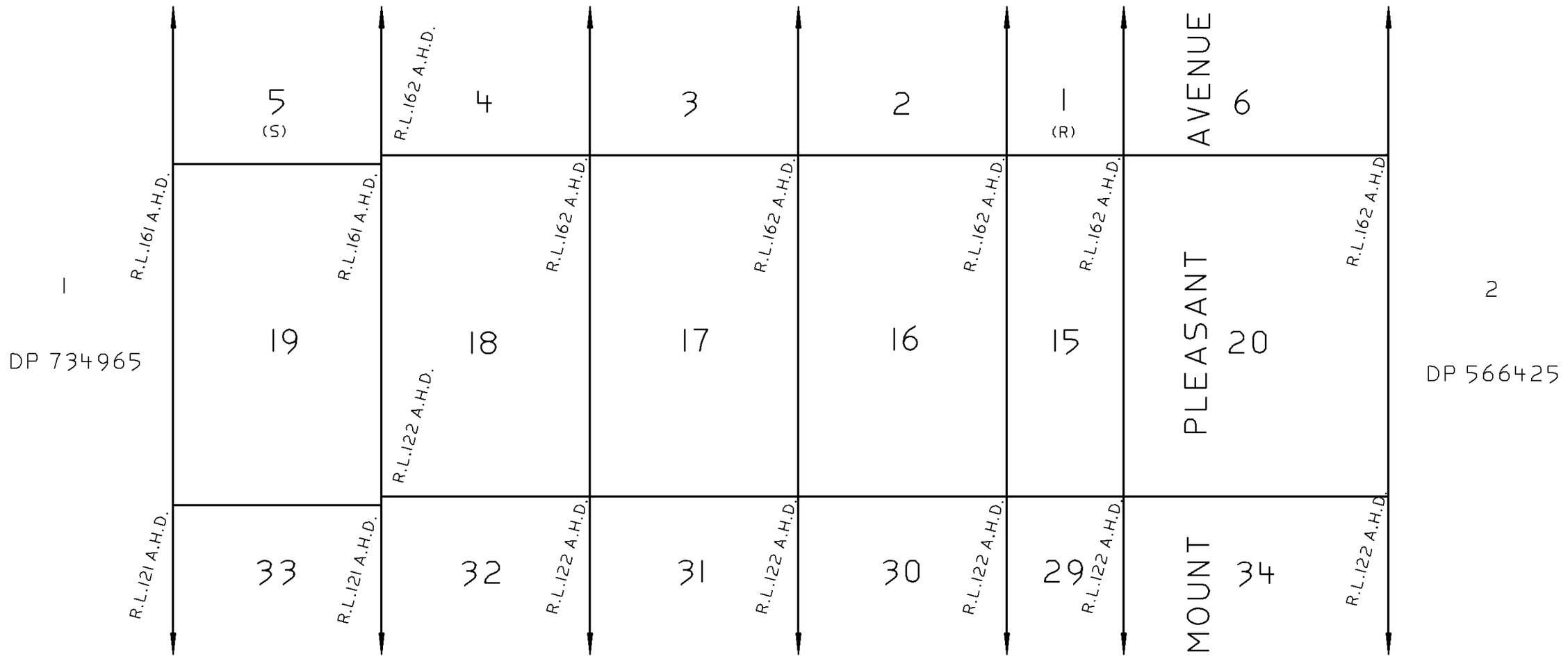
LOTS 35 & 37 TO 42 INCLUSIVE ARE STRATUM UNLIMITED IN DEPTH LYING BELOW A HORIZONTAL PLANE AT R.L.123 A.H.D. IDENTIFIED HEREON AND ON SHEET 4 AS BOUNDARIES OF LOTS 21 & 23 TO 28 INCLUSIVE ABOVE.

Surveyor : DAVID KENNETH BURKE Date of Survey : N/A Surveyor's Ref : C11132B, CHECKLIST EXEMPTION : 2015M7100(119)RMS	PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.	L.G.A. : HORNSBY Locality : NORMANHURST Subdivision No : N/A Lengths are in metres. Reduction Ratio 1:500	Registered 12.04.2016	DP1218765

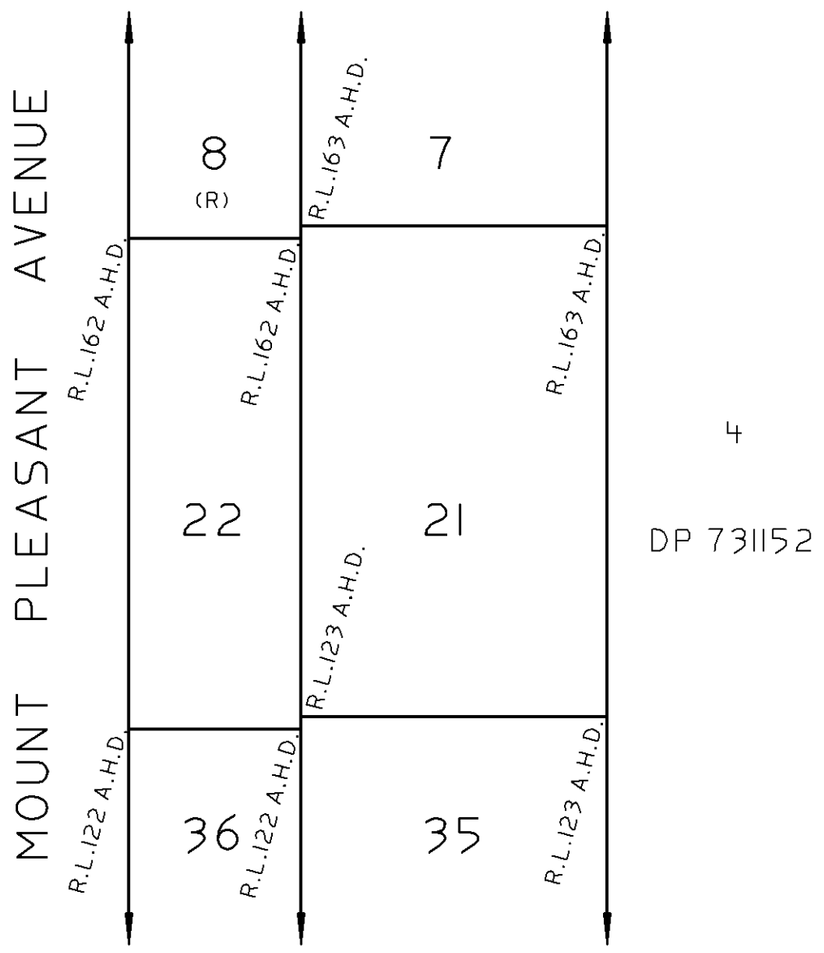
10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE : SF 2014/076318 PLAN: 6012 201 SS 4113

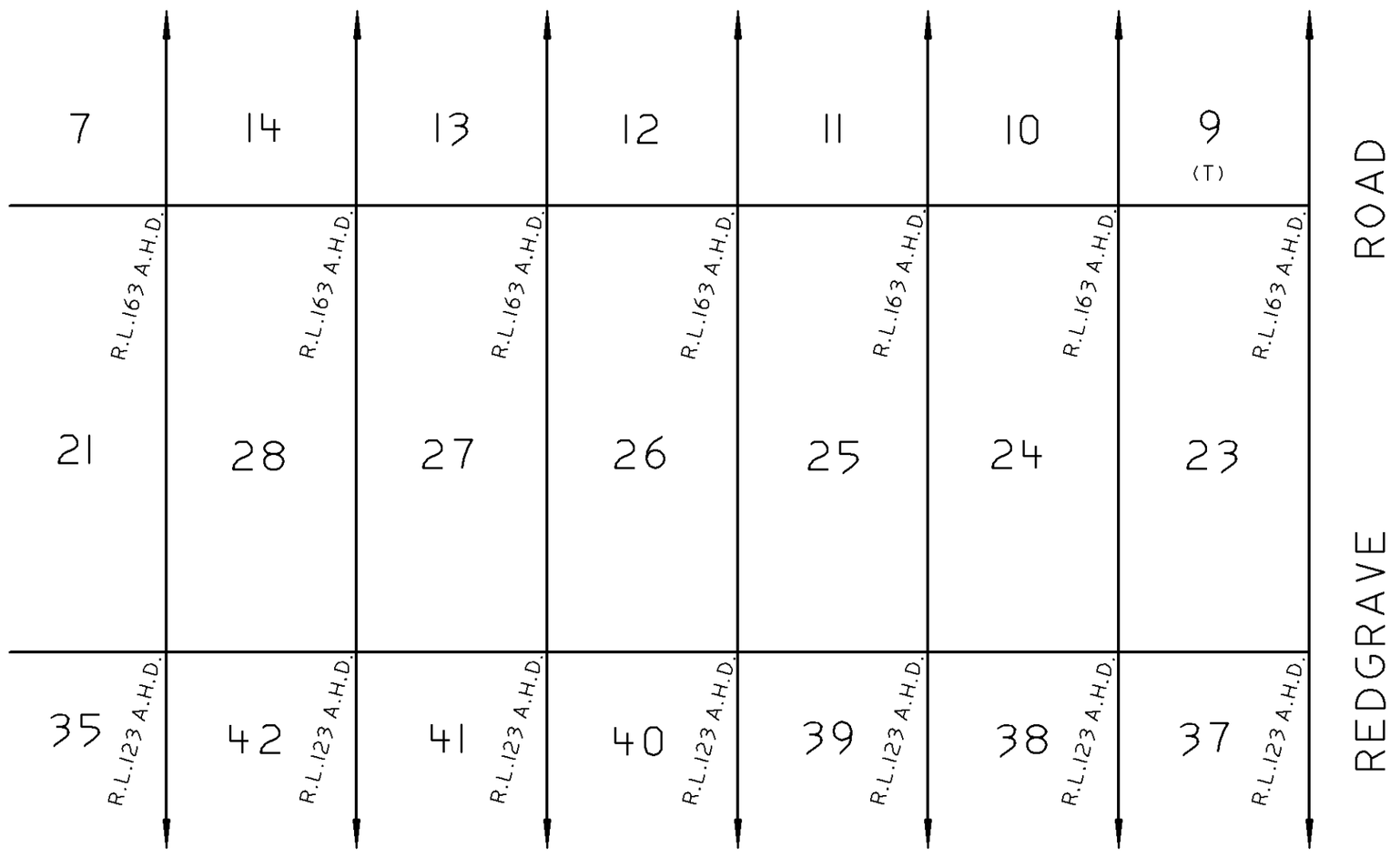
SECTION "A"-"A"
REDUCTION RATIO 1:500



SECTION "B"-"B"
REDUCTION RATIO 1:500



SECTION "C"-"C"
REDUCTION RATIO 1:500



Surveyor : DAVID KENNETH BURKE Date of Survey : N/A Surveyor's Ref : CIII32B, CHECKLIST EXEMPTION : 2015M7100(119)RMS	PLAN OF LAND TO BE ACQUIRED FOR THE PURPOSES OF THE ROADS ACT, 1993.	L.G.A. : HORNSBY Locality : NORMANHURST Subdivision No : N/A Lengths are in metres. Reduction Ratio 1:500	Registered 12.04.2016	DP1218765

10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE : SF 2014/076318

PLAN: 6012 201 SS 4113

PLAN FORM 6 (2013) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 2 sheets

Office Use Only

Registered: 13.04.2016

Title System: TORRENS

Purpose: ROADS ACT, 1993

Office Use Only

DP1218765

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

LGA: HORNSBY

Locality: NORMANHURST

Parish: SOUTH COLAH

County: CUMBERLAND

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify 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, ...

*Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of s.109J of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: .....

Accreditation number: .....

Consent Authority: .....

Date of endorsement: .....

Subdivision Certificate number: .....

File number: .....

*Strike through if inapplicable.

Survey Certificate

I, DAVID KENNETH BURKE.....

of ROADS AND MARITIME SERVICES .....

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*(a) ~~The land shown in the plan was surveyed in accordance with the~~ *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on .....

*(b) The part of the land shown in the plan (*being/*excluding ^.....) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2012*, is accurate and the survey was completed on,..... the part not surveyed was compiled ~~in accordance with that Regulation~~.

*(c) The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2012*.

Signature: D. K. Burke Dated: 29.2.16

Surveyor ID: 645 .....

Datum Line: .....

Type: *Urban/*~~Rural~~

The terrain is *Level-Undulating / *Steep-Mountainous.

*Strike through if inapplicable.

^Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Statements of intention to dedicate public roads create public reserves and drainage reserves, acquire/resume land.

LOTS 15 TO 42 INCLUSIVE ARE REQUIRED FOR FREEWAY UNDER SECTION 48 OF THE ROADS ACT, 1993.

ACCESS WILL BE RESTRICTED ACROSS THE BOUNDARIES OF LOTS 15, 20, 23 & 19, 18, 20, 22, 21, 28 AND 29, 34, 37 & 33, 32, 34, 36, 35, 42 MARKED A-B-C, D-E & F-G-H-I-J-K-L-M-N.

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

DP 327538

DP 6612

DP 566425

DP 15946

DP 731152

DP 1211909

If space is insufficient continue on PLAN FORM 6A

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

Surveyor's Reference: CI1132B, CHECKLIST

EXEMPTION: 2015M7100(119)RMS

PLAN FORM 6A (2012) WARNING: Creasing or folding will lead to rejection ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 2 sheets

Office Use Only

Registered: 13.04.2016

Office Use Only

DP1218765

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

Subdivision Certificate number: .....

Date of Endorsement: .....

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

LOT 1 – 91-93 PENNANT HILLS ROAD, NORMANHURST
LOT 2 – 91-93 PENNANT HILLS ROAD, NORMANHURST
LOT 3 – 91-93 PENNANT HILLS ROAD, NORMANHURST
LOT 4 – 14 MOUNT PLEASANT AVENUE, NORMANHURST
LOT 5 – 16-22 MOUNT PLEASANT AVENUE, NORMANHURST
LOT 6 – N/A
LOT 7 – 23 MOUNT PLEASANT AVENUE, NORMANHURST
LOT 8 – 25 MOUNT PLEASANT AVENUE, NORMANHURST
LOT 9 – 20 REDGRAVE ROAD, NORMANHURST
LOT 10 – 22 REDGRAVE ROAD, NORMANHURST
LOT 11 – 24 REDGRAVE ROAD, NORMANHURST
LOT 12 – 26 REDGRAVE ROAD, NORMANHURST
LOT 13 – 28 REDGRAVE ROAD, NORMANHURST
LOT 14 – 30 REDGRAVE ROAD, NORMANHURST
LOTS 15 TO 42 INCLUSIVE – N/A

APPROVED:

.....

A/ PRINCIPAL SURVEYOR
ROADS AND MARITIME SERVICES

If space is insufficient use additional annexure sheet

Surveyor's Reference: CI1132B, CHECKLIST EXEMPTION: 2015M7100(119)RMS

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 16/6612

SEARCH DATE	TIME	EDITION NO	DATE
24/8/2018	11:31 AM	-	-

VOL 2340 FOL 153 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 16 IN DEPOSITED PLAN 6612
LOCAL GOVERNMENT AREA HORNSBY
PARISH OF SOUTH COLAH COUNTY OF CUMBERLAND
TITLE DIAGRAM DP6612

FIRST SCHEDULE

TRUSTEES OF THE LORETO PROPERTY ASSOCIATION (T W279574)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 24/8/2018

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: AUTO CONSOL 4570-1

SEARCH DATE	TIME	EDITION NO	DATE
24/8/2018	11:30 AM	-	-

VOL 4570 FOL 1 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT NORMANHURST
LOCAL GOVERNMENT AREA HORNSBY
PARISH OF SOUTH COLAH COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

TRUSTEES OF THE LORETO PROPERTY ASSOCIATION

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
* 2 C154950 COVENANT AS REGARDS LOT B IN DP327538
* 3 THE LAND ABOVE DESCRIBED IS LIMITED IN STRATUM IN THE MANNER DESCRIBED IN DP1218765 AS REGARDS LOT 1 IN DP1218765

NOTATIONS

CERTIFICATE OF TITLE NOT ISSUED. LODGED DEALINGS MUST BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLE VOL.4570 FOL.1

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT B IN DP327538	DP327538
LOT 1 IN DP1218765	DP1218765.

*** END OF SEARCH ***

advlegs PRINTED ON 24/8/2018

Section 10.7 Planning Certificate

Online Services Portal
Public User
Hornsby Shire Council

PLANNING CERTIFICATE UNDER SECTION 10.7 (2)
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AS AMENDED

Certificate Number:	C1820764
Reference:	E31772KL (HL):86169
Issue Date:	28 August 2018
Receipt No.:	6378173
Fee Paid:	$133.00
ADDRESS:	No. Loreto Convent School, 16-22 Mount Pleasant Avenue, NORMANHURST NSW 2076
DESCRIPTION:	Lot 5 DP 1218765, Lot 16 DP 6612
The land is zoned:	R2 Low Density Residential

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 10.7 (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 Hornsby Local Environmental Plan (HLEP) 2013, as amended, applies to all land in the Shire unless otherwise stated in this certificate.

Refer to Council's website www.hornsby.nsw.gov.au/hlep to view the HLEP.

State Environmental Planning Policies

SEPP No. 1 - Development Standards
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. 44 - Koala Habitat Protection
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 Apartment Development
SEPP No. 70 – Affordable Housing (Revised Schemes)
SEPP (Building Sustainability Index: BASIX) 2004
SEPP (Housing for Seniors or People with a Disability) 2004
SEPP (State Significant Precincts) 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
SEPP (Vegetation in Non-Rural Areas) 2017
SEPP (Educational Establishments and Child Care Facilities) 2017
SEPP (Coastal Management) 2018

Deemed State Environmental Planning Policies

SREP (Sydney Harbour Catchment) 2005

(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**

No proposed Local Environmental Plans apply to this land.

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

YES

The proposed State Environmental Planning Policy (Primary Production and Rural Development) 2017 applies to the land. The proposed aims of the new SEPP will support sustainable agriculture and aquaculture and consolidate five existing SEPPs, including SEPP 30 (Intensive Agriculture) and SEPP 62 (Sustainable Aquaculture) which apply to Hornsby LGA. Further information on the proposed new Primary Production and Rural Development SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/State-Environmental-Planning-Policies-Review/Draft-Primary-Production-SEPP

YES

The proposed State Environmental Planning Policy (Environment) 2017 applies to the land. The proposed SEPP will combine seven existing policies into one with the aim of simplifying and modernising planning rules for a number of water catchments, waterways, urban bushland and Willandra Lakes World Heritage Property. The policies under review which apply in Hornsby Shire are: SEPP No. 19 (Bushland in Urban Areas); SREP No. 20 Hawkesbury-Nepean River 1997 and SREP (Sydney Harbour Catchment) 2005. Further information on the proposed new Environment SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/State-Environmental-Planning-Policies-Review/Draft-Environment-SEPP

YES

The proposed amendment to State Environmental and Planning Policy (Housing for Seniors or People with a Disability) 2004 (Seniors Housing SEPP) applies to land that adjoins land zoned primarily for urban purposes, within a zone identified as "special uses", or used for purposes of an existing registered club, and where it also meets other specified requirements. The proposed amendment aims to address the issue of incremental expansion of Site Compatibility Certificates (SCCs). The proposed amendment to the Seniors Housing SEPP seeks to clarify that a SCC cannot be issued, amended or reissued for additional land, unless the additional land meets the SCC criteria. Further information on the proposed amendment to the Seniors Housing SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked

Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/Under-review-and-new-Policy-and-Legislation/Proposed-amendment-to-the-Seniors-Housing-SEPP

YES

The proposed amendment to State Environmental Planning Policy (State and Regional Development) 2011 applies to Government owned land immediately adjoining all Sydney Metro Northwest stations, including Cherrybrook. The proposed amendment nominates the Minister for Planning as the consent authority for future development on identified Government owned land along the Sydney metro Northwest corridor, if the development meets the criteria of State Significant Development. It proposes that the following development be identified as State Significant Development: 1) a principal subdivision establishing major lots or public domain areas or 2) the creation of new roadways and associated works or 3) has a capital investment value of more than $30 million. Further information on the proposed amendment to the SEPP including the Consultation Paper and Explanation of Intended Effect can be viewed on the Department of Planning and Environment's website http://planspolicies.planning.nsw.gov.au/index.pl?action=view_job&job_id=9213

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

Hornsby Development Control Plan (HDCP) 2013

Refer to Council's website www.hornsby.nsw.gov.au/hdcp to view the HDCP.

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

2. Zoning of land use under relevant LEPs

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

(A) The HLEP 2013 applies to the land unless otherwise stated in this certificate and identifies the land to be:

R2 Low Density Residential

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

Refer to Attachment

Note: Also refer to the applicable SEPP instrument for provisions regarding Development without Consent and Exempt Development

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

Refer to Attachment

Note: Also refer to the applicable SEPP instrument for provisions regarding Development with Consent.

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

Refer to Attachment

(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?

NO

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

NO

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

NO

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

YES

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 and (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.

NO

3. Complying Development

Whether or not 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 Developments Code) 2008*. If 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, the reasons why it may not be carried out under those clauses.

General Housing Code and Rural Housing Code

Complying Development under the General Housing Code or Rural Housing Code **may not** be carried out on the land. The land is affected by specific land exemptions.

Note. Any specific land exemptions listed apply to all or part of the land. Complying development that is located on a part of the land that does not comprise the land that forms a specific land exemption may be carried out on that part of the land. The land that does not satisfy the various land based requirements under Clauses 1.17A, 1.18 and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 are shown coloured red in Council's web-based Mapping Application by ticking the "Code SEPP-Non Complying Land/General and Rural Housing" map layers. The Mapping Application can be accessed on desktop computers, tablets or mobile phones by clicking on the relevant link on Council's HLEP webpage www.hornsby.nsw.gov.au/hlep

- All or part of the land is an item that is listed under Schedule 5 Environmental Heritage of the *HLEP*. Complying development that is located on a part of the land that does not comprise the land that is listed under Schedule 5 Environmental Heritage of the HLEP may be carried out on that part of the land, if the heritage item is the only specific land exemption. (Clause 1.17A)

Low Rise Medium Density Housing Code

Complying Development under the Low Rise Medium Density Housing Code **may not** be carried out on the land.

Note: The Low Rise Medium Density Housing Code does not apply to land within the Hornsby Shire Council Local Government Area until 1 July 2019.

Commercial and Industrial (New Buildings and Additions) Code

Complying Development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on the land. The land is affected by specific land exemptions.

Note. Any specific land exemptions listed apply to all or part of the land. Complying development that is located on a part of the land that does not comprise the land that forms a specific land exemption may be carried out on that part of the land. The land that does not satisfy the various land based requirements under Clauses 1.17A, 1.18 and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 are shown coloured orange in Council's web-based Mapping Application by ticking the "Code SEPP-Non Complying Land/Commercial and Industrial" map layers. The Mapping Application can be accessed on desktop computers, tablets or mobile phones by clicking on the relevant link on Council's HLEP webpage www.hornsby.nsw.gov.au/hlep

- All or part of the land is an item that is listed under Schedule 5 Environmental Heritage of the *HLEP*. Complying development that is located on a part of the land that does not comprise the land that is listed under Schedule 5 Environmental Heritage of the HLEP may be carried out on that part of the land, if the heritage item is the only specific land exemption. (Clause 1.17A)

Housing Alterations, General Development, Commercial and Industrial Alterations, Container Recycling Facilities, Subdivisions, Demolition and Fire Safety Codes (Other Codes)

Complying Development under the Housing Alterations Code, General Development Code, Commercial and Industrial Alterations Code, Container Recycling Facilities, Subdivisions Code, Demolition Code or Fire Safety Code **may not** be carried out on the land. The land is affected by specific land exemptions.

Note. Any specific land exemptions listed apply to all or part of the land. Complying development that is located on a part of the land that does not comprise the land that forms a specific land exemption may be carried out on that part of the land. The land that does not satisfy the various land based requirements under Clauses 1.17A, 1.18 and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 are shown coloured purple in Council's web-based Mapping Application by ticking the "Code SEPP-Non Complying Land/Codes Other" map layers. The Mapping Application can be accessed on desktop computers, tablets or mobile phones by clicking on the relevant link on Council's HLEP webpage www.hornsby.nsw.gov.au/hlep

- All or part of the land is an item that is listed under Schedule 5 Environmental Heritage of the *HLEP*. Complying development that is located on a part of the land that does not comprise the land that is listed under Schedule 5 Environmental Heritage of the HLEP may be carried out on that part of the land, if the heritage item is the only specific land exemption. (Clause 1.17A)

4. **(Repealed)**

4A. **(Repealed)**

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

Whether the owner (or previous owner) of the land has been 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 alignment 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?

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 sulfate soils or any other risk (other than flooding)?

Council's and other public authorities' policies on hazard risk restrictions are as follows:

(A) **Landslip**

NO

(B) **Bushfire**

NO

(C) **Tidal inundation**

NO

(D) **Subsidence**

NO

(E) **Acid Sulfate Soils**

NO

(F) **Land contamination**

NO

Council's electronic property records do not identify the land to be contaminated, being contaminated, as having been remediated or being remediated. Notwithstanding, consideration of Council's policy and the application of provisions under relevant State legislation may still be warranted if upon further evaluation the land is found to be contaminated or potentially contaminated.

Section 1.C.3.4 Land Contamination of the *Hornsby DCP 2013* contains provisions that restrict the development of land affected by contamination or that is potentially contaminated. Specifically, the provisions may require preliminary contamination assessments, detailed investigations, remedial action plans, validation reports and site audit statements to be undertaken pursuant to *SEPP No. 55 Remediation of Land* before a site is suitable for certain development.

Hornsby DCP 2013 can be viewed on Council's website hornsby.nsw.gov.au/hdcp or at Council's Administration Building or Libraries.

Notes: Council undertakes a thorough review of all relevant records (including hard copy property files) for land within zones with a higher propensity for potentially contaminating land uses (i.e. non-residential zoned land) to identify previously approved land uses which have the potential to cause contamination in accordance with the *Managing Land Contamination - Planning Guidelines*. The result of this review is provided on Certificates issued under Section 10.7 (5) of the *EP&A Act 1979*.

If you have any queries regarding a landowner's obligations in relation to contamination issues, it is recommended that you seek your own independent professional advice.

(G) **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

(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

(3) Word and expressions in this clause have the same meanings as in the Standard Instrument.

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 3.15 of the Act.

(A) **State Environmental Planning Policy?**

NO

(B) **Hornsby Local Environmental Plan 2013?**

NO

(C) **Planning Proposal?**

NO

9. Contribution plans

The name of each contribution plan applying to the land:

Hornsby Section 94 Development Contributions Plan 2014 – 2024
Hornsby Section 94A Development Contributions Plan 2014 – 2024

9A. Biodiversity certified land

Whether the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*?

NO

Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10. Biodiversity stewardship sites

Whether the land is land to which a biodiversity stewardship site agreement under Part 5 of the *Biodiversity Conservation Act 2016* relates, (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of the Environment and Heritage)?

NO

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016.*

10A. Native vegetation clearing set asides

Whether the land contains a set aside area under Section 60ZC of the *Local Land Services Act 2013*, (but only if the council has been notified of the existence of the set aside by Local Land Services or it is registered in the public register under that section)?

NO

11. Bush fire prone land

Whether any of the land has been identified as bush fire prone land?

NO

12. Property vegetation plans

Has the council been notified that a property vegetation plan under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) 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 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 this 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 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) or site compatibility certificate (schools or TAFE establishments), issued in respect of proposed development on this 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 applied 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

20. Loose-fill asbestos insulation

Whether the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division?

NO

21. Affected building notices and building product rectification orders

Whether there is any affected building notice of which the council is aware that is in force in respect of the land?

NO

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.*
Building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017.*

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 the 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 the 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 used,

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

THIS PART IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 10.7 (5) OF THE ABOVE ACT

NOTE: "When information pursuant to Section 10.7 (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 10.7 (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 a resolution to prepare a Planning Proposal applies to the land?

NO

B. Whether there are draft amendments to the Hornsby Development Control Plan that are on exhibition, have been exhibited or have been adopted by Council for exhibition applying to the land?

NO

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

YES

Tree and Vegetation Preservation Provisions contained within the SEPP (Vegetation in Non-Rural Areas) 2017 and Hornsby DCP apply to the land.

Note: SEPP (Vegetation in Non-Rural Areas) 2017 can be viewed on the NSW Legislation website at: www.legislation.nsw.gov.au and the Hornsby DCP can be viewed on Council's website hornsby.nsw.gov.au/hdcp or at Council's Administration Building.

D. Whether there are any provisions within the Hornsby LEP applying to the land that controls the management of biodiversity?

NO

E. Whether there are any provisions applying to the land within the Hornsby Local Environmental Plan that control development within a foreshore area?

NO

F. 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

G. Whether the land is within or adjacent to the North West Rail Link as identified on the maps provided by Transport NSW?

NO

H. Whether the land is subject to the North West Rail Link Corridor Strategy prepared by the Department of Planning and Infrastructure?

NO

I. Whether the land is within or adjacent to an existing rail corridor?

NO

J. Whether the land is in a rural area or located adjacent to a rural area in which agriculture occurs?

NO

K. Whether Council's records show a history of potentially contaminating land use and the land is zoned:

- Business, Industrial and/or SP2 Infrastructure; or

NO

- RU1 Primary Production, RU2 Rural Landscape, RU4 Primary Production Small Lots or E3 Environmental Management.

NO

- Any other risk

NO

Note: This is NOT a statement on whether or not the property is affected by contamination. Council has a policy on contaminated land which may restrict the development of the land. This policy is implemented when zoning, land use changes or further development is proposed on lands which are contaminated, or have previously been used for certain purposes and the contamination status of the land is uncertain. Accordingly, consideration of Council's policy and the application of provisions under relevant State legislation is warranted. If you have any queries regarding a landowner's obligations in relation to contamination issues, it is recommended that you seek your own independent professional advice.

L. Whether the land is subject to risk of "future" exposure to tidal inundation?

NO

M. Whether the land is within or adjacent to the NorthConnex motorway link corridor as identified on the maps provided by the NorthConnex project team?

YES

Note: Any enquiries on the NorthConnex motorway link should be directed to the NorthConnex project team on 1800 997 057 or enquiries@northconnex.com.au

N. Whether there is potential for loose-fill asbestos insulation to be found on properties that are not listed on the NSW Department of Fair Trading's Loose-Fill Asbestos Public Register

YES

Note: Some residential homes located in Hornsby Shire have been identified as containing loose-fill asbestos insulation in the roof space. The NSW Department of Fair Trading maintains a Public Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates, and if it contains a building construction prior to 1980, it is recommended that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the risk (if any) this may pose for the building's occupants.

Further information can be obtained by contacting the NSW Department of Fair Trading and viewing the Department's website.

O. Whether there is potential for external combustible cladding to be found on multi-storey buildings on properties in Hornsby Shire?

YES

Note: Some buildings located in Hornsby Shire have been identified as containing combustible cladding. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

Steven Head

General Manager per

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Hornsby Local Environmental Plan 2013 - Land Use Table

Zone R2Low Density Residential

1Objectives 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.

2Permitted without consent

Environmental protection works; Home occupations

3Permitted with consent

Boarding houses; Building identification signs; Business identification signs; Centre-based childcare facilities; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Flood mitigation works; Group homes; Home-based child care; Home businesses; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Respite day care centres; Roads; Tourist and visitor accommodation; Veterinary hospitals; Water reticulation systems

4Prohibited

Backpackers' accommodation; Farm stay accommodation; Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Online Services Portal
Public User
Hornsby Shire Council

PLANNING CERTIFICATE UNDER SECTION 10.7 (2)
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 AS AMENDED

Certificate Number:	C1820765
Reference:	E31772KL (HL):86169
Issue Date:	28 August 2018
Receipt No.:	6378173
Fee Paid:	$133.00
ADDRESS:	No. 8 Mount Pleasant Avenue, NORMANHURST NSW 2076
DESCRIPTION:	Lot 1 DP 1218765, Lot B DP 327538
The land is zoned:	R2 Low Density Residential

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 10.7 (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 Hornsby Local Environmental Plan (HLEP) 2013, as amended, applies to all land in the Shire unless otherwise stated in this certificate.

Refer to Council's website www.hornsby.nsw.gov.au/hlep to view the HLEP.

State Environmental Planning Policies

SEPP No. 1 - Development Standards
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. 44 - Koala Habitat Protection
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 Apartment Development
SEPP No. 70 – Affordable Housing (Revised Schemes)
SEPP (Building Sustainability Index: BASIX) 2004
SEPP (Housing for Seniors or People with a Disability) 2004
SEPP (State Significant Precincts) 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
SEPP (Vegetation in Non-Rural Areas) 2017
SEPP (Educational Establishments and Child Care Facilities) 2017
SEPP (Coastal Management) 2018

Deemed State Environmental Planning Policies

SREP (Sydney Harbour Catchment) 2005

(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**

No proposed Local Environmental Plans apply to this land.

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

YES

The proposed State Environmental Planning Policy (Primary Production and Rural Development) 2017 applies to the land. The proposed aims of the new SEPP will support sustainable agriculture and aquaculture and consolidate five existing SEPPs, including SEPP 30 (Intensive Agriculture) and SEPP 62 (Sustainable Aquaculture) which apply to Hornsby LGA. Further information on the proposed new Primary Production and Rural Development SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/State-Environmental-Planning-Policies-Review/Draft-Primary-Production-SEPP

YES

The proposed State Environmental Planning Policy (Environment) 2017 applies to the land. The proposed SEPP will combine seven existing policies into one with the aim of simplifying and modernising planning rules for a number of water catchments, waterways, urban bushland and Willandra Lakes World Heritage Property. The policies under review which apply in Hornsby Shire are: SEPP No. 19 (Bushland in Urban Areas); SREP No. 20 Hawkesbury-Nepean River 1997 and SREP (Sydney Harbour Catchment) 2005. Further information on the proposed new Environment SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/State-Environmental-Planning-Policies-Review/Draft-Environment-SEPP

YES

The proposed amendment to State Environmental and Planning Policy (Housing for Seniors or People with a Disability) 2004 (Seniors Housing SEPP) applies to land that adjoins land zoned primarily for urban purposes, within a zone identified as "special uses", or used for purposes of an existing registered club, and where it also meets other specified requirements. The proposed amendment aims to address the issue of incremental expansion of Site Compatibility Certificates (SCCs). The proposed amendment to the Seniors Housing SEPP seeks to clarify that a SCC cannot be issued, amended or reissued for additional land, unless the additional land meets the SCC criteria. Further information on the proposed amendment to the Seniors Housing SEPP can be obtained by viewing the Explanation and Intended Effect and Frequently Asked

Questions on the proposed policy on the Department of Planning and Environment's website http://www.planning.nsw.gov.au/Policy-and-Legislation/Under-review-and-new-Policy-and-Legislation/Proposed-amendment-to-the-Seniors-Housing-SEPP

YES

The proposed amendment to State Environmental Planning Policy (State and Regional Development) 2011 applies to Government owned land immediately adjoining all Sydney Metro Northwest stations, including Cherrybrook. The proposed amendment nominates the Minister for Planning as the consent authority for future development on identified Government owned land along the Sydney metro Northwest corridor, if the development meets the criteria of State Significant Development. It proposes that the following development be identified as State Significant Development: 1) a principal subdivision establishing major lots or public domain areas or 2) the creation of new roadways and associated works or 3) has a capital investment value of more than $30 million. Further information on the proposed amendment to the SEPP including the Consultation Paper and Explanation of Intended Effect can be viewed on the Department of Planning and Environment's website http://planspolicies.planning.nsw.gov.au/index.pl?action=view_job&job_id=9213

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

Hornsby Development Control Plan (HDCP) 2013

Refer to Council's website www.hornsby.nsw.gov.au/hdcp to view the HDCP.

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

2. Zoning of land use under relevant LEPs

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

(A) The HLEP 2013 applies to the land unless otherwise stated in this certificate and identifies the land to be:

R2 Low Density Residential

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

Refer to Attachment

Note: Also refer to the applicable SEPP instrument for provisions regarding Development without Consent and Exempt Development

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

Refer to Attachment

Note: Also refer to the applicable SEPP instrument for provisions regarding Development with Consent.

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

Refer to Attachment

(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?

NO

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

NO

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

NO

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

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 and (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.

NO

3. Complying Development

Whether or not 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 Developments Code) 2008. If 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, the reasons why it may not be carried out under those clauses.

General Housing Code and Rural Housing Code

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

Low Rise Medium Density Housing Code

Complying Development under the Low Rise Medium Density Housing Code **may not** be carried out on the land.

Note: The Low Rise Medium Density Housing Code does not apply to land within the Hornsby Shire Council Local Government Area until 1 July 2019.

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.

Housing Alterations, General Development, Commercial and Industrial Alterations, Container Recycling Facilities, Subdivisions, Demolition and Fire Safety Codes (Other Codes)

Complying Development under the Housing Alterations Code, General Development Code, Commercial and Industrial Alterations Code, Container Recycling Facilities, Subdivisions Code, Demolition Code or Fire Safety Code **may be** carried out on the land.

4. **(Repealed)**

4A. **(Repealed)**

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

Whether the owner (or previous owner) of the land has been 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 alignment 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?

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 sulfate soils or any other risk (other than flooding)?

Council's and other public authorities' policies on hazard risk restrictions are as follows:

(A) **Landslip**

YES

All or part of the land has a gradient in excess of 20%. Section 1C.1.4 Earthworks and Slope of the *Hornsby DCP 2013* contains provisions that restrict development on land with the potential for landslip. Specifically, the provisions require certification from a geotechnical engineer as to the stability of the slope in regards to the proposed design of development on sloping sites with a gradient in excess of 20%.

Hornsby DCP 2013 can be viewed on Council's website hornsby.nsw.gov.au/hdcp or at Council's Administration Building or Libraries.

Note: This is a statement of Council and/or Public Authority Policy as the land has a landslip risk but NOT a statement on whether or not the property is or has been affected by landslip.

(B) **Bushfire**

NO

(C) **Tidal inundation**

NO

(D) **Subsidence**

NO

(E) **Acid Sulfate Soils**

NO

(F) **Land contamination**

NO

Council's electronic property records do not identify the land to be contaminated, being contaminated, as having been remediated or being remediated. Notwithstanding, consideration of Council's policy and the application of provisions under relevant State legislation may still be warranted if upon further evaluation the land is found to be contaminated or potentially contaminated.

Section 1.C.3.4 Land Contamination of the *Hornsby DCP 2013* contains provisions that restrict the development of land affected by contamination or that is potentially contaminated. Specifically, the provisions may require preliminary contamination assessments, detailed investigations, remedial action plans, validation reports and site audit statements to be undertaken pursuant to *SEPP No. 55 Remediation of Land* before a site is suitable for certain development.

Hornsby DCP 2013 can be viewed on Council's website hornsby.nsw.gov.au/hdcp or at Council's Administration Building or Libraries.

Notes: Council undertakes a thorough review of all relevant records (including hard copy property files) for land within zones with a higher propensity for potentially contaminating land uses (i.e. non-residential zoned land) to identify previously approved land uses which have the potential to cause contamination in accordance with the *Managing Land Contamination - Planning Guidelines*. The result of this review is provided on Certificates issued under Section 10.7 (5) of the *EP&A Act 1979*.

If you have any queries regarding a landowner's obligations in relation to contamination issues, it is recommended that you seek your own independent professional advice.

(G) **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

(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

(3) Word and expressions in this clause have the same meanings as in the Standard Instrument.

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 3.15 of the Act.

(A) **State Environmental Planning Policy?**

NO

(B) **Hornsby Local Environmental Plan 2013?**

NO

(C) **Planning Proposal?**

NO

9. Contribution plans

The name of each contribution plan applying to the land:

Hornsby Section 94 Development Contributions Plan 2014 – 2024
Hornsby Section 94A Development Contributions Plan 2014 – 2024

9A. Biodiversity certified land

Whether the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*?

NO

Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10. Biodiversity stewardship sites

Whether the land is land to which a biodiversity stewardship site agreement under Part 5 of the *Biodiversity Conservation Act 2016* relates, (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of the Environment and Heritage)?

NO

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016.*

10A. Native vegetation clearing set asides

Whether the land contains a set aside area under Section 60ZC of the *Local Land Services Act 2013*, (but only if the council has been notified of the existence of the set aside by Local Land Services or it is registered in the public register under that section)?

NO

11. Bush fire prone land

Whether any of the land has been identified as bush fire prone land?

NO

12. Property vegetation plans

Has the council been notified that a property vegetation plan under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) 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 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 this 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 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) or site compatibility certificate (schools or TAFE establishments), issued in respect of proposed development on this 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 applied 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

20. Loose-fill asbestos insulation

Whether the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division?

NO

21. Affected building notices and building product rectification orders

Whether there is any affected building notice of which the council is aware that is in force in respect of the land?

NO

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.*
Building product rectification order has the same meaning as in the *Building Products (Safety) Act 2017.*

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 the 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 the 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 used,

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

THIS PART IS DIRECTED TO THE FOLLOWING MATTERS PRESCRIBED UNDER SECTION 10.7 (5) OF THE ABOVE ACT

NOTE: "When information pursuant to Section 10.7 (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 10.7 (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 a resolution to prepare a Planning Proposal applies to the land?

NO

B. Whether there are draft amendments to the Hornsby Development Control Plan that are on exhibition, have been exhibited or have been adopted by Council for exhibition applying to the land?

NO

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

YES

Tree and Vegetation Preservation Provisions contained within the SEPP (Vegetation in Non-Rural Areas) 2017 and Hornsby DCP apply to the land.

Note: SEPP (Vegetation in Non-Rural Areas) 2017 can be viewed on the NSW Legislation website at: www.legislation.nsw.gov.au and the Hornsby DCP can be viewed on Council's website hornsby.nsw.gov.au/hdcp or at Council's Administration Building.

D. Whether there are any provisions within the Hornsby LEP applying to the land that controls the management of biodiversity?

NO

E. Whether there are any provisions applying to the land within the Hornsby Local Environmental Plan that control development within a foreshore area?

NO

F. 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

G. Whether the land is within or adjacent to the North West Rail Link as identified on the maps provided by Transport NSW?

NO

H. Whether the land is subject to the North West Rail Link Corridor Strategy prepared by the Department of Planning and Infrastructure?

NO

I. Whether the land is within or adjacent to an existing rail corridor?

NO

J. Whether the land is in a rural area or located adjacent to a rural area in which agriculture occurs?

NO

K. Whether Council's records show a history of potentially contaminating land use and the land is zoned:

- Business, Industrial and/or SP2 Infrastructure; or

NO

- RU1 Primary Production, RU2 Rural Landscape, RU4 Primary Production Small Lots or E3 Environmental Management.

NO

- Any other risk

NO

Note: This is NOT a statement on whether or not the property is affected by contamination. Council has a policy on contaminated land which may restrict the development of the land. This policy is implemented when zoning, land use changes or further development is proposed on lands which are contaminated, or have previously been used for certain purposes and the contamination status of the land is uncertain. Accordingly, consideration of Council's policy and the application of provisions under relevant State legislation is warranted. If you have any queries regarding a landowner's obligations in relation to contamination issues, it is recommended that you seek your own independent professional advice.

L. Whether the land is subject to risk of "future" exposure to tidal inundation?

NO

M. Whether the land is within or adjacent to the NorthConnex motorway link corridor as identified on the maps provided by the NorthConnex project team?

YES

Note: Any enquiries on the NorthConnex motorway link should be directed to the NorthConnex project team on 1800 997 057 or enquiries@northconnex.com.au

N. Whether there is potential for loose-fill asbestos insulation to be found on properties that are not listed on the NSW Department of Fair Trading's Loose-Fill Asbestos Public Register

YES

Note: Some residential homes located in Hornsby Shire have been identified as containing loose-fill asbestos insulation in the roof space. The NSW Department of Fair Trading maintains a Public Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates, and if it contains a building construction prior to 1980, it is recommended that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the risk (if any) this may pose for the building's occupants.

Further information can be obtained by contacting the NSW Department of Fair Trading and viewing the Department's website.

O. Whether there is potential for external combustible cladding to be found on multi-storey buildings on properties in Hornsby Shire?

YES

Note: Some buildings located in Hornsby Shire have been identified as containing combustible cladding. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

Steven Head

General Manager per

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Zone R2Low Density Residential

1Objectives 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.

2Permitted without consent

Environmental protection works; Home occupations

3Permitted with consent

Boarding houses; Building identification signs; Business identification signs; Centre-based childcare facilities; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Flood mitigation works; Group homes; Home-based child care; Home businesses; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Respite day care centres; Roads; Tourist and visitor accommodation; Veterinary hospitals; Water reticulation systems

4Prohibited

Backpackers' accommodation; Farm stay accommodation; Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

SafeWork NSW Information

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D19/062203

31 January 2019

Environmental Investigation Services
Harry Leonard
PO BOX 976
NORTH RYDE BC NSW 1670

Dear Mr Leonard

RE SITE: Lot 3 Pennant Hills Rd, Normanhurst NSW

I refer to your site search request received by SafeWork NSW on 15 January 2019 requesting information on Storage of Hazardous Chemicals for the above site.

Enclosed are copies of the documents that SafeWork NSW holds on record number 35/034456 relating to the storage of Hazardous Chemicals at the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

Application for Licence to Keep Dangerous Goods

WorkCover NEW SOUTH WALES

expiry 7/6/2001.

Application for ☒ **new licence** ☐ **amendment** ☒ **transfer** ☐ **renewal of expired licence**

PART A – Applicant and site information See page 2 of Guidance Notes.

1 Name of applicant | ACN

LORETO NORMANHURST ASSOCIATION INCORPORATED | —

2 Postal address of applicant | Suburb/Town | Postcode

93 PENNANT HILLS ROAD | NORMANHURST | 2076

3 Trading name or site occupier's name

LORETO NORMANHURST

4 Contact for licence inquiries

Phone | Fax | Name

(02) 9487 3485 | (02) 9489 2348 | ROBERT HOGG

5 Previous licence number (if known) 35/ 03 4456

6 Previous occupier (if known)

licence issued 17/6/00

7 Site to be licensed

No | Street

93 | PENNANT HILLS ROAD

Suburb / Town | | Postcode

NORMANHURST | NSW | 2076

8 Main business of site SCHOOL

9 Site staffing: Hours per day 9½ Days per week 5

10 Site emergency contact

Phone | Name

(02) 9896 2296 (AH) 0407 905465 | ROBERT HOGG

11 Major supplier of dangerous goods ~~UNKNOWN AT THIS TIME~~ ELITE CHEMICALS

12 If a new site or for amendments to depots – see page 4 of Guidance Notes.

Plan stamped by: | Name of Accredited Consultant | Date stamped

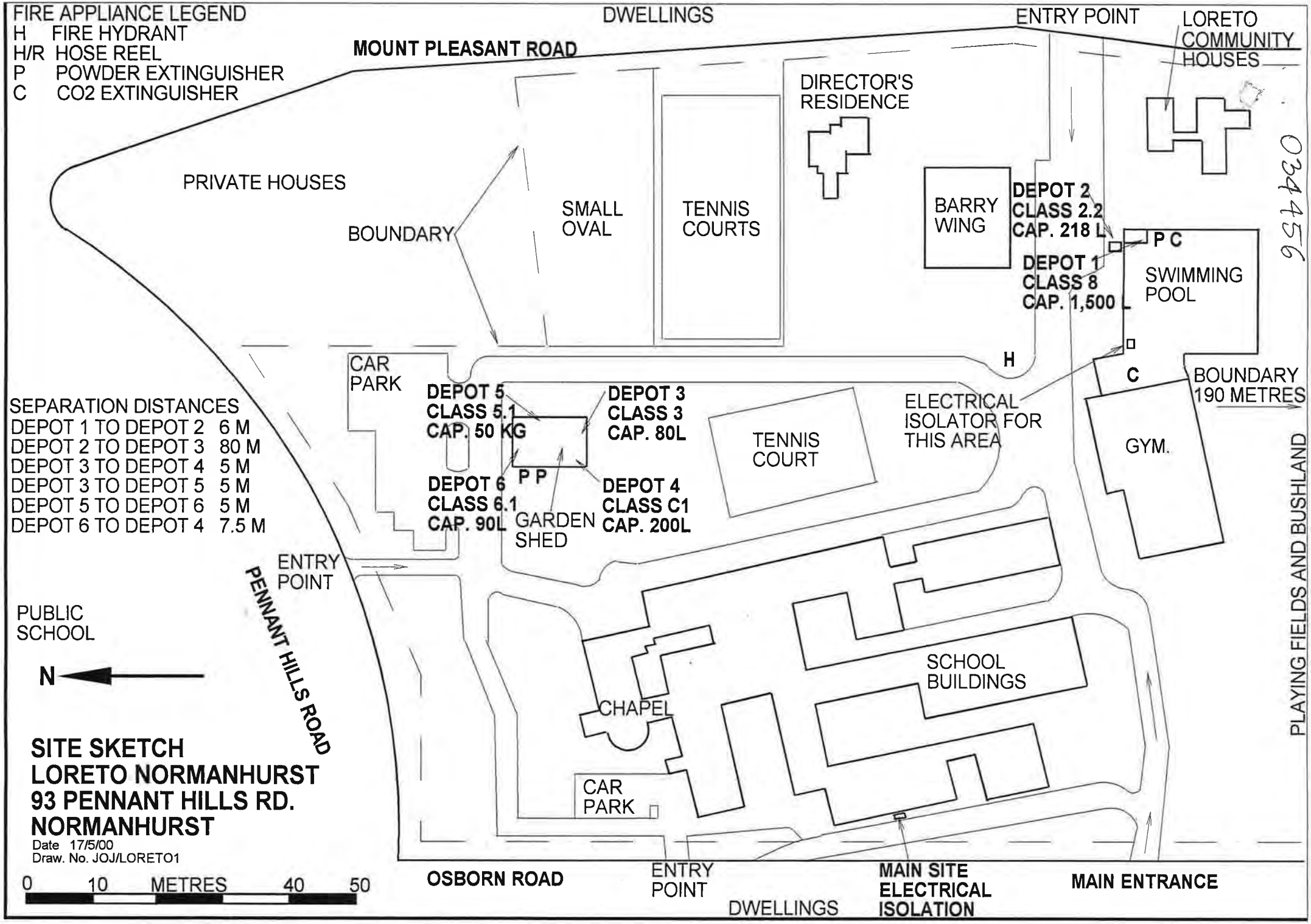
CARAMAN GOODFELLOW | 5/6/00

I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

13 Signature of applicant | Printed name | Date

R Hogg | ROBERT B. HOGG | 5/6/00

Please send your application, marked *CONFIDENTIAL*, to: **Dangerous Goods Licensing, WorkCover NSW, Level 3, GPO Box 5364, SYDNEY NSW 2001**


FIRE APPLIANCE LEGEND
H FIRE HYDRANT
H/R HOSE REEL
P POWDER EXTINGUISHER
C CO2 EXTINGUISHER
DWELLINGS
ENTRY POINT
LORETO COMMUNITY HOUSES
MOUNT PLEASANT ROAD
DIRECTOR'S RESIDENCE
PRIVATE HOUSES
BOUNDARY
SMALL OVAL
TENNIS COURTS
BARRY WING
DEPOT 2 CLASS 2.2 CAP. 218 L
P C
DEPOT 1 CLASS 8 CAP. 1,500 L
SWIMMING POOL
0344456
CAR PARK
H
C
BOUNDARY 190 METRES
DEPOT 5 CLASS 5.1 CAP. 50 KG
DEPOT 3 CLASS 3 CAP. 80L
ELECTRICAL ISOLATOR FOR THIS AREA
TENNIS COURT
GYM.
P P
DEPOT 6 CLASS 6.1 CAP. 90L
GARDEN SHED
DEPOT 4 CLASS C1 CAP. 200L
SEPARATION DISTANCES
DEPOT 1 TO DEPOT 2 6 M
DEPOT 2 TO DEPOT 3 80 M
DEPOT 3 TO DEPOT 4 5 M
DEPOT 3 TO DEPOT 5 5 M
DEPOT 5 TO DEPOT 6 5 M
DEPOT 6 TO DEPOT 4 7.5 M
ENTRY POINT
PENNANT HILLS ROAD
PUBLIC SCHOOL
N
SCHOOL BUILDINGS
CHAPEL
CAR PARK
PLAYING FIELDS AND BUSHLAND
SITE SKETCH
LORETO NORMANHURST
93 PENNANT HILLS RD.
NORMANHURST
Date 17/5/00
Draw. No. JOJ/LORETO1
0 10 METRES 40 50
OSBORN ROAD
ENTRY POINT
DWELLINGS
MAIN SITE ELECTRICAL ISOLATION
MAIN ENTRANCE

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
1	ABOVE GROUND TANK	8	1,500 Litres

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
1791	SODIUM HYPOCHLORITE SOLUTION	8	III	SODIUM HYPOCHLORITE	1,000	Lit

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
2	ABOVE GROUND TANK	2.2	218 Litres

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
1013	CARBON DIOXIDE	2.2		CARBON DIOXIDE	200	Lit

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
3	ROOFED STORE	3	80 Litres

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
1203	MOTOR SPIRIT	3	I	PETROL	60	Lit

Exempt Depot - for SCID records only

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
4	ROOFED STORE	C1	200 Litres

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
	DIESEL FUEL	C1		DIESEL FUEL	150	Lit

Exempt Depot - for SCID records only.

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
5	ROOFED STORE	5.1	50 Kgs

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
1942	AMMONIUM NITRATE	5.1	III	NITRAM	50	Kgs

Exempt Depot - for SCID records only

Depot Number	Type of Depot	Depot Class	Maximum Storage Capacity
6	ROOFED STORE	6.1	50 Litres

UN Number	Proper Shipping Name	Class	PG I,II,III	Product or Common Name	Typical Quantity	Units l,kg
2902	ENDOTHAL	6.1	III	ENDOTHAL	1	Lit
3082	BROMOXYNIL + MCPA	6.1	III	BINDI KILLER	1	Lit
3017	FENTHION	6.1	III	LEBAYCID	1	Lit
1950	OMETHOATE	6.1	III	FOLIMAT 50	1	Lit
3021	TRIFORINE + DIMETHYL FORMAMIDE	6.1	III	ROSE FUNGACIDE	2	Lit
2783	FENAMIPHOS	6.1	III	LAWN BETTLE KILLER	1	Kg
2757	CARBARYL	6.1	III	CARBARYL	1	Kg
3017	DIMETHOATE	6.1	III	ROGOR 400	2	Lit
3017	DIAZINON	6.1	III	LAWN GRUB + INSECT KILLER	1	Lit
1325	BENOMYL	6.1	III	BENLATE	1	Kg

12 Kg/Lit

Exempt Minor Storage - Recorded for SCID information only

3017 4L.

2000/00V509

437 f | 3012

Licence No. 35/034456

APPLICATION FOR RENEWAL

OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/034456 to 6/06/2005 . I confirm that all the licence details shown below are correct (amend if necessary).

..... DAVID COLLINS 6/6/04

(Signature) *(Please print name)* *(Date signed)*

for: LORETO NORMANHURST ASSOCIATION INCORP

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section
LOCKED BAG 2906
LISAROW NSW 2252

Enquiries:ph (02) 43215500
fax (02) 92875500

Details of licence on 29 April 2004

Licence Number 35/034456 **Expiry Date** 6/06/2004

Licensee LORETO NORMANHURST ASSOCIATION INCORP

RECEIVED SERVICE CENTRE 21 JUN 2004 WORKCOVER NEW SOUTH WALES

Postal Address: 93 PENNANT HILLS RD NORMANHURST NSW 2076

Licensee Contact ROBERT HOGG Ph. 02 94873488 Fax. 02 9487 2348

Premises Licensed to Keep Dangerous Goods
LORETO NORMANHURST ASSOCIATION INCORP
93 PENNANT HILLS RD NORMANHURST 2076

Nature of Site SCHOOL EDUCATION

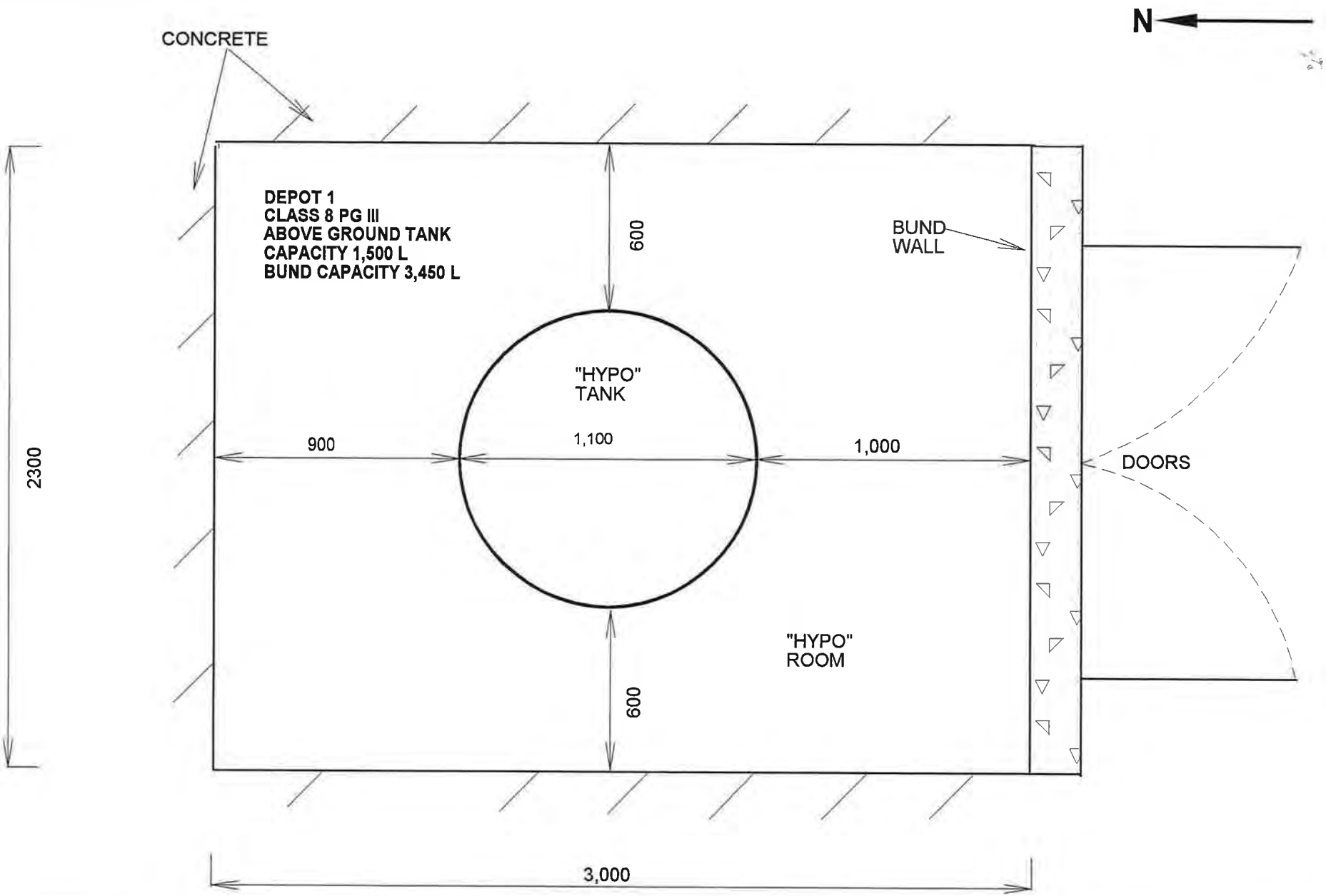
Major Supplier of Dangerous Goods ELITE CHEMICALS

Emergency Contact for this Site ~~ROBERT HOGG(0407 905 465) Ph. 02 9896 2296~~ GRAEME HARON 0400385144 Ph 94892646

Site staffing 9 1/2 HRS 5 DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot		Qty
1	**ABOVE-GROUND TANK**	**Class 8**	**1500 L**	
	UN 1791 HYPOCHLORITE SOLUTION			1000 L
2	**ABOVE-GROUND TANK**	**Class 2.2**	**218 L**	
	UN 1013 CARBON DIOXIDE			200 L
3	**ROOFED STORE**	**Class 3**	**80 L**	
	UN 1203 PETROL		60 L	
4	**ROOFED STORE**	**Class C1**	**200 L**	
	UN 00C1 DIESEL		150 L	
5	**ROOFED STORE**	**Class 5.1**	**50 KG**	
	UN 1942 AMMONIUM NITRATE			50 KG
6	**ROOFED STORE**	**Class 6.1**	**50 L**	
	UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S.			1 KG
	UN 1950 AEROSOLS		1 L	
	UN 2757 CARBAMATE PESTICIDE, SOLID, TOXIC			1 KG
	UN 2783 ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC			1 KG
	UN 2902 PESTICIDE, LIQUID, TOXIC, N.O.S.			1 L
	UN 3017 ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FL			4 L
	UN 3021 PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S.			2 L
	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,			1 L

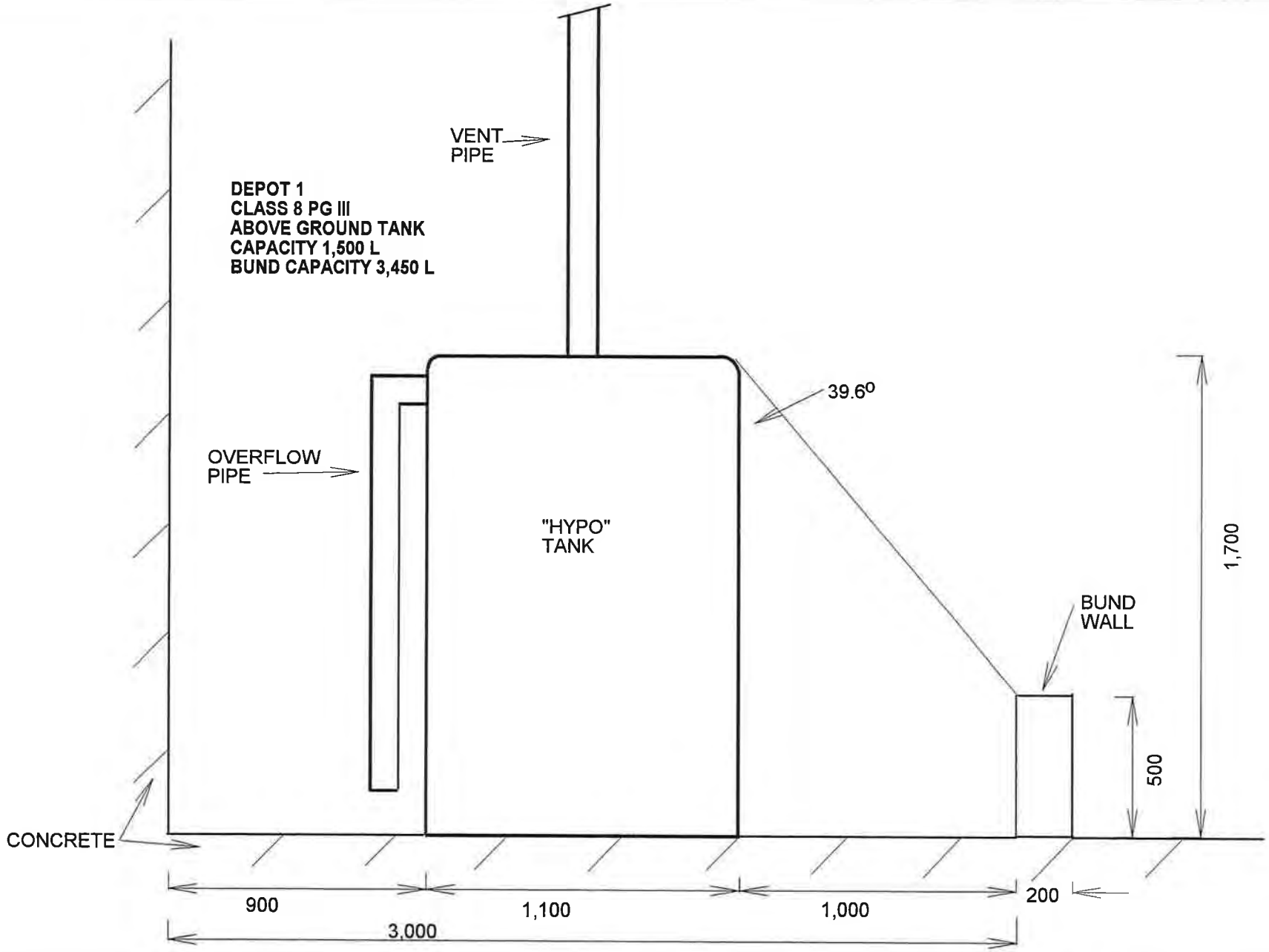


G R GOODFELLOW PTY LTD
58 Coolawin Road Northbridge NSW 2063
ABN 33/001 179 246 Ph 9958 1909 Fax 9958 0019

LORETO NORMANHURST
DEPOT 1
"HYPO" ROOM PLAN

Drawn JOJackson
Scale 1:20 Date 22/5/00

Drawing No.
JOJ/LORETO 2A

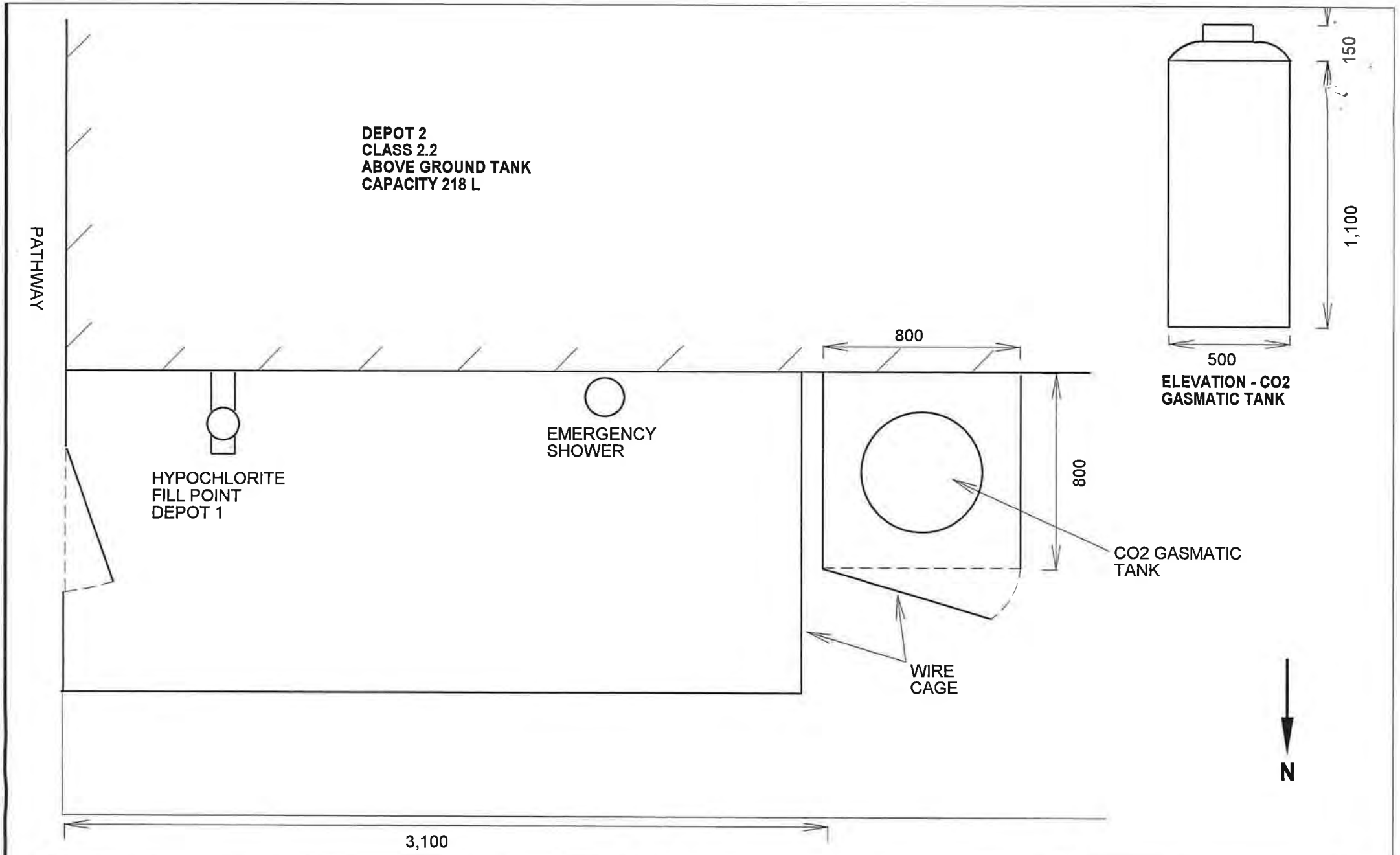


G R GOODFELLOW PTY LTD
58 Coolawin Road Northbridge NSW 2063
ABN 33/001 179 246 Ph 9958 1909 Fax 9958 0019

LORETO NORMANHURST
DEPOT 1
"HYPO" ROOM ELEVATION

Drawn JOJackson
Scale 1:20 Date 22/5/00

Drawing No.
JOJ/LORETO3A

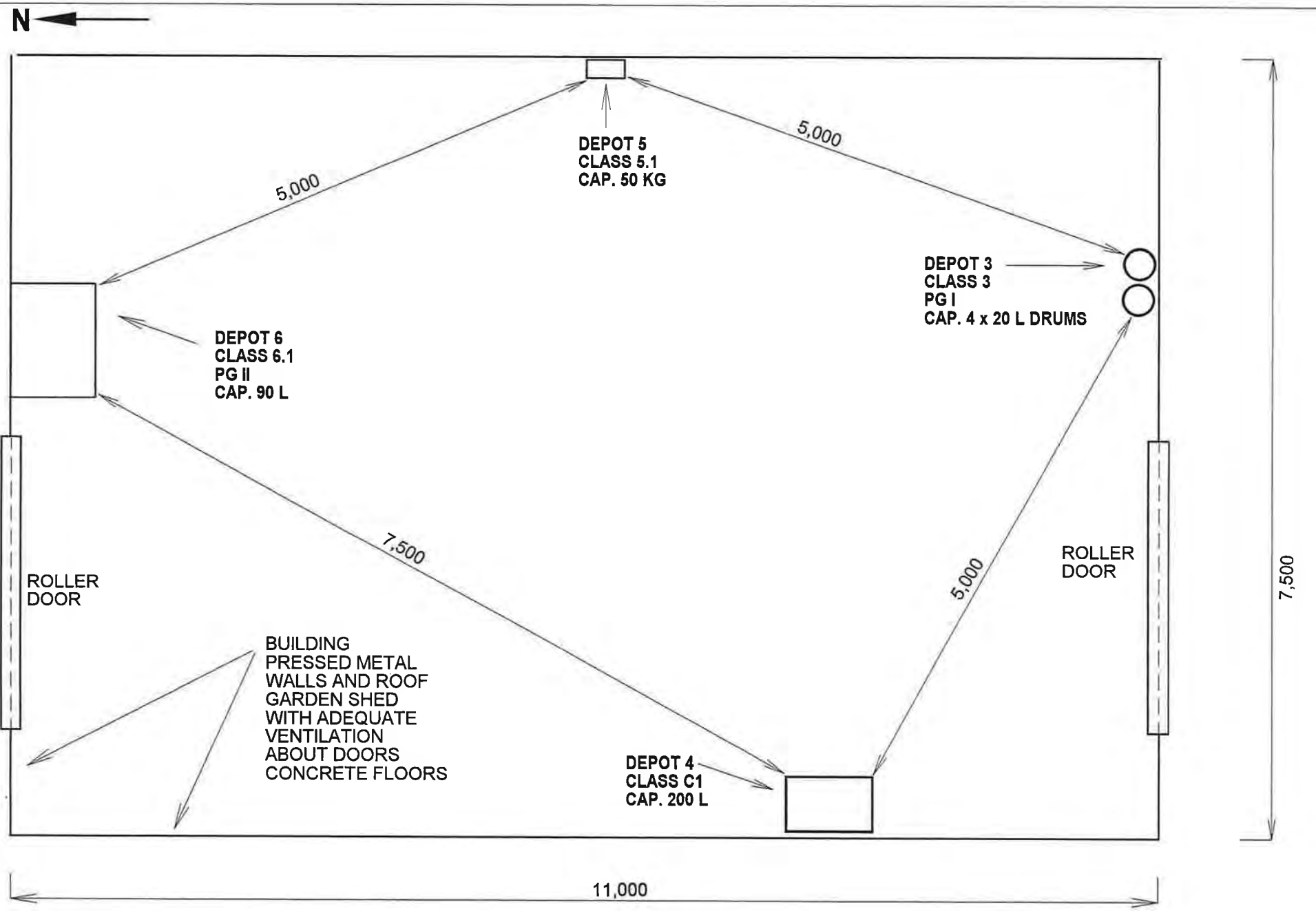


G R GOODFELLOW PTY LTD
58 Coolawin Road Northbridge NSW 2063
ABN 33/001 179 246 Ph 9958 1909 Fax 9958 0019

LORETO NORMANHURST
DEPOT 2
CO2 STORAGE

Drawn JOJackson
Scale 1:20 Date 22/5/00

Drawing No.
JOJ/LORETO 4A



G R GOODFELLOW PTY LTD
58 Coolawin Road Northbridge NSW 2063
ABN 33/001 179 246 Ph 9958 1909 Fax 9958 0019

LORETO NORMANHURST
DEPOT 3,4,5 and 6
MAINTENANCE SHED

Drawn JOJackson
Scale 1:50 Date 22/5/00

Drawing No.
JOJ/LORETO 5A

Appendix C: 2018 PSI Report Information

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 1
1 / 2

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~181.2 m

Date: 5/9/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■			■		181				FILL: Silty clay, low plasticity, dark brown, trace of roots.				GRASS COVER
									-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey, with ironstone and dark grey low strength siltstone bands.	XW	(Hd)		ASHFIELD SHALE
	■			■			1							LOW TO MODERATE BANDS OF RESISTANCE
						180				REFER TO CORED BOREHOLE LOG				
							2							
						179								
							3							
						178								
							4							
						177								
							5							
						176								
							6							
						175								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 1
2 / 2

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~181.2 m
Date: 5/9/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 1.20m						
100% RETURN		180			NO CORE 1.09m						
			2								
		179			SILTSTONE: dark grey and light grey, bedded subhorizontally.	XW - HW	Hd - VL				Ashfield Shale
			3		SILTSTONE: dark grey, bedded subhorizontally.	HW	VL - L	0.20		(2.92m) J, 90°, P, R, Fe Sn (3.13m) J, 90°, P, S, Cn (3.18m) J, 10°, P, S, Fe Sn	
		178				XW	Hd			(3.30m) J, 90°, P, R, Cn	
					NO CORE 0.18m						
					SILTSTONE: light grey and dark grey, with iron indurated and low strength bands.	XW	Hd				Ashfield Shale
			4		NO CORE 0.31m						
		177			SILTSTONE: dark grey, with iron indurated bands bedded subhorizontally.	HW	VL - L	0.20		(4.33m) J, 50°, P, S, Fe Sn (4.39m) J, 30 - 90°, P, S, Fe Sn (4.45m) XWS, 0°, 7 mm.t (4.57m) J, 30°, P, S, Fe Sn (4.65m) XWS, 0°, 60 mm.t (4.71m) J, 50°, P, S, Fe Sn (4.75m) XWS, 0°, 70 mm.t (4.84m) J, 60 - 90°, P, S, Fe Sn (4.91m) Be, 0°, P, R, Cn (5.04m) XWS, 0°, 70 mm.t (5.12m) J, 90°, P, R, Cn	Ashfield Shale
			5								
		176				XW	Hd				
0% RETURN					NO CORE 0.07m	XW	Hd				Ashfield Shale
			6		SILTSTONE: orange brown and light grey, with clay seams.	SW	H	0.30		(5.71m) Be, 0°, P, S, Cn	
		175			SANDSTONE: fine to medium grained, orange brown.	FR		1.7			Hawkesbury Sandstone
					as above, but light grey with dark grey bands, bedded subhorizontally.			1.3		(6.54m) J, 80°, P, R, Cn	
			7					1.1			
		174						1.7			

END OF BOREHOLE AT 7.90 m

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 2
1 / 2

BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~183.8 m
Date: 5/9/18 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■								-	ASPHALTIC CONCRETE: 40mm.t FILL: Silty gravelly sand, fine to coarse grained, dark grey, fine to medium grained igneous gravel.	M			APPEARS MODERATELY COMPACTED
					N=SPT 5/ 20mm REFUSAL	183	1			FILL: Gravelly sand, fine to coarse grained, light brown, fine to coarse grained, grey igneous gravel.				
									CH	Silty CLAY: high plasticity, light grey and grey, trace fine to medium grained ironstone gravel.	w>PL	VSt - Hd		
	■			■	N = 15 6,4,11	182	2						460 400 360	
				■					-	Extremely Weathered siltstone: silty CLAY, medium plasticity, grey with ironstone and low strength bands.	XW	Hd		ASHFIELD SHALE VERY LOW 'TC' BIT RESISTANCE
						181	3							
										REFER TO CORED BOREHOLE LOG				
						180	4							
						179	5							
						178	6							
						177								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 2

CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~183.8 m

Date: 5/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 3.26m						
100% RETURN		180			NO CORE 0.63m						
		179	4		SILTSTONE: dark grey, with iron indurated bands, bedded subhorizontally.	HW	VL	0.10	600 200 60 20	(3.91m) XWS, 0°, 20 mm.t (3.92m) J, 70°, P, R, Cn (4.00m) XWS, 0°, 40 mm.t (4.07m) J, 60°, P, R, Cn (4.11m) XWS, 0°, 10 mm.t (4.18m) J, 90°, P, R, Fe Sn (4.24m) CS, 0°, 15 mm.t (4.32m) J, 90°, P, R, Cn (4.41m) J, 90°, P, R, Cn (4.45m) CS, 0°, 5 mm.t (4.54m) J, 60 - 90°, P, R, Cn, XWS IN FILL (4.64m) XWS, 0°, 70 mm.t (4.77m) Be, 0°, P, R, Fe Sn (4.89m) J, 90°, P, R, Fe Sn (4.97m) CS, 0°, 15 mm.t	Ashfield Shale
			5					0.10		(5.16m) J, 90°, P, R, Fe Sn (5.26m) Be, 0°, P, S, Cn, XWS, IN FILL	
						XW	Hd			(5.45m) CS, 0°, 55 mm.t	
		178	6		NO CORE 0.38m						
80% RETURN		177			SILTSTONE: dark grey, bedded subhorizontally.	MW	VL - L	0.050	600 200 60 20	(6.14m) J, 90°, P, R, Cn (6.20m) J, 90°, P, R, Cn	Ashfield Shale
			7				L	0.10		(6.47m) CS, 0°, 4 mm.t (6.49m) J, 90°, P, R, Cn (6.54m) Be, 0°, P, S, Fe Sn (6.70m) J, 20°, P, S, Fe Sn (6.75m) J, 30°, P, S, Fe Sn (6.92m) CS, 0°, 1 mm.t (7.04m) J, 90°, P, R, Cn, WITH XWS SEAM, 25mm.t	
								0.30		(7.30m) J, 70°, P, R, Cn (7.34m) CS, 0°, 1 mm.t (7.38m) Be, 0°, P, R, Cn (7.44m) J, 20°, P, S, Cn (7.59m) J, 90°, P, R, Cn, WITH XWS SEAM, 30mm.t	
		176					M	0.50		(7.81m) J, 40 - 90°, Un, S, Cn	
			8							(7.96m) J, 90°, P, R, Cn	
										(8.17m) J, 90°, P, R, Cn (8.31m) XWS, 0°, 30 mm.t	
					NO CORE 0.14m						
		175			SILTSTONE: dark grey with light grey bands, bedded subhorizontally.	FR	H	0.40	600 200 60 20	(8.57m) J, 70°, P, S, Cn (8.70m) J, 30°, P, R, Cn (8.76m) J, 30°, Un, S, Cn	Ashfield Shale
			9					1.5		(8.96m) J, 20°, P, S, Cn	
								1.8		(9.17m) J, 20°, P, S, Cn (9.29m) J, 80°, P, S, Cn	
					as above, but bedded at 10°.						
		174						2.2		(9.80m) J, 70°, P, S, Cn	

END OF BOREHOLE AT 9.90 m

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 3
1 / 3

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~189.6 m

Date: 6/9/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										FILL: Silty sandy clay, low plasticity, dark brown, fine to medium grained, trace fine to medium grained igneous gravel.	w<PL			GRASS COVER
									CH	Silty CLAY; high plasticity, orange brown.	w>PL	VSt - Hd		RESIDUAL
					N = 16 3,6,10	189				as above, but light grey with fine to coarse grained ironstone gravel, trace of fine to coarse grained very low strength siltstone gravel.		Hd	440 320 470	
							1		-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey, with ironstone and very low to low strength bands.	XW	Hd		ASHFIELD SHALE
						188					XW - DW	Hd - VL		VERY LOW TO LOW 'TC' BIT RESISTANCE
							2							
						187								
							3							
						186				SILTSTONE: grey brown and dark grey, with iron indurated bands and extremely weathered seams.	DW	VL - L		LOW RESISTANCE
							4							
										REFER TO CORED BOREHOLE LOG				Groundwater monitoring well installed to 12.67m. Class 18 machine slotted 50mm dia. PVC standpipe 6.67m to 12.67m. Casing 0.1m to 6.67m. 2mm sand filter pack 5.70m to 12.67m. Bentonite seal 1.25m to 5.70m. Completed with a concreted gatic cover
						185								
							5							
						184								
							6							
						183								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 3
2 / 3

CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~189.6 m

Date: 6/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS SPACING (mm)	DEFECT DETAILS DESCRIPTION Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness Specific / General	Formation
					START CORING AT 4.34m						
		185			NO CORE 0.52m						
			5		SILTSTONE: light grey.	XW	Hd				
					SILTSTONE: dark grey, with iron indurated bands, bedded subhorizontally.	MW	VL - L	0.30 0.030 0.060 0.080		(5.02m) J, 90°, P, S, Fe Sn (5.16m) Be, 0°, P, S, Fe Sn (5.23m) Be, 0°, P, S, Fe Sn (5.38m) XWS, 0°, 12 mm.t (5.45m) CS, 0°, 4 mm.t (5.49m) Be, 0°, P, S, Fe Sn (5.60m) J, 90°, P, S, Fe Sn (5.68m) J, 60°, P, R, Fe Sn (5.73m) J, 90°, P, R, Cn (5.76m) CS, 0°, 3 mm.t (5.78m) CS, 0°, 2 mm.t (5.91m) J, 60°, P, S, Fe Sn (6.02m) CS, 0°, 20 mm.t (6.10m) Be, 0°, P, S, Fe Sn (6.18m) XWS, 0°, 30 mm.t (6.30m) J, 20°, P, R, Cn (6.32m) CS, 0°, 5 mm.t (6.36m) J, 90°, P, S, Cn (6.41m) XWS, 0°, 30 mm.t (6.58m) J, 90°, P, S, Fe Sn (6.70m) J, 90°, P, S, Fe Sn (6.90m) J, 90°, P, R, Cn (7.02m) XWS, 0°, 30 mm.t (7.07m) XWS, 0°, 10 mm.t	Ashfield Shale
		184	6								
		183	7								
ON 9/10/18					NO CORE 0.37m						
100% RETURN		182			SILTSTONE: dark grey with light grey bands, bedded subhorizontally.	MW	L - M	0.40 0.50 0.30 0.20 0.20	600 200 60 20	(7.51m) Be, 0°, P, S, Fe Sn (7.60m) Healed J, 70-80°, P (7.85m) J, 90°, P, S, Fe Sn (8.03m) J, 90°, P, S, Fe Sn (8.13m) J, 20°, P, S, Fe Sn (8.24m) J, 60°, P, S, Fe Sn (8.32m) J, 90°, P, R, Cn (8.42m) J, 90°, P, R, Cn (8.50m) J, 10°, P, S, Fe Sn (8.67m) J, 60°, P, S, Cn (8.73m) J, 10°, P, S, Cn (8.76m) XWS, 0°, 4 mm.t (8.83m) Healed J, 90°, P (8.88m) XWS, 0°, 25 mm.t (8.96m) XWS, 0°, 10 mm.t (9.02m) J, 30°, P, S, Cn (9.04m) Be, 0°, P, S, Cn (9.12m) J, 90°, P, S, Cn (9.30m) J, 90°, P, S, Cn (9.38m) Healed J, 40°, P (9.42m) J, 50°, P, R, Cn, XWS FILLED (9.45m) Healed J. 40°, P (9.57m) J, 90°, P, R, Cn (9.86m) Healed J, 80°-90°, Un (9.88m) J, 30°, P, R, Fe Sn (9.99m) J, 30°, P, S, Fe Sn	Ashfield Shale
		181	8								
		180	9								
			10		NO CORE 0.16m						
		179			SILTSTONE: dark grey, bedded subhorizontally.	MW	L	0.30 0.20	60 20	(10.27m) J, 60 - 90°, Un, R, Fe Sn (10.37m) J, 30°, P, S, Fe Sn (10.43m) CS, 0°, 2 mm.t (10.46m) J, 90°, P, R, Cn (10.52m) XWS, 0°, 50 mm.t (10.57m) J, 10°, P, S, Cn (10.81m) J, 90°, P, S, Fe Sn (10.92m) J, 80°, P, R, Cn	Ashfield Shale

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No.
3
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CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~189.6 m

Date: 6/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness) Specific / General	Formation
100% RETURN		178	12		SILTSTONE: dark grey, bedded subhorizontally.	MW	L - M	0.20	600 200 60 20	(11.12m) XWS, 0°, 25 mm.t (11.20m) J, 80°, P, S, Cn (11.27m) XWS, 0°, 70 mm.t	
					NO CORE 0.14m						
					SILTSTONE: dark grey, bedded subhorizontally.	MW	L	0.20		(11.46m) J, 30°, P, S, Cn (11.55m) J, 90°, P, S, Cn (11.62m) J, 60 - 90°, Un, S, Cn	Ashfield Shale
						XW - HW	Hd - VL				
						SW	M	0.40		(11.98m) J, 20°, P, S, Cn (12.04m) XWS, 0°, 10 mm.t (12.17m) J, 20°, P, S, Cn (12.21m) J, 10°, P, S, Cn (12.25m) J, 20°, P, S, Cn (12.28m) J, 50°, P, S, Cn (12.39m) J, 30°, P, S, Cn (12.48m) J, 10°, P, S, Cn (12.56m) J, 80°, P, S, Cn	
		177			SILTSTONE: dark grey with light grey bands, bedded at 20°.		M - H	1.0			
					END OF BOREHOLE AT 12.67 m						

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 4
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BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~186.0 m

Date: 4/9/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■								CI-CH	Silty CLAY: medium to high plasticity, orange brown.	w<PL	Hd		RESIDUAL
									CH	Silty CLAY: high plasticity, light grey, trace fine to medium grained ironstone gravel.				
					N = 25 6,9,16								>600 >600	
						185	1		-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey with ironstone bands and low strength bands.	XW	Hd		ASHFIELD SHALE VERY LOW 'TC' BIT RESISTANCE
						184	2							
				■						SILTSTONE: dark grey, with iron indurated bands.	DW	VL - L		LOW TO MODERATE RESISTANCE
						183	3							
										REFER TO CORED BOREHOLE LOG				
						182	4							
						181	5							
						180	6							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 4
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CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~186.0 m

Date: 4/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS SPACING (mm) DESCRIPTION Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness Specific / General	Formation
					START CORING AT 3.20m					
100% RETURN					NO CORE 0.20m					
		182	4		SILTSTONE: dark grey, with iron indurated bands, bedded subhorizontally.	HW	VL - L	0.070 0.10 0.20	(3.46m) Be, 0°, P, R, Fe Sn (3.50m) CS, 0°, 35 mm.t (3.55m) J, 90°, P, R, Cn (3.60m) XWS, 0°, 20 mm.t (3.75m) XWS, 0°, 130 mm.t (3.91m) XWS, 0°, 70 mm.t (4.03m) XWS, 0°, 100 mm.t (4.12m) Be, 0°, P, S, Cn	Ashfield Shale
					NO CORE 0.69m					
		181	5		SILTSTONE: dark grey, bedded subhorizontally.	HW	VL - L	0.40	(4.90m) XWS, 0°, 50 mm.t (4.97m) J, 20°, P, S, Fe Sn (5.05m) XWS, 0°, 15 mm.t (5.17m) FRAGMENTED ZONE, 0°, 200mm.t (5.31m) J, 90°, P, R, Cn	Ashfield Shale
						XW	Hd			
		180	6			HW	L	0.20 0.30	(5.70m) XWS, 0°, 20 mm.t (5.75m) J, 90°, P, R, Cn (5.82m) J, 80°, P, S, Fe Sn (5.92m) J, 90°, P, S, Fe Sn (5.97m) XWS, 0°, 20 mm.t (6.08m) XWS, 0°, 10 mm.t (6.13m) Be, 0°, P, R, Fe Sn (6.21m) J, 90°, P, R, Cn (6.32m) FRAGMENTED ZONE, 0°, 170mm.t (6.49m) CS, 0°, 150 mm.t	
					NO CORE 0.36m					
50% RETURN		179	7		SILTSTONE: dark grey, bedded subhorizontally.	HW	L	0.40 0.20	(7.05m) FRAGMENTED ZONE, 0°, 100mm.t (7.18m) Be, 0°, P, S, Fe Sn (7.24m) J, 90°, P, R, Cn (7.32m) CS, 0°, 20 mm.t (7.38m) XWS, 0°, 70 mm.t (7.43m) J, 30°, P, S, Fe Sn (7.48m) Be, 0°, P, S, Fe Sn (7.51m) XWS, 0°, 5 mm.t (7.69m) J, 90°, P, R, Clay FILLED (7.77m) J, 90°, P, R, Fe Sn (7.87m) J, 90°, P, S, XWS, Clay FILLED (7.96m) XWS, 0°, 70 mm.t	Ashfield Shale
		178	8						(8.13m) J, 40°, P, R, Fe Sn (8.22m) XWS, 0°, 120 mm.t	
					NO CORE 0.23m					
		177	9		SILTSTONE: dark grey, bedded subhorizontally.	HW	M	0.60	(8.62m) J, 90°, P, R, Fe Sn, FRAGMENTING (8.81m) XWS, 0°, 15 mm.t	Ashfield Shale
						MW		0.70	(8.97m) J, 90°, P, R, Fe Sn, FRAGMENTING (9.03m) XWS, 0°, 3 mm.t (9.17m) CS, 0°, 3 mm.t (9.29m) Be, 0°, P, R, Fe, XWS, FILLED	
					SANDSTONE: fine grained, grey, bedded subhorizontally.	SW	M	0.50	(9.48m) XWS, 0°, 10 mm.t (9.51m) J, 90°, P, S, Cn (9.61m) Be, 0°, P, S, Fe Sn	
					as above, but fine to medium grained, light grey with dark grey bands, bedded subhorizontally.	FR	H	2.3		

JK 9.01.2 LIB:GLB Log, JK CORED BOREHOLE - MASTER 31772L NORMANHURST.GPJ <<DrawingFile>> 25/10/2018 10:27 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No.
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CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~186.0 m

Date: 4/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL -0.1, L -0.3, M -1, H -3, VH -10, EH	DEFECT DETAILS SPACING (mm) 600, 200, 60, 20	DEFECT DETAILS DESCRIPTION Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness Specific / General	Formation
50% RETURN		175	11		SANDSTONE: fine to medium grained, light grey with dark grey bands, bedded subhorizontally.	FR	H	1.8, 1.0, 1.2			Hawkesbury Sandstone
					END OF BOREHOLE AT 11.28 m						
		174	12								
		173	13								
		172	14								
		171	15								
		170	16								

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 5
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BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGEER **R.L. Surface:** ~188.4 m
Date: 4/9/18 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■									TOPSOIL: Silty clay, low plasticity, brown, trace of root fibres.	w<PL			
									CI-CH	Silty CLAY: medium to high plasticity, orange brown, trace of fine to coarse grained ironstone gravel.	w<PL	Hd		RESIDUAL
	■			■	N > 16 8,16/ 150mm REFUSAL	188							>600	
				■					-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey with ironstone bands.	XW	Hd	>600	ASHFIELD SHALE
				■			1			SILTSTONE: dark grey, with iron indurated bands and extremely weathered seams.	DW	VL - L		VERY LOW 'TC' BIT RESISTANCE
				■		187								
												L - M		MODERATE RESISTANCE
				■			2							
						186								
										REFER TO CORED BOREHOLE LOG				
							3							
						185								
							4							
						184								
							5							
						183								
							6							
						182								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 5 2 / 3

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~188.4 m
Date: 4/9/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		186			START CORING AT 2.64m						
100% RETURN		185	3		SILTSTONE: dark grey with light grey orange brown bands, bedded subhorizontally.	MW	L - M	1.3, 0.20, 0.90, 0.030, 1.2, 0.70, 0.80, 0.20, 0.20, 0.060, 1.3, 1.2, 1.2		(2.73m) J, 90°, P, S, Fe Sn (2.97m) J, 80 - 90°, P, S, Fe Sn (3.12m) Be, 0°, P, R, FRAGMENTED FILLED (3.39m) Be, 0°, P, R, FRAGMENTED FILLED (3.44m) XWS, 0°, 3 mm.t (3.53m) J, 40°, P, R, Cn (3.61m) XWS, 0°, 2 mm.t (3.70m) Be, 0°, P, R, Fe Sn (3.82m) CS, 0°, 1 mm.t (3.85m) J, 80°, P, S, Fe Sn (3.92m) J, 10°, P, S, Clay FILLED (4.32m) J, 15°, P, S, Clay FILLED (4.42m) J, 60 - 90°, Un, R, XW and FRAGMENTING (4.54m) CS, 0°, 1 mm.t (4.59m) J, 90°, P, S, Cn (4.75m) J, 20°, P, S, Fe Sn (4.82m) J, 20°, P, S, Fe Cn (5.11m) J, 20°, P, S, Fe Cn (5.32m) J, 20°, P, S, Fe Cn (5.40m) Jx2, 30 - 60°, P, S, Fe Sn (5.45m) Be, 0°, P, S, Fe Sn (5.50m) J, 90°, P, S, Cn (5.57m) Jx2, 20°, P, S, Fe Sn (5.73m) J, 90°, P, R, Cn (5.84m) J, 60 - 90°, Un, S, Fe Sn (5.94m) J, 90°, P, S, Fe Sn (6.18m) J, 10°, P, S, Fe Sn (6.33m) Be, 0°, P, S, Fe Sn (6.39m) CSx4, 5°, 1 mm.t, EACH (6.46m) J, 20 - 40°, Un, S, Fe Sn (6.54m) J, 10°, P, S, Cn (6.58m) J, 10°, P, S, Cn (6.62m) Be, 0°, P, R, Cn (6.67m) XWS, 0°, 2 mm.t (6.78m) J, 90°, P, S, Fe Sn (6.88m) J, 90°, P, S, Cn (7.00m) XWS, 0°, 3 mm.t (7.05m) HEALED J, 30°, P (7.10m) J, 90°, P, R, Cn (7.16m) J, 90°, P, R, Cn (7.23m) J, 20 - 60°, Un, S, Cn (7.29m) Be, 0°, P, S, Cn (7.39m) J, 60 - 90°, Un, S, Fe Sn (7.71m) J, 70°, P, S, Fe Sn (7.81m) J, 30°, P, R, Fe Sn (7.84m) J, 30°, P, R, Fe Sn (7.86m) J, 90°, P, R, Cn (7.90m) J, 30°, P, S, Cn (7.96m) J, 20°, P, S, Fe Sn (8.17m) J, 20°, P, S, Cn (8.21m) J, 90°, P, S, Cn (8.27m) J, 20°, P, S, Cn (8.40m) J, 20°, P, S, Cn (8.53m) Be, 0°, P, S, Fe Sn (8.77m) J, 20°, P, S, Cn (8.86m) J, 30°, P, S, Cn (8.92m) J, 50°, P, S, Cn	Ashfield Shale
		184	4								
		183	5								
		182	6								
		181	7								
		180	8		SILTSTONE: dark grey, bedded subhorizontally.	FR	H				

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No.
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CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L
Core Size: NMLC
R.L. Surface: ~188.4 m
Date: 4/9/18
Inclination: VERTICAL
Datum: AHD
Plant Type: JK308
Bearing: N/A
Logged/Checked By: A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness) Specific / General	Formation
100% RETURN		179	10		SILTSTONE: dark grey, bedded subhorizontally. *(continued)*	FR	H	1.3		(9.05m) J, 40°, P, S, Cn (9.08m) J, 20°, P, S, Cn (9.20m) J, 10°, P, S, Cn (9.25m) J, 15°, P, S, Cn (9.36m) J, 60°, P, S, Cn (9.74m) J, 85°, P, R, Fe Sn (9.90m) J, 85 - 90°, P, R, Fe Sn	Ashfield Shale
		178						0.70		(10.22m) J, 40°, P, S, Cn (10.28m) J, 30°, P, S, Cn (10.45m) J, 40 - 90°, Un, R, Cn	
					END OF BOREHOLE AT 10.48 m						
		177	11								
		176	12								
		175	13								
		174	14								
		173	15								

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 6
1 / 3

BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~191.0 m
Date: 7/9/18 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										FILL: Silty clay, low plasticity, dark brown, trace fine to medium grained sand and root fibres.	w<PL			
									CH	Silty CLAY: high plasticity, orange brown, trace fine to coarse grained ironstone gravel.	w>PL	Hd		RESIDUAL
					N = 27 5,9,18				-	SILTSTONE: light grey and dark grey, with ironstone bands.	XW - DW	Hd - VL	580 500	ASHFIELD SHALE
						190	1							
						189	2							
											DW	VL - L		VERY LOW 'TC' BIT RESISTANCE WITH MODERATE BANDS
						188	3							
												L		LOW TO MODERATE RESISTANCE
						187	4							
										REFER TO CORED BOREHOLE LOG				Groundwater monitoring well installed to 14.0m. Class 18 machine slotted 50mm dia. PVC standpipe 8.0m to 14.0m. Casing 0.15m to 8.0m. 2mm sand filter pack 7.5m to14.0m. Bentonite seal 4.0m to 7.5m. Backfilled with sand to the surface. Completed with a concreted gatic cover
						186	5							
						185	6							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 6

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~191.0 m
Date: 7/9/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 4.34m						
ON 9/10/18	100% RETURN	186	5		SILTSTONE: dark grey, with iron indurated bands, bedded subhorizontally.	HW	L	0.10		(4.36m) XWS, 0°, 5 mm.t (4.40m) J, 90°, P, S, Fe Sn (4.44m) CSx2, 0°, 1 mm.t (4.46m) J, 90°, P, S, Cn (4.48m) CS, 0°, 20 mm.t (4.51m) J, 90°, P, S, Cn (4.56m) CS, 0°, 55 mm.t (4.62m) CS, 0°, 3 mm.t (4.65m) J, 90°, P, S, Fe Sn (4.68m) J, 60°, P, S, Fe Sn (4.70m) CS, 0°, 2 mm.t (4.78m) XWS, 0°, 12 mm.t (4.83m) Be, 0°, P, S, Fe Sn (5.04m) XWS, 0°, 10 mm.t (5.09m) J, 90°, P, R, Cn (5.16m) CS, 0°, 1 mm.t (5.39m) CS, 0°, 6 mm.t (5.43m) J, 90°, P, S, Fe Sn (5.50m) CS, 0°, 22 mm.t (5.61m) CS, 0°, 12 mm.t (5.64m) J, 20°, P, S, Fe Sn (5.72m) J, 20°, P, S, Fe Sn (5.82m) CS, 0°, 5 mm.t (5.86m) XWS, 0°, 30 mm.t (5.94m) XWS, 0°, 30 mm.t (5.99m) J, 90°, P, S, Cn (6.06m) J, 90°, P, S, Fe Sn (6.15m) Healed J, 90°, P (6.20m) Be, 0°, P, S, Fe Sn (6.34m) J, 90°, P, S, Cn (6.36m) CS, 0°, 7 mm.t (6.68m) J, 80°, P, R, Fe Sn (6.79m) J, 60 - 90°, Un, R, Fe Sn	Ashfield Shale
					as above, but with light grey bands.	MW		0.50			
							M	0.40			
		185	6					0.40			
								0.90			
								0.90			
		184	7		SILTSTONE: dark grey with light grey bands, bedded at 20-30°.			0.30		(6.96m) J, 30°, P, R, Fe Sn (7.02m) XWS, 0°, 50 mm.t (7.05m) J, 30°, P, S, Cn (7.12m) J, 60 - 90°, Un, S, Fe Sn	
								1.1		(7.34m) J, 10°, P, S, Fe Sn (7.44m) J, 90°, P, S, Fe Sn (7.51m) J, 15°, P, S, Fe Sn (7.58m) J, 40°, P, S, Fe Sn (7.65m) Be, 0°, P, S, Cn	
					NO CORE 0.22m						
		183	8		SILTSTONE: dark grey with light grey bands, bedded at 20°.	SW	M - H			(7.97m) J, 80°, P, S, Cn	Ashfield Shale
							H	0.40		(8.20m) J, 80°, P, S, Cn (8.30m) J, 90°, P, S, Cn	
								2.2		(8.65m) J, 70°, P, S, XW Infill	
		182	9							(8.85m) J, 80°, P, S, Cn	
								1.4		(9.07m) XWS, 20°, 10 mm.t	
						FR				(9.43m) J, 80°, P, R, Fe Sn (9.56m) J, 40°, P, R, Fe Sn	
								1.2		(9.69m) J, 70°, P, S, Cn (9.82m) J, 70°, P, S, Cn	
		181	10					2.1			
								4.2			

JK 9.01.2 LIB:GLB Log, JK CORED BOREHOLE - MASTER 31772L NORMANHURST.GPJ <<DrawingFile>> 25/10/2018 10:27 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 6
3 / 3

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~191.0 m
Date: 7/9/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness) Specific / General	Formation
100% RETURN		179	12		SILTSTONE: dark grey with light grey bands, bedded at 20°. *(continued)*	FR	H	2.4, 1.7, 1.8, 2.4, 1.2, 1.1	600, 200, 60, 20	(11.82m) J, 90°, P, S, Cn (12.10m) J, 90°, P, S, Cn (12.54m) J, 70°, P, S, Cn (12.82m) J, 30°, P, S, Cn (12.87m) J, 30°, P, S, Cn (12.90m) J, 40°, P, S, Cn (13.33m) J, 80°, P, S, Cn (13.74m) J, 70°, P, S, Cn	Ashfield Shale
		178	13		SILTSTONE: dark grey, bedded subhorizontally.						
		177	14		END OF BOREHOLE AT 14.00 m						
		176	15								
		175	16								
		174	17								

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 7
1 / 2

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~187.1 m

Date: 3/9/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■					187				FILL: Silty clay, low plasticity, brown, trace of roots.	w<PL			GRASS COVER
									CI	Silty CLAY: medium plasticity, light grey mottled red brown, trace fine to medium grained, ironstone gravel.	w~PL	Hd		RESIDUAL
	■			■	N = 17 4,7,10								590 >600 600	
						186	1			as above, but with extremely weathered bands.				
				■	N = 24 9,10,14								>600 >600 >600	
				■		185	2		-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey, with ironstone bands.	XW	Hd		ASHFIELD SHALE
				■		184	3							
				■		183	4			SILTSTONE: dark grey, with iron indurated bands.	DW	L		LOW 'TC' BIT RESISTANCE
						182	5			REFER TO CORED BOREHOLE LOG				
						181	6							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 7

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~187.1 m
Date: 3/9/18 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS — DESCRIPTION (Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness) Specific / General	Formation
		183			START CORING AT 4.16m						
100% RETURN		182	5		SILTSTONE: dark grey, with light grey, and iron indurated bands, bedded subhorizontally.	MW	L	0.20; 0.30; 0.40		(4.20m) XWS, 0°, 12 mm.t (4.25m) J, 90°, P, R, Cn (4.32m) CS, 0°, 15 mm.t (4.37m) CS, 0°, 6 mm.t (4.44m) CS, 0°, 6 mm.t (4.52m) Be, 0°, P, S, Fe Sn (4.59m) XWS, 0°, 2 mm.t (4.67m) CS, 0°, 4 mm.t (4.72m) CS, 0°, 3 mm.t (4.79m) Be, 0°, P, S, Fe Sn (4.83m) CS, 0°, 35 mm.t (4.88m) CS, 0°, 10 mm.t (4.98m) XWS, 0°, 20 mm.t (5.11m) J, 90°, P, R, Clay FILLED (5.17m) XWS, 0°, 35 mm.t (5.24m) Be, 0°, P, R, Fe Sn (5.27m) CS, 0°, 15 mm.t (5.47m) XWS, 0°, 25 mm.t	Ashfield Shale
		181	6		as above, but bedded at 10-15°.		L - M M	0.30; 0.40; 0.70		(5.60m) J, 15°, P, R, Fe Sn (5.70m) Healed Joint, 90°, P, Cn (5.88m) J, 80°, P, R, Cn (5.96m) J, 40°, P, R, Fe Sn (6.08m) Be, 0°, P, R, Fe Sn (6.13m) Be, 5°, P, R, Fe Sn (6.22m) Be, 10°, P, R, Fe Sn (6.31m) Helaed Joint, 90°, P, Cn (6.50m) J, 10 - 15°, Un, R, Fe Sn (6.53m) XWS, 0°, 1 mm.t (6.61m) XWS, 0°, 1 mm.t (6.78m) CS, 10°, 3 mm.t	
		180	7		SILTSTONE: dark grey, with light grey bands, bedded at 10-15°.	SW		0.90; 1.0		(7.00m) Be, 10°, P, R, Fe Sn (7.11m) Be, 10°, P, R, Fe Sn (7.16m) Be, 0°, P, R, Fe Sn (7.21m) Healed Joint, 80°, P, Cn (7.33m) CS, 0°, 2 mm.t (7.43m) J, 50°, P, S, Cn (7.50m) J, 60°, P, S, Fe Sn (7.59m) Fragmented Zone, 0°, 50mm.t (7.65m) J, 90°, P, R, Cn (7.68m) J, 90°, P, S, Cn (7.70m) Be, 5°, P, S, Fe Sn (7.75-7.82m) J, 30°, P, R, Fe Sn (7.90m) Be, 0°, P, R, Fe Sn (8.01m) Be, 0°, P, R, Cn (8.11m) J, 20°, P, S, Cn (8.14m) Be, 0°, P, R, Cn, With Fragments (8.22m) J, 40°, P, S, Fe Sn (8.39m) XWS, 0°, 1 mm.t (8.42m) J, 20°, P, R, Cn	
		179	8					0.50; 0.40			
		178	9		END OF BOREHOLE AT 8.68 m			1.7			
		177	10								

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 8
1 / 2

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~186.7 m

Date: 31/8/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■									FILL: Sandy silty clay, low plasticity, light brown, trace of fine grained, gravel and roots.	w<PL			GRASS COVER
									CH		w>PL	Hd		RESIDUAL
				■	N = 20 4,9,11	186				Silty CLAY: high plasticity, light grey mottled red brown.			520 566	
	■			■			1			as above, but with fine to coarse grained ironstone gravel.			550 >600	
										Silty CLAY: high plasticity, light grey, trace fine to coarse grained, ironstone gravel.	w~PL		>600 >600 >600	
				■	N = 39 8,18,21	185	2		-	Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey.	XW	Hd		ASHFIELD SHALE
				■		184	3			SILTSTONE: dark grey, with iron indurated bands.	DW	L		LOW 'TC' BIT RESISTANCE
						183	4			REFER TO CORED BOREHOLE LOG				
						182	5							
						181	6							
						180								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 8 **2 / 2**

CORED BOREHOLE LOG

Client: TTW
Project: PROPOSED NEW SCHOOL BUILDING
Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Core Size:** NMLC **R.L. Surface:** ~186.7 m
Date: 31/8/18 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, orientation, defect roughness and shape, defect coatings and seams, openness and thickness) Specific / General	Formation
					START CORING AT 3.56m						
100% RETURN		183	4		SILTSTONE: dark grey, with iron indurated bands and light grey bands, bedded subhorizontally.	HW	L	0.50; 0.40; 0.090		(3.60m) Be, P, S, Fe Sn; (3.64m) CS, 2 mm.t; (3.66m) J, P, S, Cn; (3.70m) CS, 2 mm.t; (3.78m) CS, 35 mm.t; (3.84m) CS, 3 mm.t; (3.93m) CS, 1 mm.t; (4.02m) CS, 5 mm.t; (4.07m) Be, P, R, Fe Sn; (4.19m) Be, P, R, Fe Sn; (4.21m) CS, 5 mm.t; (4.28m) XWS, 0°, 30 mm.t; (4.36m) Be, 0°, P, R, Fe Sn; (4.41m) CS, 0°, 5 mm.t; (4.48m) Be, 0°, P, R, Fe Sn; (4.56m) Be, 0°, P, R, Fe Sn; (4.64m) CS, 0°, 4 mm.t; (4.68m) J, 90°, P, R, Cn; (4.80m) CS, 0°, 45 mm.t; (4.90m) CS, 0°, 2 mm.t; (4.96m) Be, 0°, Clay FILLED; (5.10m) CS, 10°, 5 mm.t	Ashfield Shale
		182	5		as above, but bedded at 10-15°.	MW	L - M	0.20; 0.40		(5.35m) CS, 0°, 6 mm.t; (5.42m) CS, 0°, 20 mm.t; (5.50m) CS, 0°, 5 mm.t; (5.56m) Be, 10°, P, R, Fe Sn; (5.62m) Be, 10°, P, R, Clay FILLED	
		181	6		as above, but bedded subhorizontally.			0.30		(5.88m) XWS, 0°, 2 mm.t; (6.05m) J, 30 - 90°, Un, R, Cn; (6.15m) Be, 0°, P, R, Fe Sn; (6.27m) Healed Joint, 90°, P, Cn	
		180	7			SW	M - H	0.40; 1.0	60; 20	(6.53m) XWS, 0°, 3 mm.t; (6.66m) J, 90°, P, R, Cn; (6.77m) Be, 0°, P, R, Fe Sn; (6.87m) Be, 0°, P, S, Fe Sn; (6.97m) XWS, 0°, 50 mm.t; (7.04m) J, 90°, P, S, Cn; (7.10m) CS, 0°, 2 mm.t; (7.15m) J, 90°, P, R, Cn; (7.25m) J, 20°, P, S, Fe Sn; (7.40m) CS, 0°, 2 mm.t; (7.53m) Healed Joint, 30°, P, Cn; (7.57m) Healed Joint, 90°, P, Cn	
		179	8					0.80		(7.81m) Healed joint, 30°, P, Cn	
					END OF BOREHOLE AT 8.01 m						
		178	9								
		177									

POINT LOAD STRENGTH INDEX $I_s(50)$ scale: VL -0.1, L -0.3, M -1, H -3, VH -10, EH
SPACING (mm) scale: 600, 200, 60, 20

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 9

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~185.8 m

Date: 3/9/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										FILL: Silty clay, low plasticity, brown, trace of roots.	w<PL			GRASS COVER
					N = 11 4,5,6	185	1			FILL: Silty clay, high plasticity, dark brown, light grey, trace fine to medium grained, ironstone gravel.	w>PL			APPEARS MODERATELY COMPACTED
					N = 10 3,4,6	184	2			as above, but trace of ash and fine to medium grained, sand.				
					N = 8 3,3,5	183	3		CH	Silty CLAY: high plasticity, light brown.	w>PL	VSt		RESIDUAL
										as above, but light brown mottled red brown.			260 300 300	
						182	4			Silty CLAY: high plasticity, light grey mottled red brown.				
					N = 24 5,9,15					as above, but trace fine to coarse grained, ironstone gravel.		Hd	570 590 580	
						181	5		-	Extremely Weathered siltstone: silty CLAY, medium to high plasticity, light gey, with ironstone bands.	XW	Hd		ASHFIELD SHALE
										SILTSTONE: dark grey, with iron indurated bands.	DW	L		LOW 'TC' BIT RESISTANCE
						180	6			REFER TO CORED BOREHOLE LOG				
						179								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 9 2 / 2

CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~185.8 m

Date: 3/9/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
					START CORING AT 5.42m						
100% RETURN		180	6		SILTSTONE: dark grey, with light grey, iron indurated bands, bedded subhorizontally.	HW	VL - L	0.10		(5.46m) J, 30°, P, S, Cn (5.50m) J, 90°, P, S, Cn (5.55m) XWS, 0°, 6 mm.t (5.58m) CS, 0°, 22 mm.t (5.63m) XWS, 0°, 20 mm.t (5.67m) Be, 0°, P, R, Fe Sn (5.74m) XWS, 0°, 45 mm.t (5.80m) XWS, 0°, 4 mm.t (5.87m) CS, 0°, 80 mm.t (5.93m) J, 90°, P, R, Fe Sn (5.96m) XWS, 0°, 7 mm.t (6.09m) J, 10°, P, R, Cn (6.14m) Be, 0°, P, S, Fe Sn (6.16m) CS, 0°, 3 mm.t (6.40m) CS, 0°, 12 mm.t (6.43m) CS, 0°, 5 mm.t (6.65m) XWS, 0°, 85 mm.t	Ashfield Shale
		179	7			MW	L	0.20			
		178	8					0.30		(6.78m) Be, 0°, 2 mm.t (6.86m) XWS, 0°, 15 mm.t (6.95m) XWS, 0°, 15 mm.t (7.00m) CS, 0°, 1 mm.t	
							M	0.40		(7.20m) J, 85°, P, R, Cn (7.47m) CS, 0°, 1 mm.t (7.56m) J, 90°, P, R, Fe Sn (7.78m) J, 90°, P, R, Cn (7.93m) J, 90°, P, R, Cn (8.00m) Be, 0°, P, R, Fe Sn (8.13m) Be, 0°, P, R, Fe Sn (8.21m) J, 30°, P, S, Fe Sn (8.30m) J, 90°, P, R, Cn (8.39m) J, 20°, P, S, Cn (8.52m) J, 90°, P, S, Cn (8.60m) Be, 0°, P, S, Fe Sn	
		177	9		SILTSTONE: dark grey, with light grey bands, bedded subhorizontally.	SW		0.60 1.0		(8.73m) Be, 0°, P, S, Fe Sn (8.81m) J, 30°, P, R, Fe Sn (8.83m) Be, 0°, P, S, Fe Sn (9.02m) Healed Joint, 30°, P, Cn (9.07m) Healed Joint, 50°, P, Cn (9.29m) Be, 0°, P, S, Cn (9.50m) Be, 0°, P, R, Fe Sn	
		176						0.80		(9.75m) J, 20°, P, R, Fe Sn	
		175	10 11		END OF BOREHOLE AT 9.89 m						
		174									

JK 9.01.2 LIB:GLB Log: JK CORED BOREHOLE - MASTER 31772L NORMANHURST.GPJ <<DrawingFile>> 25/10/2018 10:28 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 10
1 / 2

BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L **Method:** SPIRAL AUGER **R.L. Surface:** ~184.2 m

Date: 31/8/18 **Datum:** AHD

Plant Type: JK308 **Logged/Checked By:** A.B./L.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■					184				FILL: Silty clay, low plasticity, dark brown, with fine to medium grained sand, trace of roots.	w<PL			GRASS COVER
	■								CH	Silty CLAY: high plasticity, dark brown, trace of ash.	w>PL	VSt		RESIDUAL
	■			■	N = 12 4,5,7					Silty CLAY: high plasticity, orange brown.		Hd	390 400 510	
						183	1							
				■	N = 28 5,11,17					as above, but light grey, trace fine to medium grained, ironstone gravel.			>600	
									-		XW	Hd		ASHFIELD SHALE
						182	2			Extremely Weathered siltstone: silty CLAY, medium plasticity, light grey, with ironstone bands.				
							3			SILTSTONE: light grey.	DW	VL - L		LOW 'TC' BIT RESISTANCE
						181				REFER TO CORED BOREHOLE LOG				
							4							
						180								
							5							
						179								
							6							
						178								

JK 9.01.2 LIB:GLB Log JK AUGERHOLE - MASTER 31772L NORMANHURST.GPJ <<DrawingFile>> 25/10/2018 10:28 10.0.000 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.01.2 2018-04-02 Prj: JK 9.01.0 2018-03-20

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

Borehole No. 10
2 / 2

CORED BOREHOLE LOG

Client: TTW

Project: PROPOSED NEW SCHOOL BUILDING

Location: LORETO NORMANHURST GIRLS SCHOOL, NORMANHURST, NSW

Job No.: 31772L | **Core Size:** NMLC | **R.L. Surface:** ~184.2 m

Date: 31/8/18 | **Inclination:** VERTICAL | **Datum:** AHD

Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** A.B./L.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS: SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Specific / General)	Formation
		181			START CORING AT 3.24m						
100% RETURN					SILTSTONE: light grey.	HW	VL - L				Ashfield Shale
					NO CORE 0.11m	HW	L	0.40			
					SILTSTONE: light grey.						
					SILTSTONE: dark grey, with iron indurated bands, bedded subhorizontally.			0.10		(3.39m) J, 90°, P, S, Cn (3.47m) Be, 0°, P, S, Fe Sn (3.52m) Be, 0°, P, S, Fe Sn (3.54m) XWS, 0°, 4 mm.t (3.63m) J, 70 - 90°, P, S, Cn (3.69m) CS, 0°, 2 mm.t (3.70m) XWS, 0°, 2 mm.t (3.79m) Be, 0°, P, S, Fe Sn (3.83m) Be, 0°, P, R, Fe Sn (3.87m) J, 60°, P, R, Cn (3.94m) J, 90°, P, S, Cn, With associated fragments (3.99m) XWS, 0°, 15 mm.t (4.10m) CS, 0°, 7 mm.t (4.17m) Be, 0°, P, R, Cn, With associated fragments (4.25m) CS, 0°, 3 mm.t (4.27m) Be, 0°, P, R, Fe Sn (4.33m) Be, 0°, P, R, Cn (4.36m) Be, 0°, P, R, Fe Sn (4.52m) CS, 0°, 6 mm.t (4.55m) CS, 0°, 12 mm.t (4.64m) J, 90°, P, R, Cn (4.72m) Fragmented Joint, 0°, 80mm.t (4.81m) CS, 0°, 8 mm.t (4.96m) J, 20°, P, S, Fe Sn (5.05m) CS, 0°, 1 mm.t (5.15m) XWS, 0°, 1 mm.t	
		180	4					0.50			
25% RETURN								0.20			
		179	5					0.50			
					SILTSTONE: dark grey, with iron staining and light grey bands, bedded subhorizontally.	MW	L - M	0.40		(5.40m) CS, 0°, 3 mm.t (5.50m) J, 90°, P, S, Cn	Ashfield Shale
										(5.84m) J, 90°, P, R, Fe Sn, With associated fragments	
		178	6					0.30		(5.94m) J, 10°, P, R, Fe Sn (5.97m) J, 80°, P, S, Cn (6.10m) J, 30°, P, S, Fe Sn (6.17m) CS, 0°, 2 mm.t (6.27m) J, 20°, P, R, Fe Sn	
0% RETURN							M	0.40		(6.42m) J, 90°, P, R, Cn, With associated fragments (6.50m) Be, 0°, P, S, Fe Sn (6.57m) Be, 0°, P, R, Fe Sn	
										(6.72m) J, 20°, P, R, Fe Sn	
		177	7			SW		0.60		(7.10m) J, 90°, P, R, Fe Sn (7.20m) Be, 0°, P, R, Fe Sn (7.29m) Be, 0°, P, R, Fe Sn	
								0.60		(7.85m) J, 30°, P, S, Fe Sn (7.99m) J, 30°, P, S, Fe Sn	
			8		END OF BOREHOLE AT 8.03 m						
		176									
			9								
		175									

FRACTURES NOT MARKED ARE CONSIDERED TO BE DRILLING AND HANDLING BREAKS

ENVIRONMENTAL LOGS EXPLANATORY NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

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. Environmental studies include 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 1726:2017 *'Geotechnical Site Investigations'*. 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 geoenvironmental practice.

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

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

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 (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

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

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	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 fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

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 methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock 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 a large 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. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, 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 limited 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 cuttings. 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 assessed 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. 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, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, 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 NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom 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 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

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 63.5kg 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.

A modification to the SPT 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.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface 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 terms and symbols used in preparation of the logs are defined in the following pages.

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 reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised 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 assess the extent of the fill.

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

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

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SYMBOL LEGENDS

SOIL


FILL


TOPSOIL


CLAY (CL, CI, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CI, CH)


SILTY CLAY (CL, CI, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CI, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML, MH)


PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK


CONGLOMERATE


SANDSTONE


SHALE/MUDSTONE


SILTSTONE


CLAYSTONE


COAL


LAMINITE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

OTHER MATERIALS


BRICKS OR PAVERS


CONCRETE


ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_u = \frac{D_{60}}{D_{10}} \quad \text{and} \quad C_c = \frac{(D_{30})^2}{D_{10}\ D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

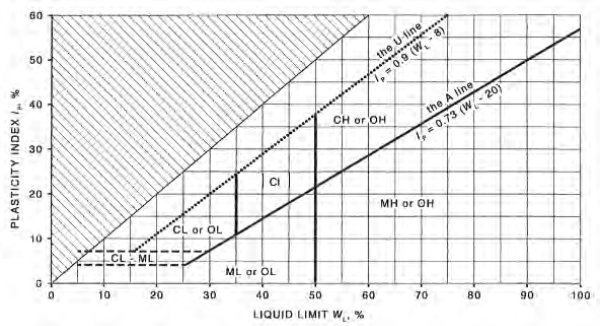
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record	▼	Standing water level. Time delay following completion of drilling/excavation may be shown.
	C	Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	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 analysis.
	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. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	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° 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 (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	$w \approx$ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	$w \approx$ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained 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 ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE – Density Index (I_D) Range (%) ≤ 15; SPT 'N' Value Range (Blows/300mm) 0 – 4
	L	LOOSE – Density Index (I_D) Range (%) > 15 and ≤ 35; SPT 'N' Value Range (Blows/300mm) 4 – 10
	MD	MEDIUM DENSE – Density Index (I_D) Range (%) > 35 and ≤ 65; SPT 'N' Value Range (Blows/300mm) 10 – 30
	D	DENSE – Density Index (I_D) Range (%) > 65 and ≤ 85; SPT 'N' Value Range (Blows/300mm) 30 – 50
	VD	VERY DENSE – Density Index (I_D) Range (%) > 85; SPT 'N' Value Range (Blows/300mm) > 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.

Log Column	Symbol	Definition
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as:
		RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock.
		EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock.
		ALLUVIAL – soil deposited by creeks and rivers.
		ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents.
		MARINE – soil deposited in a marine environment.
		AEOLIAN – soil carried and deposited by wind.
		COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits.
		LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC: Ambient Background Concentration
ACM: Asbestos Containing Material
ADWG: AustralianDrinking Water Guidelines
AF: Asbestos Fines
ANZECC: Australian and New Zealand Environment Conservation Council
B(a)P: Benzo(a)pyrene
CEC: Cation Exchange Capacity
CRC: Cooperative Research Centre
CT: Contaminant Threshold
EILs: Ecological Investigation Levels
ESLs: Ecological Screening Levels
FA: Fibrous Asbestos
GIL: Groundwater Investigation Levels
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} : pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} : pH of filtered 1:20 1M KCl after peroxide digestion
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
SAC: Site Assessment Criteria
SCC: Specific Contaminant Concentration
S_{Cr}: Chromium reducible sulfur
S_{POS}: Peroxide oxidisable Sulfur
SSA: Site Specific Assessment
SSHSLs: Site Specific Health Screening Levels
TAA: Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TCLP: Toxicity Characteristics Leaching Procedure
TPA: Total Potential Acidity, 1M KCL peroxide digest
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
TSA: Total Sulfide Acidity (TPA-TAA)
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Ager
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium 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.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have 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 old suburbs with high traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- 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.

TABLE A

SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.

HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

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	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	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)			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	0.0-0.1	Fill: Silty clay	<4	<0.4	12	19	24	0.2	8	34	1.6	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1	0.8-1.0	Siltsone	6	<0.4	8	28	33	0.1	5	22	0.06	0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.04-0.2	Fill: Silty sand	<4	<0.4	18	53	21	<0.1	25	49	640	73	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH3	0.0-0.1	Fill: Silty sand	<4	<0.4	25	51	9	<0.1	110	55	0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	Not Detected
BH3	0.5-0.6	Silty clay	<4	<0.4	9	15	27	<0.1	1	3	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH4	0.0-0.1	Silty clay	5	<0.4	15	33	23	<0.1	6	26	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH5	0.0-0.1	Fill: Silty clay	6	<0.4	14	22	27	<0.1	6	24	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH5	0.5-0.6	Silty clay	6	<0.4	14	20	16	<0.1	3	18	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH6	0.0-0.1	Fill: Silty clay	7	<0.4	8	16	57	<0.1	4	54	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7	0.0-0.1	Fill: Silty clay	6	<0.4	16	19	26	0.5	4	22	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH8	0-0.1	Fill: Sandy silty clay	<4	<0.4	46	17	17	<0.1	32	41	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH8	0.7-0.95	Silty clay	<4	<0.4	9	29	13	<0.1	<1	5	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH9	0.5-0.95	Fill: Silty clay	7	<0.4	8	14	11	0.1	7	26	0.07	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH9	3.10-3.15	Silty clay	20	<0.4	14	6	21	<0.1	<1	1	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH10	0-0.1	Fill: Silty clay	7	<0.4	12	14	52	<0.1	5	72	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
DUP1	-	Fill: Silty clay	6	<0.4	9	11	43	<0.1	4	64	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
DUP2	-	Fill: Silty clay	<4	<0.4	45	16	17	<0.1	36	38	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
Total Number of Samples			17	17	17	17	17	17	17	17	17	17	12	12	12	12	12	12	12	12	12	10
Maximum Value			20	<PQL	46	53	57	0.5	110	72	640	73	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	NC

Concentration above the SAC **VALUE**

Standard deviation exceeds data assessment criteria VALUE

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	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					**HSL-A/B:LOW/HIGH DENSITY RESIDENTIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH1	0.8-1.0	Siltsone	0m to < 1m	Silt	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH2	0.04-0.2	Fill: Silty sand	0m to < 1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH3	0.0-0.1	Fill: Silty sand	0m to < 1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH3	0.5-0.6	Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH4	0.0-0.1	Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH5	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH5	0.5-0.6	Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH6	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH7	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	<25	110	<0.2	0.6	<1	<1	<1	0
BH8	0-0.1	Fill: Sandy silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH8	0.7-0.95	Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH9	0.5-0.95	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH9	3.10-3.15	Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH10	0-0.1	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	0
DUP1	-	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	-
DUP2	-	Fill: Silty clay	0m to < 1m	Clay	<25	<50	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples					17	17	17	17	17	17	17	15
Maximum Value					<PQL	110	<PQL	0.6	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC **VALUE**

The guideline corresponding to the elevated value is highlighted in grey in the Site Assessment Criteria Table below

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	1	1
NEPM 2013 HSL Land Use Category					**HSL-A/B:LOW/HIGH DENSITY RESIDENTIAL**						
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**							
BH1	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH1	0.8-1.0	Siltsone	0m to < 1m	Silt	40	230	0.6	390	NL	95	4
BH2	0.04-0.2	Fill: Silty sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH3	0.0-0.1	Fill: Silty sand	0m to < 1m	Sand	45	110	0.5	160	55	40	3
BH3	0.5-0.6	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH4	0.0-0.1	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH5	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH5	0.5-0.6	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH6	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH7	0.0-0.1	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH8	0-0.1	Fill: Sandy silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH8	0.7-0.95	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH9	0.5-0.95	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH9	3.10-3.15	Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
BH10	0-0.1	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
DUP1	-	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5
DUP2	-	Fill: Silty clay	0m to < 1m	Clay	50	280	0.7	480	NL	110	5

TABLE C
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				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)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	<4	12	19	24	8	34	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	0.2
BH1	0.8-1.0	Siltsone	Fine	7.4	17.25	21	6	8	28	33	5	22	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	0.06
BH2	0.04-0.2	Fill: Silty sand	Fine	7.4	17.25	21	<4	18	53	21	25	49	<1	<0.1	<25	<50	1700	720	<0.2	<0.5	<1	<3	50
BH3	0.0-0.1	Fill: Silty sandy clay	Fine	7.4	17.25	21	<4	25	51	9	110	55	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.5-0.6	Silty clay	Fine	7.4	17.25	21	<4	9	15	27	1	3	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4	0.0-0.1	Silty clay	Fine	7.4	17.25	21	5	15	33	23	6	26	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	6	14	22	27	6	24	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.5-0.6	Silty clay	Fine	7.4	17.25	21	6	14	20	16	3	18	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH6	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	7	8	16	57	4	54	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH7	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	6	16	19	26	4	22	<1	<0.1	<25	110	170	<100	<0.2	0.6	<1	<3	<0.05
BH8	0-0.1	Fill: Sandy silty clay	Fine	7.4	17.25	21	<4	46	17	17	32	41	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH8	0.7-0.95	Silty clay	Fine	7.4	17.25	21	<4	9	29	13	<1	5	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH9	0.5-0.95	Fill: Silty clay	Fine	7.4	17.25	21	7	8	14	11	7	26	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	0.07
BH9	3.10-3.15	Silty clay	Fine	7.4	17.25	21	20	14	6	21	<1	1	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH10	0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	7	12	14	52	5	72	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
DUP1	-	Fill: Silty clay	Fine	7.4	17.25	21	6	9	11	43	4	64	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
DUP2	-	Fill: Silty clay	Fine	7.4	17.25	21	<4	45	16	17	36	38	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
Total Number of Samples				17	17	17	17	17	17	17	17	17	17	12	17	17	17	17	17	17	17	17	17
Maximum Value				7.4	17.25	21	20	46	53	57	110	72	<PQL	<PQL	<PQL	110	1700	720	<PQL	0.6	<PQL	<PQL	50

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

EIL AND ESL ASSESSMENT CRITERIA

Land Use Category				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)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH1	0.8-1.0	Siltsone	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH2	0.04-0.2	Fill: Silty sand	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH3	0.0-0.1	Fill: Silty sandy clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH3	0.5-0.6	Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH4	0.0-0.1	Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH5	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH5	0.5-0.6	Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH6	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH7	0.0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH8	0-0.1	Fill: Sandy silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH8	0.7-0.95	Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH9	0.5-0.95	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
BH9	3.10-3.15	Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	--	180	120	1300	5600	60	105	125	45	33
BH10	0-0.1	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
DUP1	-	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33
DUP2	-	Fill: Silty clay	Fine	7.4	17.25	21	100	413	238	1263	275	822	170	180	180	120	1300	5600	60	105	125	45	33

TABLE D
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
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	Total Scheduled		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			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			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			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			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	0.0-0.1	Fill: Silty clay	<4	<0.4	12	19	24	0.2	8	34	1.6	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH1	0.8-1.0	Siltsone	6	<0.4	8	28	33	0.1	5	22	0.06	0.06	NA	NA	NA	NA	NA	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
BH2	0.04-0.2	Fill: Silty sand	<4	<0.4	18	53	21	<0.1	25	49	**640**	**50**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	940	920	1860	<0.2	<0.5	<1	<3	Not Detected
BH3	0.0-0.1	Fill: Silty sand	<4	<0.4	25	51	9	<0.1	**110**	55	0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH3	0.5-0.6	Silty clay	<4	<0.4	9	15	27	<0.1	1	3	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
BH4	0.0-0.1	Silty clay	5	<0.4	15	33	23	<0.1	6	26	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH5	0.0-0.1	Fill: Silty clay	6	<0.4	14	22	27	<0.1	6	24	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH5	0.5-0.6	Silty clay	6	<0.4	14	20	16	<0.1	3	18	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
BH6	0.0-0.1	Fill: Silty clay	7	<0.4	8	16	57	<0.1	4	54	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH7	0.0-0.1	Fill: Silty clay	6	<0.4	16	19	26	0.5	4	22	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	77	160	<100	237	<0.2	0.6	<1	<3	Not Detected
BH8	0-0.1	Fill: Sandy silty clay	<4	<0.4	46	17	17	<0.1	32	41	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH8	0.7-0.95	Silty clay	<4	<0.4	9	29	13	<0.1	<1	5	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
BH9	0.5-0.95	Fill: Silty clay	7	<0.4	8	14	11	0.1	7	26	0.07	0.07	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
BH9	3.10-3.15	Silty clay	20	<0.4	14	6	21	<0.1	<1	1	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
BH10	0-0.1	Fill: Silty clay	7	<0.4	12	14	52	<0.1	5	72	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	Not Detected
DUP1	-	Fill: Silty clay	6	<0.4	9	11	43	<0.1	4	64	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
DUP2	-	Fill: Silty clay	<4	<0.4	45	16	17	<0.1	36	38	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<PQL	<0.2	<0.5	<1	<3	NA
Total Number of samples			17	17	17	17	17	17	17	17	17	17	12	12	12	12	12	17	17	17	17	17	17	17	17	17	10
Maximum Value			20	<PQL	46	53	57	0.5	110	72	640	50	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	77	940	920	1860	<PQL	0.6	<PQL	<PQL	NC

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

TABLE E
SOIL LABORATORY TCLP RESULTS
All data in mg/L unless stated otherwise

			Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	B(a)P
PQL - Envirolab Services			0.05	0.01	0.01	0.03	0.0005	0.02	0.001
TCLP1 - General Solid Waste			5	1	5	5	0.2	2	0.04
TCLP2 - Restricted Solid Waste			20	4	20	20	0.8	8	0.16
TCLP3 - Hazardous Waste			>20	>4	>20	>20	>0.8	>8	>0.16
Sample Reference	**Sample Depth**	**Sample Description**							
BH2	0.04-0.2	Fill: Silty sand	NA	NA	NA	NA	NA	NA	<0.001
BH3	0.0-0.1	Fill: Silty sand	<0.05	<0.01	<0.01	<0.03	<0.0005	0.03	NA
Total Number of samples			1	1	1	1	1	1	1
Maximum Value			<PQL	<PQL	<PQL	<PQL	<PQL	0.03	<PQL

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

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 = BH10 (0-0.1)	Arsenic	4	7	6	6.5	15
Dup Ref = DUP1	Cadmium	0.4	<0.4	<0.4	NC	NC
	Chromium	1	12	9	10.5	29
Envirolab Report: 200697	Copper	1	14	11	12.5	24
	Lead	1	52	43	47.5	19
	Mercury	0.1	<0.1	<0.1	NC	NC
	Nickel	1	5	4	4.5	22
	Zinc	1	72	64	68.0	12
	Naphthalene	0.1	<0.1	<0.1	NC	NC
	Acenaphthylene	0.1	<0.1	<0.1	NC	NC
	Acenaphthene	0.1	<0.1	<0.1	NC	NC
	Fluorene	0.1	<0.1	<0.1	NC	NC
	Phenanthrene	0.1	<0.1	<0.1	NC	NC
	Anthracene	0.1	<0.1	<0.1	NC	NC
	Fluoranthene	0.1	<0.1	<0.1	NC	NC
	Pyrene	0.1	<0.1	<0.1	NC	NC
	Benzo(a)anthracene	0.1	<0.1	<0.1	NC	NC
	Chrysene	0.1	<0.1	<0.1	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	<0.2	<0.2	NC	NC
	Benzo(a)pyrene	0.05	<0.05	<0.05	NC	NC
	Indeno(123-cd)pyrene	0.1	<0.1	<0.1	NC	NC
	Dibenzo(ah)anthracene	0.1	<0.1	<0.1	NC	NC
	Benzo(ghi)perylene	0.1	<0.1	<0.1	NC	NC
	Total OCPs	0.1	<0.1	<0.1	NC	NC
	Total OPPs	0.1	<0.1	<0.1	NC	NC
	Total PCBs	0.1	<0.1	<0.1	NC	NC
	TRH C_6-C_{10} (F1)	25	<25	<25	NC	NC
	TRH >C_{10}-C_{16} (F2)	50	<50	<50	NC	NC
	TRH >C_{16}-C_{34} (F3)	100	<100	<100	NC	NC
	TRH >C_{34}-C_{40} (F4)	100	<100	<100	NC	NC
	Benzene	0.2	<0.2	<0.2	NC	NC
	Toluene	0.5	<0.5	<0.5	NC	NC
	Ethylbenzene	1	<1	<1	NC	NC
	m+p-xylene	2	<2	<2	NC	NC
	o-xylene	1	<1	<1	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

TABLE G

SOIL INTER-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS

All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	Envirolab VIC PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH8 (0-0.1)	Arsenic	4	4	<4	<4	NC	NC
Dup Ref = DUP2	Cadmium	0.4	0.4	<0.4	<0.4	NC	NC
	Chromium	1	1	46	45	45.5	2
Envirolab Report: 200697	Copper	1	1	17	16	16.5	6
Envirolab VIC Report: 14768	Lead	1	1	17	17	17.0	0
	Mercury	0.1	0.1	<0.1	<0.1	NC	NC
	Nickel	1	1	32	36	34.0	12
	Zinc	1	1	41	38	39.5	8
	Naphthalene	0.1	0.1	<0.1	<0.1	NC	NC
	Acenaphthylene	0.1	0.1	<0.1	<0.1	NC	NC
	Acenaphthene	0.1	0.1	<0.1	<0.1	NC	NC
	Fluorene	0.1	0.1	<0.1	<0.1	NC	NC
	Phenanthrene	0.1	0.1	<0.1	<0.1	NC	NC
	Anthracene	0.1	0.1	<0.1	<0.1	NC	NC
	Fluoranthene	0.1	0.1	<0.1	<0.1	NC	NC
	Pyrene	0.1	0.1	<0.1	<0.1	NC	NC
	Benzo(a)anthracene	0.1	0.1	<0.1	<0.1	NC	NC
	Chrysene	0.1	0.1	<0.1	<0.1	NC	NC
	Benzo(b,j+k)fluoranthene	0.2	0.2	<0.2	<0.2	NC	NC
	Benzo(a)pyrene	0.05	0.05	<0.05	<0.05	NC	NC
	Indeno(123-cd)pyrene	0.1	0.1	<0.1	<0.1	NC	NC
	Dibenzo(ah)anthracene	0.1	0.1	<0.1	<0.1	NC	NC
	Benzo(ghi)perylene	0.1	0.1	<0.1	<0.1	NC	NC
	Total OCPs	0.1	0.1	<0.1	<0.1	NC	NC
	Total OPPs	0.1	0.1	<0.1	<0.1	NC	NC
	Total PCBs	0.1	0.1	<0.1	<0.1	NC	NC
	TRH C6-C10 (F1)	25	25	<25	<25	NC	NC
	TRH >C10-C16 (F2)	50	50	<50	<50	NC	NC
	TRH >C16-C34 (F3)	100	100	<100	<100	NC	NC
	TRH >C34-C40 (F4)	100	100	<100	<100	NC	NC
	Benzene	0.2	0.2	<0.2	<0.2	NC	NC
	Toluene	0.5	0.5	<0.5	<0.5	NC	NC
	Ethylbenzene	1	1	<1	<1	NC	NC
	m+p-xylene	2	2	<2	<2	NC	NC
	o-xylene	1	1	<1	<1	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

TABLE H
SUMMARY OF FIELD QA/QC RESULTS

ANALYSIS	Envirolab PQL	TB1[S]
		31/08/2018
	mg/kg	mg/kg
Benzene	0.2	<0.2
Toluene	0.5	<0.5
Ethylbenzene	1	<1
m+p-xylene	2	<2
o-xylene	1	<1

Explanation:
[S] Sample type (sand)

Values above PQLs/Acceptance criteria **VALUE**

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CERTIFICATE OF ANALYSIS 199899

Client Details

Client	Environmental Investigation Services
Attention	H Wang
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31772KL, Normanhurst**
Number of Samples	7 Soil
Date samples received	03/09/2018
Date completed instructions received	03/09/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	10/09/2018
Date of Issue	07/09/2018

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Asbestos Approved By
Analysed by Asbestos Approved Identifier: Panika Wongchanda
Authorised by Asbestos Approved Signatory: Matt Tang

Results Approved By
Giovanni Agosti, Group Technical Manager
Matthew Tang, Asbsestos Analyst
Nancy Zhang, Assistant Lab Manager
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		199899-1	199899-2	199899-3	199899-6	199899-7
Your Reference	UNITS	BH8	BH8	BH10	DUP1	TB
Depth		0-0.1	0.7-0.95	0-0.1	-	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	07/09/2018	07/09/2018	07/09/2018	07/09/2018	07/09/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	106	106	104	104	110

svTRH (C10-C40) in Soil					
Our Reference		199899-1	199899-2	199899-3	199899-6
Your Reference	UNITS	BH8	BH8	BH10	DUP1
Depth		0-0.1	0.7-0.95	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	05/09/2018	05/09/2018	05/09/2018	05/09/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	95	95	94

PAHs in Soil					
Our Reference		199899-1	199899-2	199899-3	199899-6
Your Reference	UNITS	BH8	BH8	BH10	DUP1
Depth		0-0.1	0.7-0.95	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	05/09/2018	05/09/2018	05/09/2018	05/09/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	86	86	87	85

Organochlorine Pesticides in soil				
Our Reference		199899-1	199899-3	199899-6
Your Reference	UNITS	BH8	BH10	DUP1
Depth		0-0.1	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	06/09/2018	06/09/2018	06/09/2018
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	90

Organophosphorus Pesticides				
Our Reference		199899-1	199899-3	199899-6
Your Reference	UNITS	BH8	BH10	DUP1
Depth		0-0.1	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	06/09/2018	06/09/2018	06/09/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	90

PCBs in Soil				
Our Reference		199899-1	199899-3	199899-6
Your Reference	UNITS	BH8	BH10	DUP1
Depth		0-0.1	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	06/09/2018	06/09/2018	06/09/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	91	89	90

Acid Extractable metals in soil					
Our Reference		199899-1	199899-2	199899-3	199899-6
Your Reference	UNITS	BH8	BH8	BH10	DUP1
Depth		0-0.1	0.7-0.95	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	05/09/2018	05/09/2018	05/09/2018	05/09/2018
Arsenic	mg/kg	<4	<4	7	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	46	9	12	9
Copper	mg/kg	17	29	14	11
Lead	mg/kg	17	13	52	43
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	32	<1	5	4
Zinc	mg/kg	41	5	72	64

Moisture					
Our Reference		199899-1	199899-2	199899-3	199899-6
Your Reference	UNITS	BH8	BH8	BH10	DUP1
Depth		0-0.1	0.7-0.95	0-0.1	-
Date Sampled		31/08/2018	31/08/2018	31/08/2018	31/08/2018
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	04/09/2018	04/09/2018	04/09/2018	04/09/2018
Date analysed	-	05/09/2018	05/09/2018	05/09/2018	05/09/2018
Moisture	%	14	8.1	15	14

Asbestos ID - soils			
Our Reference		199899-1	199899-3
Your Reference	UNITS	BH8	BH10
Depth		0-0.1	0-0.1
Date Sampled		31/08/2018	31/08/2018
Type of sample		Soil	Soil
Date analysed	-	06/09/2018	06/09/2018
Sample mass tested	g	Approx. 30g	Approx. 25g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	115	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	113	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	105	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			05/09/2018	[NT]	[NT]	[NT]	[NT]	05/09/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate o-Terphenyl	%		Org-003	96	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			05/09/2018	[NT]	[NT]	[NT]	[NT]	05/09/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	106	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	86	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	115	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	125	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	94	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Surrogate TCMX	%		Org-008	94	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	129	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	94	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			04/09/2018	[NT]	[NT]	[NT]	[NT]	04/09/2018	[NT]
Date analysed	-			05/09/2018	[NT]	[NT]	[NT]	[NT]	05/09/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	H Wang

Sample Login Details

Your reference	E31772KL, Normanhurst
Envirolab Reference	199899
Date Sample Received	03/09/2018
Date Instructions Received	03/09/2018
Date Results Expected to be Reported	10/09/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	7 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	9.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	On Hold
BH8-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	
BH8-0.7-0.95	✓	✓	✓				✓		
BH10-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	
BH10-0.4-0.5									✓
BH10-0.7-0.95									✓
DUP1	✓	✓	✓	✓	✓	✓	✓		
TB	✓								

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31772KL Date Results Required: STANDARD Page: 1 of 1	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: hwang@lkgroup.net.au

Location: Normanhurst

Sampler: HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 3	PAHs	TRH/BTEX	BTEX	Asbestos	pH, CEC, Clay Content	TCLP 6 Metals and PAHs	Combo 6			
31/08/2018	1	BH8	0-0.1	G, A	0	F:Sandy Silty clay	X											
	2	↓	0.7-0.95	G, A	14.9	Silty CLAY		X										
	3	BH10	0-0.1	G, A	1	F:Silty Clay	X											
	4		0.4-0.5	G, A	0	Silty CLAY												
	5	↓	0.7-0.95	G, A	0	Silty CLAY												
	6	DUP1	—	G	—	Soil									X			
↓	—	DUP2	—	G	—	Soil									X	Please send to VIC.		
	7	TB	—	G	—	Soil					X							

ENVIROLAB

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

Job No: 199899

Date Received: 03.09.18
Time Received: 14:30
Received By: JC
Temp: Cool/Ambient 9.6°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):
Please send DUP2 as inter-lab duplicate to Victoria

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
HW	3/9/2018		JGUBLEN	3/9/18

14:3

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12 Ashley St Chatswood NSW 2067
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www.envirolab.com.au

CERTIFICATE OF ANALYSIS 200697

Client Details

Client	Environmental Investigation Services
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31772KL, Normanhurst**
Number of Samples	17 Soil
Date samples received	13/09/2018
Date completed instructions received	13/09/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

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

Report Details

Date results requested by	20/09/2018
Date of Issue	20/09/2018

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Asbestos Approved By
Analysed by Asbestos Approved Identifier: Jessica Hie
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Lucy Zhu, Asbsestos Analyst
Nancy Zhang, Assistant Lab Manager
Nick Sarlamis, Inorganics Supervisor
Priya Samarawickrama, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		200697-1	200697-2	200697-3	200697-5	200697-6
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH3
Depth		0.0-0.1	0.8-1.0	0.04-0.2	0.0-0.1	0.5-0.6
Date Sampled		05/09/2018	05/09/2018	05/09/2018	06/09/2018	06/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	105	102	98	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		200697-7	200697-8	200697-9	200697-10	200697-12
Your Reference	UNITS	BH4	BH5	BH5	BH6	BH7
Depth		0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		04/09/2018	04/09/2018	04/09/2018	07/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	104	105	99	99

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		200697-15	200697-17
Your Reference	UNITS	BH9	BH9
Depth		0.5-0.95	3.10-3.15
Date Sampled		03/09/2018	03/09/2018
Type of sample		Soil	Soil
Date extracted	-	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	99

svTRH (C10-C40) in Soil						
Our Reference		200697-1	200697-2	200697-3	200697-5	200697-6
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH3
Depth		0.0-0.1	0.8-1.0	0.04-0.2	0.0-0.1	0.5-0.6
Date Sampled		05/09/2018	05/09/2018	05/09/2018	06/09/2018	06/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	940	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	920	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	1,700	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	720	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	2,400	<50	<50
Surrogate o-Terphenyl	%	99	113	104	90	92

svTRH (C10-C40) in Soil						
Our Reference		200697-7	200697-8	200697-9	200697-10	200697-12
Your Reference	UNITS	BH4	BH5	BH5	BH6	BH7
Depth		0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		04/09/2018	04/09/2018	04/09/2018	07/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	15/09/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	77
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	160
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	110
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	110
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	170
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	280
Surrogate o-Terphenyl	%	92	92	92	94	101

svTRH (C10-C40) in Soil			
Our Reference		200697-15	200697-17
Your Reference	UNITS	BH9	BH9
Depth		0.5-0.95	3.10-3.15
Date Sampled		03/09/2018	03/09/2018
Type of sample		Soil	Soil
Date extracted	-	14/09/2018	14/09/2018
Date analysed	-	15/09/2018	15/09/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	93	91

PAHs in Soil						
Our Reference		200697-1	200697-2	200697-3	200697-5	200697-6
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH3
Depth		0.0-0.1	0.8-1.0	0.04-0.2	0.0-0.1	0.5-0.6
Date Sampled		05/09/2018	05/09/2018	05/09/2018	06/09/2018	06/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Naphthalene	mg/kg	<0.1	<0.1	4.9	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.4	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	1.2	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	5.4	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	59	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	12	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	140	0.1	<0.1
Pyrene	mg/kg	0.3	<0.1	120	0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	49	<0.1	<0.1
Chrysene	mg/kg	0.2	<0.1	48	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3	<0.2	82	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	0.06	50	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	29	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	5.3	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	36	<0.1	<0.1
Total +ve PAH's	mg/kg	1.6	0.06	640	0.2	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	73	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	73	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	73	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	89	89	92	92

PAHs in Soil						
Our Reference		200697-7	200697-8	200697-9	200697-10	200697-12
Your Reference	UNITS	BH4	BH5	BH5	BH6	BH7
Depth		0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		04/09/2018	04/09/2018	04/09/2018	07/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	96	88	99	87

PAHs in Soil			
Our Reference		200697-15	200697-17
Your Reference	UNITS	BH9	BH9
Depth		0.5-0.95	3.10-3.15
Date Sampled		03/09/2018	03/09/2018
Type of sample		Soil	Soil
Date extracted	-	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.07	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	0.07	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	86	86

Organochlorine Pesticides in soil						
Our Reference		200697-1	200697-3	200697-5	200697-7	200697-8
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.0-0.1	0.04-0.2	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		05/09/2018	05/09/2018	06/09/2018	04/09/2018	04/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	18/09/2018	17/09/2018	17/09/2018	17/09/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	91	86	86	103

Organochlorine Pesticides in soil				
Our Reference		200697-10	200697-12	200697-15
Your Reference	UNITS	BH6	BH7	BH9
Depth		0.0-0.1	0.0-0.1	0.5-0.95
Date Sampled		07/09/2018	03/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	89	87

Organophosphorus Pesticides						
Our Reference		200697-1	200697-3	200697-5	200697-7	200697-8
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.0-0.1	0.04-0.2	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		05/09/2018	05/09/2018	06/09/2018	04/09/2018	04/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	18/09/2018	17/09/2018	17/09/2018	17/09/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	91	86	86	103

Organophosphorus Pesticides				
Our Reference		200697-10	200697-12	200697-15
Your Reference	UNITS	BH6	BH7	BH9
Depth		0.0-0.1	0.0-0.1	0.5-0.95
Date Sampled		07/09/2018	03/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	89	87

PCBs in Soil						
Our Reference		200697-1	200697-3	200697-5	200697-7	200697-8
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.0-0.1	0.04-0.2	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		05/09/2018	05/09/2018	06/09/2018	04/09/2018	04/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	18/09/2018	17/09/2018	17/09/2018	17/09/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.5	<0.1	<0.1
Surrogate TCLMX	%	87	91	86	86	103

PCBs in Soil				
Our Reference		200697-10	200697-12	200697-15
Your Reference	UNITS	BH6	BH7	BH9
Depth		0.0-0.1	0.0-0.1	0.5-0.95
Date Sampled		07/09/2018	03/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	87	89	87

Acid Extractable metals in soil						
Our Reference		200697-1	200697-2	200697-3	200697-5	200697-6
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH3
Depth		0.0-0.1	0.8-1.0	0.04-0.2	0.0-0.1	0.5-0.6
Date Sampled		05/09/2018	05/09/2018	05/09/2018	06/09/2018	06/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	12	8	18	25	9
Copper	mg/kg	19	28	53	51	15
Lead	mg/kg	24	33	21	9	27
Mercury	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	5	25	110	1
Zinc	mg/kg	34	22	49	55	3

Acid Extractable metals in soil						
Our Reference		200697-7	200697-8	200697-9	200697-10	200697-12
Your Reference	UNITS	BH4	BH5	BH5	BH6	BH7
Depth		0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		04/09/2018	04/09/2018	04/09/2018	07/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Arsenic	mg/kg	5	6	6	7	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	14	14	8	16
Copper	mg/kg	33	22	20	16	19
Lead	mg/kg	23	27	16	57	26
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.5
Nickel	mg/kg	6	6	3	4	4
Zinc	mg/kg	26	24	18	54	22

Acid Extractable metals in soil				
Our Reference		200697-15	200697-17	200697-18
Your Reference	UNITS	BH9	BH9	BH9 - [TRIPLICATE]
Depth		0.5-0.95	3.10-3.15	0.5-0.95
Date Sampled		03/09/2018	03/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil
Date prepared	-	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	14/09/2018	14/09/2018	14/09/2018
Arsenic	mg/kg	7	20	5
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	8	14	18
Copper	mg/kg	14	6	17
Lead	mg/kg	11	21	22
Mercury	mg/kg	0.1	<0.1	<0.1
Nickel	mg/kg	7	<1	4
Zinc	mg/kg	26	1	13

Moisture						
Our Reference		200697-1	200697-2	200697-3	200697-5	200697-6
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH3
Depth		0.0-0.1	0.8-1.0	0.04-0.2	0.0-0.1	0.5-0.6
Date Sampled		05/09/2018	05/09/2018	05/09/2018	06/09/2018	06/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Moisture	%	8.2	8.0	8.7	12	20

Moisture						
Our Reference		200697-7	200697-8	200697-9	200697-10	200697-12
Your Reference	UNITS	BH4	BH5	BH5	BH6	BH7
Depth		0.0-0.1	0.0-0.1	0.5-0.6	0.0-0.1	0.0-0.1
Date Sampled		04/09/2018	04/09/2018	04/09/2018	07/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/09/2018	14/09/2018	14/09/2018	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018	17/09/2018	17/09/2018	17/09/2018
Moisture	%	12	12	6.9	20	17

Moisture			
Our Reference		200697-15	200697-17
Your Reference	UNITS	BH9	BH9
Depth		0.5-0.95	3.10-3.15
Date Sampled		03/09/2018	03/09/2018
Type of sample		Soil	Soil
Date prepared	-	14/09/2018	14/09/2018
Date analysed	-	17/09/2018	17/09/2018
Moisture	%	15	20

Asbestos ID - soils						
Our Reference		200697-1	200697-3	200697-5	200697-7	200697-8
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.0-0.1	0.04-0.2	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		05/09/2018	05/09/2018	06/09/2018	04/09/2018	04/09/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	19/09/2018	19/09/2018	19/09/2018	19/09/2018	19/09/2018
Sample mass tested	g	Approx. 25g	Approx. 45g	Approx. 40g	Approx. 40g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference		200697-10	200697-12	200697-15
Your Reference	UNITS	BH6	BH7	BH9
Depth		0.0-0.1	0.0-0.1	0.5-0.95
Date Sampled		07/09/2018	03/09/2018	03/09/2018
Type of sample		Soil	Soil	Soil
Date analysed	-	19/09/2018	19/09/2018	19/09/2018
Sample mass tested	g	Approx. 10g	Approx. 25g	Approx. 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Misc Inorg - Soil			
Our Reference		200697-3	200697-12
Your Reference	UNITS	BH2	BH7
Depth		0.04-0.2	0.0-0.1
Date Sampled		05/09/2018	03/09/2018
Type of sample		Soil	Soil
Date prepared	-	17/09/2018	17/09/2018
Date analysed	-	17/09/2018	17/09/2018
pH 1:5 soil:water	pH Units	9.2	5.6

CEC			
Our Reference		200697-3	200697-12
Your Reference	UNITS	BH2	BH7
Depth		0.04-0.2	0.0-0.1
Date Sampled		05/09/2018	03/09/2018
Type of sample		Soil	Soil
Date prepared	-	18/09/2018	18/09/2018
Date analysed	-	18/09/2018	18/09/2018
Exchangeable Ca	meq/100g	24	5.1
Exchangeable K	meq/100g	0.4	0.6
Exchangeable Mg	meq/100g	0.64	2.6
Exchangeable Na	meq/100g	0.20	0.22
Cation Exchange Capacity	meq/100g	26	8.5

Clay 50-120g			
Our Reference		200697-3	200697-12
Your Reference	UNITS	BH2	BH7
Depth		0.04-0.2	0.0-0.1
Date Sampled		05/09/2018	03/09/2018
Type of sample		Soil	Soil
Date prepared	-	20/09/2018	20/09/2018
Date analysed	-	20/09/2018	20/09/2018
Clay in soils <2µm	% (w/w)	7	35

Method ID	Methodology Summary
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2µm reported.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			17/09/2018	1	17/09/2018	17/09/2018		17/09/2018	17/09/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	115	98
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	115	98
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	115	97
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	115	98
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	115	99
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	115	98
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	115	98
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	108	1	102	111	8	114	100

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	17/09/2018	17/09/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	15	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	15	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	15	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	15	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	15	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	15	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	15	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	15	106	100	6	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	130	70
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	116	85
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	112	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	130	70
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	116	85
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	112	#
Surrogate o-Terphenyl	%		Org-003	104	1	99	102	3	104	88

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	15/09/2018	15/09/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	15	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	15	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	15	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	15	93	93	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			18/09/2018	1	17/09/2018	17/09/2018		17/09/2018	17/09/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	104	88
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	106	84
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	111	#
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	0.2	0.1	67	112	69
Pyrene	mg/kg	0.1	Org-012	<0.1	1	0.3	0.2	40	102	68
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	0.2	<0.1	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	0.2	<0.1	67	104	#
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	0.3	<0.2	40	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	0.2	0.1	67	102	75
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	0.2	<0.1	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	95	1	93	95	2	90	75

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	17/09/2018	17/09/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	15	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	15	0.07	<0.05	33	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	15	86	92	7	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			17/09/2018	1	17/09/2018	17/09/2018		17/09/2018	18/09/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	104
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	75	86
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	103
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	93
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	97
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	96
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	99
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	98	112
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	92
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	87
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	88	1	87	91	4	107	92

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	17/09/2018	17/09/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	15	87	85	2	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			17/09/2018	1	17/09/2018	17/09/2018		17/09/2018	18/09/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	76	111
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	120	117
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	88	101
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	98	117
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	68	97
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	97	118
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	81	131
Surrogate TCMX	%		Org-008	88	1	87	91	4	87	89

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	17/09/2018	17/09/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	15	87	85	2	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date extracted	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			17/09/2018	1	17/09/2018	17/09/2018		17/09/2018	18/09/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	106	114
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	88	1	87	91	4	87	89

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	17/09/2018	17/09/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	15	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	15	87	85	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	200697-3
Date prepared	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Date analysed	-			14/09/2018	1	14/09/2018	14/09/2018		14/09/2018	14/09/2018
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	110	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	103	85
Chromium	mg/kg	1	Metals-020	<1	1	12	14	15	108	86
Copper	mg/kg	1	Metals-020	<1	1	19	21	10	112	123
Lead	mg/kg	1	Metals-020	<1	1	24	25	4	108	95
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.2	0.2	0	109	128
Nickel	mg/kg	1	Metals-020	<1	1	8	7	13	110	88
Zinc	mg/kg	1	Metals-020	<1	1	34	33	3	105	79

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Date analysed	-			[NT]	15	14/09/2018	14/09/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	15	7	5	33	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	15	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	15	8	20	86	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	15	14	20	35	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	15	11	26	81	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	15	0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	15	7	6	15	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	15	26	21	21	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			17/09/2018	[NT]	[NT]	[NT]	[NT]	17/09/2018	[NT]
Date analysed	-			17/09/2018	[NT]	[NT]	[NT]	[NT]	17/09/2018	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			18/09/2018	[NT]	[NT]	[NT]	[NT]	18/09/2018	[NT]
Date analysed	-			18/09/2018	[NT]	[NT]	[NT]	[NT]	18/09/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

TRH Soil C10-C40 NEPM -(3MS) # Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.
PAHs in Soil - # Percent recovery is not possible to report due to interference from analytes (other than those being tested) in the sample 3ms.

PCBs in Soil - PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.
Note: Samples 200697-7,8 were sub-sampled from bags provided by the client.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 200697-15 for Cr and Pb. Therefore a triplicate result has been issued as laboratory sample number 200697-18.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Harry Leonard

Sample Login Details

Your reference	E31772KL, Normanhurst
Envirolab Reference	200697
Date Sample Received	13/09/2018
Date Instructions Received	13/09/2018
Date Results Expected to be Reported	20/09/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	17 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.0
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils	Misc Inorg - Soil	CEC	Clay 50-120g	On Hold
BH1-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓				
BH1-0.8-1.0	✓	✓	✓				✓					
BH2-0.04-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH2-1.5-1.9												✓
BH3-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓				
BH3-0.5-0.6	✓	✓	✓				✓					
BH4-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓				
BH5-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓				
BH5-0.5-0.6	✓	✓	✓				✓					
BH6-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓				
BH6-0.6-0.95												✓
BH7-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH7-0.5-0.95												✓
BH9-0.0-0.1												✓
BH9-0.5-0.95	✓	✓	✓	✓	✓	✓	✓	✓				
BH9-1.85-1.95												✓
BH9-3.10-3.15	✓	✓	✓				✓					

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31772KL Date Results Required: STANDARD Page: 1 of 1	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard

Location: Normanhurst

Sampler: AB

Sample Preserved In Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 3	pH	CEC	Clay Content	PAHs	TRH/BTEX	BTEX	Asbestos
5/9/18	1	BH1	0-0.1	G,A	0.0	clay F	X								
↓	2	BH1	0.8-1.0	G		siltstone		X							
	3	BH2	0.04-0.2	G,A		sand F	X		X	X	X				
↓	4	BH2	1.5-1.9	G		clay									
6/9/18	5	BH3	0-0.1	G,A		clay F	X								
↓	6	BH3	0.5-0.6	G		clay		X							
4/9/18	7	BH4	0-0.1	G,A		clay	X								
	8	BH5	0-0.1	G,A		clay F	X								
↓	9	BH5	0.5-0.6	G		clay		X							
7/9/18	10	BH6	0-0.1	G,A		clay F	X								
↓	11	BH6	0.6-0.95	G		siltstone									
3/9/18	12	BH7	0-0.1	G,A		clay F	X		X	X	X				
	13	BH7	0.5-0.95	G		clay									
	14	BH9	0-0.1	G,A		clay F									
	15	BH9	0.5-0.95	G,A		clay F	X								
	16	BH9	1.85-1.95	G,A		clay F									
↓	17	BH9	3.10-3.15	G	↓	clay		X							

ENVIROLAB

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

Job No: 200697

Date Received: 13/9/18
Time Received: 12:10 10.0
Received By: LN
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
	13/9/2018			13/9/18 12:10

Envirolab Services Pty Ltd
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melbourne@envirolab.com.au
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CERTIFICATE OF ANALYSIS 14768

Client Details

Client	Environmental Investigation Services
Attention	H. Wang
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31772KL**
Number of Samples	1 Soil
Date samples received	05/09/2018
Date completed instructions received	05/09/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	11/09/2018
Date of Issue	11/09/2018

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Chris De Luca, Senior Chemist

Authorised By

Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
vTRH C_6 - C_9	mg/kg	<25
vTRH C_6 - C_{10}	mg/kg	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	118

TRH Soil C10-C40 NEPM		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	90

PAHs in Soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0
Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.1
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	0.2
Surrogate p-Terphenyl-d_{14}	%	100

OCP in Soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
alpha-BHC	mg/kg	<0.1
Hexachlorobenzene	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	100

OP in Soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
Azinphos-methyl	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorovos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	100

PCBs in Soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date extracted	-	06/09/2018
Date analysed	-	07/09/2018
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate p-Terphenyl-d_{14}	%	100

Acid Extractable metals in soil		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date digested	-	07/09/2018
Date analysed	-	07/09/2018
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	45
Copper	mg/kg	16
Lead	mg/kg	17
Mercury	mg/kg	<0.1
Nickel	mg/kg	36
Zinc	mg/kg	38

Moisture		
Our Reference		14768-1
Your Reference	UNITS	DUP2
Date Sampled		31/08/2018
Type of sample		Soil
Date prepared	-	06/09/2018
Date analysed	-	07/09/2018
Moisture	%	13

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Note, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	86	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	86	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	89	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	83	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	119	[NT]	[NT]	[NT]	[NT]	111	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	68	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	73	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	67	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	68	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	73	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	67	[NT]
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	72	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	68	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: OCP in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
alpha-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Hexachlorobenzene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	64	[NT]
gamma-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	64	[NT]
delta-BHC	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	64	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
alpha-chlordane	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Dieldrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Endrin	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Methoxychlor	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: OP in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
Azinphos-methyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorovos	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Fenitrothion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Malathion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Aroclor 1260	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			06/09/2018	[NT]	[NT]	[NT]	[NT]	06/09/2018	[NT]
Date analysed	-			07/09/2018	[NT]	[NT]	[NT]	[NT]	07/09/2018	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	101	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Envirolab Services Pty Ltd
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ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	H. Wang

Sample Login Details

Your reference	E31772KL
Envirolab Reference	14768
Date Sample Received	05/09/2018
Date Instructions Received	05/09/2018
Date Results Expected to be Reported	11/09/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	11
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Pamela Adams	Analisa Mathrick
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: amathrick@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
melbourne@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBsin Soil	Acid Extractable metalsin soil
DUP2	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	EIS Job Number: E31772KL Date Results Required: STANDARD Page: 1 of 1	ENVIRONMENTAL INVESTIGATION SERVICES REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: hwang@ikgroup.net.au

Location: Normanhurst
Sampler: HW

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6a	Combo 3	PAHs	TRH/BTEX	BTEX	Asbestos	pH, CEC, Clay Content	TCLP 6 Metals and PAHs	Combo 6			
31/08/2018	1	BH8	0-0.1	G, A	0	F: Sandy Silty clay	X											
	2	↓	0.7-0.95	G, A	14.9	SILTY CLAY		X										
	3	BH10	0-0.1	G, A	1	F: Silty Clay	X											
	4	↓	0.4-0.5	G, A	0	SILTY CLAY												
	5	↓	0.7-0.95	G, A	0	SILTY CLAY												
	6	DUP1	—	G	—	Soil									X			
(1)	—	DUP2	—	G	—	Soil									X	Please send to VIC.		
	7	TB	—	G	—	Soil					X							

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

Job No: 199899
Date Received: 03.09.18
Time Received: 14:30
Received By: JE
Temp: Cool/Ambient 9.6°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Envirolab Services
Campbellfield
Ph: (03) 9763 2500

Job No: 147683
Date Received: 5/9/18
Time Received: 13:15
Received by: CP
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

PC 11

Remarks (comments/detection limits required):
Please send DUP2 as inter-lab duplicate to Victoria.

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
HW Kevin Wang	3/9/2018 4/9/18		JGHALEN	3/9/18 14:3

Envirolab Services Pty Ltd
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CERTIFICATE OF ANALYSIS 200697-A

Client Details

Client	Environmental Investigation Services
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E31772KL, Normanhurst**
Number of Samples	17 Soil
Date samples received	13/09/2018
Date completed instructions received	10/10/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

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

Report Details

Date results requested by	12/10/2018
Date of Issue	12/10/2018

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Leon Ow, Chemist
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

Metals in TCLP USEPA1311			
Our Reference		200697-A-3	200697-A-5
Your Reference	UNITS	BH2	BH3
Depth		0.04-0.2	0.0-0.1
Date Sampled		05/09/2018	06/09/2018
Type of sample		Soil	Soil
Date extracted	-	12/10/2018	12/10/2018
Date analysed	-	12/10/2018	12/10/2018
pH of soil for fluid# determ.	pH units	9.9	8.1
pH of soil TCLP (after HCl)	pH units	1.7	1.7
Extraction fluid used	-	1	1
pH of final Leachate	pH units	5.7	5.0
Arsenic in TCLP	mg/L	[NA]	<0.05
Cadmium in TCLP	mg/L	[NA]	<0.01
Chromium in TCLP	mg/L	[NA]	<0.01
Copper in TCLP	mg/L	[NA]	<0.01
Lead in TCLP	mg/L	[NA]	<0.03
Mercury in TCLP	mg/L	[NA]	<0.0005
Nickel in TCLP	mg/L	[NA]	0.03
Zinc in TCLP	mg/L	[NA]	0.04

PAHs in TCLP (USEPA 1311)		
Our Reference		200697-A-3
Your Reference	UNITS	BH2
Depth		0.04-0.2
Date Sampled		05/09/2018
Type of sample		Soil
Date extracted	-	12/10/2018
Date analysed	-	12/10/2018
Naphthalene in TCLP	mg/L	<0.001
Acenaphthylene in TCLP	mg/L	<0.001
Acenaphthene in TCLP	mg/L	<0.001
Fluorene in TCLP	mg/L	<0.001
Phenanthrene in TCLP	mg/L	0.002
Anthracene in TCLP	mg/L	<0.001
Fluoranthene in TCLP	mg/L	0.001
Pyrene in TCLP	mg/L	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001
Chrysene in TCLP	mg/L	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001
Total +ve PAH's	mg/L	0.0025
Surrogate p-Terphenyl-d14	%	95

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			12/10/2018	[NT]	[NT]	[NT]	[NT]	12/10/2018	[NT]
Date analysed	-			12/10/2018	[NT]	[NT]	[NT]	[NT]	12/10/2018	[NT]
Arsenic in TCLP	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chromium in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Copper in TCLP	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury in TCLP	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	[NT]	[NT]	107	[NT]
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Zinc in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			12/10/2018	[NT]	[NT]	[NT]	[NT]	12/10/2018	[NT]
Date analysed	-			12/10/2018	[NT]	[NT]	[NT]	[NT]	12/10/2018	[NT]
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	82	[NT]
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	85	[NT]
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	88	[NT]
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	83	[NT]
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	74	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	81	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	85	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

PAHs in TCLP USEPA 1311 was analysed outside of recommended holding time.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Environmental Investigation Services
Attention	Harry Leonard

Sample Login Details

Your reference	E31772KL, Normanhurst
Envirolab Reference	200697-A
Date Sample Received	13/09/2018
Date Instructions Received	10/10/2018
Date Results Expected to be Reported	12/10/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	17 Soil
Turnaround Time Requested	2 days
Temperature on Receipt (°C)	10.0
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	pH of soil for fluid#determ.	pH of soil TCLP (after HCl)	Extraction fluid used	pH of final Leachate	Arsenic in TCLP	Cadmium in TCLP	Chromium in TCLP	Copper in TCLP	Lead in TCLP	Mercury in TCLP	Nickel in TCLP	Zinc in TCLP	Naphthalene in TCLP	Acenaphthylene in TCLP	Acenaphthene in TCLP	Fluorene in TCLP	Phenanthrene in TCLP	Anthracene in TCLP	Fluoranthene in TCLP	Pyrene in TCLP	Benzo(a)anthracene in TCLP	Chrysene in TCLP	Benzo(bjk)fluoranthene in TCLP	Benzo(a)pyrene in TCLP	Indeno(1,2,3-c,d)pyrene - TCLP	Dibenzo(a,h)anthracene in TCLP	Benzo(g,h,i)perylene in TCLP	Total +vePAH's	Surrogate p-Terphenyl-d14	On Hold
BH1-0.0-0.1																														✓
BH1-0.8-1.0																														✓
BH2-0.04-0.2	✓	✓	✓	✓									✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BH2-1.5-1.9																														✓
BH3-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																		
BH3-0.5-0.6																														✓
BH4-0.0-0.1																														✓
BH5-0.0-0.1																														✓
BH5-0.5-0.6																														✓
BH6-0.0-0.1																														✓
BH6-0.6-0.95																														✓
BH7-0.0-0.1																														✓
BH7-0.5-0.95																														✓
BH9-0.0-0.1																														✓
BH9-0.5-0.95																														✓
BH9-1.85-1.95																														✓
BH9-3.10-3.15																														✓
BH9 - [TRIPLICATE]-0.5-0.95																														✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Andrew Fitzsimons

From: Harry Leonard <HLeonard@jkgroup.net.au>
Sent: Wednesday, 10 October 2018 10:07 AM
To: Customer Service
Cc: Ken Nguyen
Subject: RE: Results for Registration 200697 E31772KL, Normanhurst

Hi,

Could I please order TCLP leachate analysis for the following samples:

- BH2 (0.04-0.2) for PAHs; and - 3
- BH3 (0-0.2) for heavy metals. - 5

ELS: 200697-A
TAT: 2 DAYS
DUE: 12/10/18

Could I please have these on a 2 day turnaround.

Any issues, please let me know.

Regards,

Harry Leonard
Senior Environmental Scientist
NSW Licensed Asbestos Assessor

T: +612 9888 5000
F: +612 9888 5001
HLeonard@jkgroup.net.au
www.jkgroup.net.au

JK Group is Re-branding. For more information, click here

ENVIRONMENTAL INVESTIGATION SERVICES
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
PO Box 976, North Ryde BC NSW 1670
115 Wicks Rd, Macquarie Park NSW 2113

From: Ken Nguyen [mailto:KNguyen@envirolab.com.au]
Sent: Thursday, 20 September 2018 5:31 PM
To: Harry Leonard <HLeonard@jkgroup.net.au>
Subject: Results for Registration 200697 E31772KL, Normanhurst

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC/paperwork received from you
an Excel or .csv file containing the results
Please note that a hard copy will not be posted.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au