ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

PYMBLE LADIES COLLEGE

ON

STAGE 1 PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT

FOR

PROPOSED DEVELOPMENT

AT

PYMBLE LADIES COLLEGE, 20-64 AVON ROAD, PYMBLE, NSW

AUGUST 2012

REF: E25921KPrpt

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EXECUTIVE SUMMARY

Pmdl Architects, acting on behalf of Pymble Ladies College (PLC), commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake Stage 1 preliminary Environmental Site Assessment (ESA) for the proposed development at PLC, 20-64 Avon Road, Pymble, NSW ("the site").The site is identified as part of Lot 1 in DP69541 and at the time of preparation of this report formed part of PLC. The site location is shown on Figure 1 and the ESA was generally confined to the proposed development area as shown on Figures 2 and 3.

A geotechnical investigation was undertaken in conjunction with the ESA by JK Geotechnics (a division of J&K) and the results are presented in a separate report (Ref: 25921ZHrpt). A brief summary of the JK Geotechnics investigation findings is presented in **Section 4** of this report.

Based on the details provided, we understand the proposed development will be undertaken in four stages and will include: a new aquatic and fitness centre; a new car park and reconstructed Molly Dive Field; a new dining hall; and a new health centre.

The primary objectives of the ESA were to:

- Assess the potential risk of significant, widespread soil and groundwater contamination at the site;
- Assess the potential for human health or environmental risks posed by soil and/or groundwater contaminants at the site;
- Address the Data Quality Objectives (DQOs); and
- Prepare a Stage 1 preliminary ESA report.

The scope of work for the ESA included:

- Undertaking a site history assessment to identify historical land uses that may have resulted in potential site contamination;
- Undertaking a site inspection to identify potential contamination sources;
- Undertaking a limited review of the subsurface investigation findings obtained during the JK Geotechnics investigation;
- Preparing a Conceptual Site Model (CSM) identifying the Potential Contaminants of Concern (PCC) and potential sensitive receptors; and
- Preparing a report presenting the results of the ESA.

A summary of the historical information is presented in the following table:

Source	Summary
Land Title Records	The records did not indicate any particular land use that may have resulted in significant site contamination. The site formed part of a property owned by the church since at least the early 1900s.
Aerial Photos	The majority of the site appeared grassed in the 1930 to 1943 photographs, and formed part of a larger property. Two small structures (possibly sheds) were demolished at the site during this period. The layout of Molly Dive Field was evident in 1951. The site layout generally appeared similar to the existing (2012) PLC layout from the 1986 photograph onwards.
Local Council Records	The records did not indicate any particular land use or development that may have resulted in significant site contamination. The s149 planning certificate indicated that: • The site does not include or comprise critical habitat; and • The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management

Source	Summary
	proposal; or subject to an on-going management order under the provisions of CLM Act 1997.
WorkCover Records	The records did not indicate the existence of any licences, including underground storage tanks (USTs), at the site. Two depots for pool chemicals and petroleum products were located in down-gradient, off-site areas.
NSW EPA Records	There are no EPA notices for the site. The site is not listed on the CLM register.
Anecdotal Information	The WorkCover records confirmed the anecdotal information regarding the storage of small quantities of fuel and pool chemicals in off-site depots, down-gradient of the subject site.

Based on the scope of work undertaken for this assessment, EIS consider that the potential for significant, widespread soil and/or groundwater contamination at the site is relatively low. No specific, on-site or off-site, point sources of contamination were identified. The primary contamination sources at the site are considered to be: potentially contaminated imported fill soils; and asbestos associated with the demolition of two sheds formerly located at the site.

In general, the potential risks and exposure to the PCC would be expected to increase as a result of the proposed development works (i.e. due to exposure of the soils during demolition and excavation). On this basis, an intrusive investigation should be undertaken prior to the commencement of earthworks in order to better assess the risk of contaminants being present at the site.

The investigation should include soil sampling from a minimum of 12 locations distributed across the site. Soil samples from each location should be analysed for the PCC identified during this Stage 1 ESA (see **Section 6.1**). The data should be assessed against the appropriate health and ecological investigation levels for the proposed land use. A report should be prepared generally in accordance with documents referenced in **Table 1.1** of this report and any recommendations made within the report should be addressed.

The investigation in the vicinity of the former sheds (i.e. the central and eastern portions of the existing Molly Dive Field) should include excavation of test pits as this allows for a more thorough assessment of potential asbestos contamination.

An assessment of the groundwater contamination conditions is not considered necessary at this stage.

EIS consider that the objectives of this assessment (detailed in **Section 1.2**) have been met. Based on the scope of work undertaken, EIS consider that the site can be made suitable for the proposed development provided that the recommendations made within this report are suitably addressed.

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

TABLE OF CONTENTS

1 INTRODUCTION

Pmdl Architects, acting on behalf of Pymble Ladies College (PLC), commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake Stage 1 preliminary Environmental Site Assessment (ESA) for the proposed development at PLC, 20-64 Avon Road, Pymble, NSW ("the site").

The site is identified as part of Lot 1 in DP69541 and at the time of preparation of this report formed part of PLC. The site location is shown on Figure 1 and the ESA was generally confined to the proposed development area as shown on Figures 2 and 3.

The screening was undertaken generally in accordance with the EIS proposal (Ref: EP6517KP, P1 works) of 31 July 2012 and written acceptance from Pmdl Architects, acting on behalf of PLC of 31 July 2012.

This report describes the assessment procedures and presents the results of the Stage 1 ESA, together with comments, discussion and recommendations.

A geotechnical investigation was undertaken in conjunction with the ESA by JK Geotechnics (a division of J&K) and the results are presented in a separate report (Ref: 25921ZHrpt). A brief summary of the JK Geotechnics investigation findings is presented in **Section 4** of this report.

1.1 Proposed Development Details

Based on the details provided, we understand the proposed development will be undertaken in four stages as outlined below. Reference can also be made to the attached Figure 3 for further details.

Stage 1 – Proposed Aquatic and Fitness Centre

The proposed Stage 1 works will include demolition of the existing outdoor pools, pool plant room and pool concourse areas, followed by construction of a new Aquatic and Fitness Centre building, incorporating a new 50m lap and diving pool.

The proposed pool concourse will be at a reduced level (RL) of 120.1m, with the base of the 50m lap pool at approximately RL118.1m (i.e. 2m below the pool concourse level). To achieve these levels, the maximum bulk excavation depths will range from approximately 3.0m to 5.6m below the existing ground level.

The proposed pool plant rooms will be constructed at RL116.1m and will be located on the downhill side (i.e. to the west) of the proposed pool. Bulk excavation to a maximum depth of approximately 3.0m will be required.

The adjacent, proposed learners' pool to the south of the plant rooms will be suspended above existing ground level. The proposed fitness centre slab will also be suspended above the proposed learners' pool.

Stage 2 – Proposed Car Park and Reconstructed Molly Dive Field

The proposed Stage 2 works will initially include the demolition and removal of the existing synthetic surfacing and underlying concrete slab that covers Mollie Dive Field. Following demolition works, a new car park will be constructed which will require bulk excavation to a maximum depth of approximately 1.7m. The proposed car park footprint will extend further to the west of the existing Mollie Dive Field and new retaining walls will be required to support the western side of the car park.

A suspended slab structure will be constructed above the proposed car park. The proposed suspended slab will support a soil profile approximately 1m deep, with the new Mollie Dive Field reconstructed above.

Stage 3 – Proposed Dining Facility

The proposed Stage 3 works will include the construction of a single storey dining facility building to the north of the reconstructed Mollie Dive Field. The building will be constructed on a suspended slab at RL120.1m.

Stage 4 – Proposed Health Centre

The proposed Stage 4 works will include the construction of a two storey health centre building on the northern side of the existing Jeanette Buckham PE Centre. The building will be constructed on a suspended slab.

1.2 Objectives

The primary objectives of the ESA were to:

- Assess the potential risk of significant, widespread soil and groundwater contamination at the site;
- Assess the potential for human health or environmental risks posed by soil and/or groundwater contaminants at the site;
- Address the Data Quality Objectives (DQOs); and
- Prepare a Stage 1 preliminary ESA report.

1.3 Scope of Work

The scope of work for the ESA included:

- Undertaking a site history assessment to identify historical land uses that may have resulted in potential site contamination;
- Undertaking a site inspection to identify potential contamination sources;

- Undertaking a limited review of the subsurface investigation findings obtained during the JK Geotechnics investigation;
- Preparing a Conceptual Site Model (CSM) identifying the Potential Contaminants of Concern (PCC) and potential sensitive receptors; and
- Preparing a report presenting the results of the ESA.

The site inspection for the assessment was undertaken on 14 August 2012. Site photos obtained during the inspection are attached in Appendix B.

The scope of work was designed with reference to the regulations/guidelines outlined in the table below. Where other guidelines have been used, these have been referenced in the subsequent sections of this report.

Table 1-1: Guidelines

Guidelines/Regulations/Documents
Contaminated Land Management Amendment Act (2008[1])
State Environmental Planning Policy No.55 – Remediation of Land (1998[2])
NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (1997[3])
Guidelines on the Duty to Report Contamination[4]
Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006[5])
National Environmental Protection (Assessment of Site Contamination) Measure (1999[6]).

[1] *Contaminated Land Management Amendment Act,* NSW Government Legislation, 2008 (CLM Amendment Act 2008)

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

[3] *Guidelines for Consultants Reporting on Contaminated Sites,* NSW EPA, 1997 (Reporting Guidelines 1997)

[4] *Guidelines on the Duty to Report Contamination*, NSW Government Legislation, 2008 (Duty to Report Contamination 2008)

[5] *Guidelines for the NSW Site Auditor Scheme, 2nd ed.,* NSW DEC, 2006 (Site Auditor Guidelines 2006)

[6] *National Environmental Protection (Assessment of Site Contamination) Measure,* National Environment Protection Council (NEPC), 1999 (NEPM 1999)

2 DATA QUALITY OBJECTIVES

2.1 DQOs for the Assessment

DQOs are designed to ensure that the data from the assessment are reliable and representative of site conditions. The DQOs provide a systematic approach for undertaking the assessment and outlines the criteria against which the data can be assessed.

A methodology for establishing the DQOs is presented in the US EPA document *Data Quality Objectives Process for Hazardous Waste Site Investigations* (2000[7]). This methodology has been adopted by the NEPC in NEPM 1999, Australian Standard: AS4482.1-2005 and the Site Auditor Guidelines 2006. The main steps involved in preparing the DQOs include:

1. State the problem;
2. Identify the decision;
3. Identify inputs into the decision;
4. Study boundaries;
5. Develop a decision rule;
6. Specify limits on decision errors; and
7. Optimise the design for obtaining data.

The first six steps provide qualitative and quantitative statements which are used in the final step to develop a data collection plan. The data is then assessed against adopted performance criteria. All seven steps are not applicable to Stage 1 'desktop' ESAs.

2.1.1 State the Problem

Unknown historical land uses may have resulted in soil and groundwater contamination at the site. Current land use may also result in soil and groundwater contamination through improper environmental practices.

The presence of contamination may pose a risk to human health and the environment, particularly during the proposed development works. An ESA is required to assess these risks and to consider the suitability of the site for the proposed development.

[7] *Data Quality Objectives Process for Hazardous Waste Site Investigations,* US EPA, *2000* (US EPA 2000)

2.1.2 Identify the Decision

The assessment aims to address the following decisions:

- Does the site history indicate previous land uses that may have resulted in contamination;
- Does the site inspection indicate the presence of potential on-site and/or off-site contamination sources;
- Are there any potential receptors which may be impacted by widespread contamination; and
- Should a Stage 2 intrusive investigation be undertaken.

2.1.3 Inputs into the Decision

The following inputs will be used to address the decisions:

Table 2-1: Inputs into the Decision

Inputs	Details
Background Information	No background information (i.e. previous site reports) was made available for the preparation of this report.
Site Inspection & Physical Setting	Undertake a site inspection to identify potential on and off-site contamination sources. Assess the physical setting including a review of regional geology, topography, acid sulfate soil potential and hydrogeology information.
Site History Assessment	Review of historical aerial photographs, land title records, local council records, Section 149 certificates, WorkCover records, NSW EPA records and other information presented in **Section 5.**
Review of JK Geotechnics investigation results	Review of the JK Geotechnics borehole logs to make a preliminary assessment of the soil and groundwater conditions.
Conceptual Site Model	Prepare a CSM identifying the PCC and potential receptors.

2.1.4 Study Boundary

The assessment will be confined to the site boundaries (proposed development area) as shown in Figure 2.

3 SITE INFORMATION AND PHYSICAL SETTING

3.1 Site Identification

Table 3-1: Site Identification Information

Site Owner:	The Uniting Church in Australia Property Trust (N.S.W)
Site Address:	20-64 Avon Road, Pymble, NSW
Lot & Deposited Plan:	Part Lot 1 in DP69541
Current Land Use:	Private College catering for kindergarten to year 12
Proposed Land Use:	Unchanged
Local Government Authority:	Ku-ring-gai Council
Current Zoning:	Special Uses 5(a) (School)
Site Area (m^2):	15,000
RL (AHD in m) (approx.):	120
Geographical Location (MGA) (approx.):	N: 6264178 E: 327242
Site Location Plan:	Figure 1
Site Layout Plan:	Figure 2

3.2 Site Location and Topography

The site is located towards the southern end of PLC on the lower reaches of a gently sloping south-west facing hillside. The site is located on the north-eastern flank of a densely vegetated gully feature. The general hillside slopes in the vicinity of the site are in the order of 2° to 3° down towards the south-west. The site is accessed via Avon Road which is located about 70m to the west.

3.3 Site Inspection

At the time of the site inspection, the Stage 1 development area was occupied by the existing brick and concrete swimming pool complex. The concourse level on the eastern side of the swimming pool was suspended above existing grade on concrete columns.

The Stage 2 development area was occupied by the existing synthetic surfaced Mollie Dive Field ("the field"). Cut and fill earthworks would have been required in the east and west sections of the field respectively, in order to create the desired levels. The cut and fill batter slopes to the east and west of the field were graded no steeper than approximately 20° and were covered with grass, shrubs and small to medium sized trees. None of the vegetation showed obvious signs of phyto-toxic stress based on a cursory inspection.

The majority of the western side of the field was supported by a brick retaining wall (maximum height of approximately 1m). A garden bed extended along the toe of the retaining wall.

The Stage 3 development to the north of the field was generally grassed and sloped gently down towards the south at a maximum gradient of approximately 5°. A small demountable building was located in the far north section of the site, over part of the Stage 3 development area.

No chemical and/or waste storage was observed at the site.

The areas that surrounded the site were associated with the wider college grounds and included: two to three storey buildings to the north; tennis courts to the south; two to three storey buildings to the east; and asphaltic concrete (AC) surfaced car park to the west.

During rain events, the site is expected to drain towards the west, with the majority of surface water flows from the hardstand areas (i.e. Molly Dive Field) being intercepted by the on-site stormwater system. Some rainwater would be expected to infiltrate the grassed areas and garden beds.

3.3.1 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the ESA. The plans did not indicate the presence of major underground services at the site.

3.3.2 Interview with Site Personnel

A brief interview with the Assistant Property Manager, Eddie Wayling, indicated that no chemicals or fuel products were stored at the site (currently or historically to his knowledge). The storage areas for pool-related chemicals and fuel for on-site machinery (mowers, carts etc) were in two separate off-site depots, located down-gradient of the site.

3.4 Regional Geology

The geological map of Sydney (1983[8]) indicates the site to be underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

[8] *1:100,000 Geological Map of Sydney (Series 9130),* Department of Mineral Resources (1983)

3.5 Acid Sulfate Soil (ASS) Risk Map

The site is not located within an ASS risk area.

3.6 Hydrogeology

A search of the groundwater bore summary records available on the NSW Office of Water[9] website was undertaken for the ESA. The search was limited to registered bores located within approximately 1km of the site. A copy of the records and a plan showing the approximate location of the bores is attached in Appendix A. A brief summary of relevant information pertaining to the ESA is present below:

Table 3-2: Summary of Groundwater Bores

Reference	Distance from site (m) (approx.)	Direction from site	Gradient from site	Depth (m)	Registered Purpose	Potential Receptor
GW025563	400	South-west	Down	120	Irrigation	Yes
GW025567	80	South-west	Down	61.5	Irrigation	Yes
GW026418	400	North-west	Up/cross	19.2	Irrigation	Yes
GW026427	700	South-west	Down	48.7	Irrigation	Yes
GW026428	700	South-west	Down	18.5	Irrigation	Yes
GW029666	500	South-east	Up/cross	25.9	General	No
GW109510	990	North-east	Up	13	Monitoring	No
GW109511	990	North-east	Up	13	Monitoring	No
GW109512	990	North-east	Up	14	Monitoring	No
GW110263	850	South-east	Up/cross	10	Monitoring	No
GW110264	850	South-east	Up/cross	10	Monitoring	No
GW110266	850	South-east	Up/cross	10	Monitoring	No

The stratigraphy of the site is expected to consist of residual clayey soils overlying relatively shallow bedrock. Based on these conditions, groundwater would not typically be considered a significant resource for abstraction purposes. However, the groundwater bore search has indicated the presence of several, down-gradient bores for irrigation. These bores are most likely associated with the golf club to the south-west of the site and are generally abstracting groundwater from depth (approximately 18-120m below ground).

A perched aquifer located in the shallow subsurface is not considered to be a resource due to high salinity, poor water quality and low yield.

[9] http://www.waterinfo.nsw.gov.au/gw/, visited on 13 August 2012

3.7 Surface Water Flows

Natural surface water flows at the site have been previously altered by the construction of Molly Dive Field (as discussed in **Section 3.3**).

Surface water bodies were not identified at the site or in the immediate vicinity. The closest surface water body is considered to be a dammed creek located towards the southern section of Rofe Park, approximately 1km to the west of the site. Temporary surface water features may also be evident in the gullies to the west of the site during significant rain events.

4 SUMMARY OF JK GEOTECHNICS INVESTIGATION

The geotechnical investigation identified deep fill soils in the boreholes drilled towards the western side of the existing Molly Dive Field. This correlated with the field observations made during the site inspection for the ESA.

The remaining boreholes drilled to the north and east of the field encountered relatively shallow fill/topsoil, underlain by residual soil and/or shale bedrock.

Groundwater was encountered in three of the boreholes at depths ranging from approximately 3.0m to 5.0m below ground level. The conditions encountered are considered to be indicative of a perched aquifer. Reference should be made to the JK Geotechnics report for further details.

5 SITE HISTORY ASSESSMENT

5.1 Aerial Photographs

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

Table 5-1: Summary of Historical Aerial Photos

Year	Details
1930	The majority of the site appeared to be grassed and formed part of a wider property that extended to the north-east (the wider property boundary generally appeared consistent with that of the existing Lot 1 in DP69541, which makes up PLC). Two relatively small structures (possibly sheds) were located in the west and north sections of the site. A swimming pool was located in the east section of the site. Three buildings were located to the north/north-east of the site and two tennis courts were located to the south of the site that appeared consistent with the existing (2012) PLC layout. A golf course was located to the south-west of the site. The remainder of the surrounds appeared to be bushland or were occupied by residential-type buildings.
1943[a]	The site generally appeared to be similar to the 1930 photograph, however the sheds had been demolished. Additional buildings had been constructed to the north-east of the site and there was a general increase in residential-type development in the vicinity of the site.
1951	The majority of the site appeared to have been levelled to form a rectangular field (consistent with the existing layout of Molly Dive Field). There was an additional court located to the south-west of the site. Additional buildings were evident to the north and north-east of the site and there was a general increase in residential-type development in the areas to the north and south-east of the site.
1970	The site and the immediate surrounds generally appeared to be similar to the 1951 photograph.
1978	The site and the immediate surrounds generally appeared to be similar to the 1951 photograph.
1986	The pool located in the east section of the site appeared to have been enlarged

Year	Details
	and extended further towards the south-west. A relatively large building was located immediately to the south-east of the pool that appeared similar to the existing (2012) Jeanette Buckham PE Centre. The immediate surrounds generally appeared to be similar to the 1986 photograph.
1994	The site and the immediate surrounds generally appeared to be similar to the 1986 photograph.
2005	The site and the immediate surrounds generally appeared to be similar to the 1994 photograph (which is consistent with the 2012 site layout).

Note:
a - NSW Department of Lands SIX Viewer[10]

5.2 Land Title Search

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

Table 5-2: Summary of Land Title Information

Date	Proprietor
	(Lot 1 DP 69541 – Auto Consol 5156-173)
1993 – todate	The Uniting Church in Australia Property Trust (N.S.W.)
(1993 – todate)	*(lease to Sydney County Council of substation No. 5340 to 2031, shown on folio identifier Auto-Consol5156-173)*
	(Lot 1 DP 69541 and other lands, part of Portion 414, Parish of Gordon – Area 35 Acres 1 Rood 20 Perches – CTVol 5156 Fol 173)
1981 – 1993	The Uniting Church in Australia Property Trust (N.S.W.)
1940 – 1981	The Presbyterian Church (New South Wales) Property Trust
	(That piece or parcel of land, part of Portion 414, Parish of Gordon – Area 35 Acres 1 Rood 20 Perches – CTVol 2719 Fol 2)
1940 – 1940	The Presbyterian Church (New South Wales) Property Trust
1916 – 1940	The Trustees of the Presbyterian Church of Australia in the State of New South Wales

The title records did not indicate any particular land use that may have resulted in significant site contamination. The site was most likely used for educational purposes from around 1916.

[10] https://six.maps.nsw.gov.au/wps/portal/SIXViewer, visited on 14 August 2012

5.3 Council Records

5.3.1 Development Applications (DA) and Building Approvals (BA)

A search request for informal access to council documents was lodged with Ku-ring-gai council in order to obtain information regarding previous DAs and BAs at the site.

There were no records for DAs or BAs at the site. Records were provided relating to a DA in a separate section of PLC (Ref: DA0295/09). A copy of the document provided is attached in Appendix A.

5.3.2 Section 149 Planning Certificate

The s149 (2 and 5) planning certificates were reviewed for the site history assessment. Copies of the certificates are attached in Appendix A. A summary of the relevant information is presented below:

- The site does not include or comprise critical habitat; and
- The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of CLM Act 1997.

5.4 WorkCover Records

WorkCover records were reviewed for the site history assessment. Copies of the records are attached in Appendix A.

The records did not indicate the existence of any licences, including underground storage tanks (USTs), at the site. Records were provided relating to the storage of petroleum products and pool chemicals in off-site areas. These depots were located down gradient of the site.

5.5 NSW EPA Records

The NSW EPA records available online were reviewed for the site history assessment. A summary of the relevant information is provided in the following table:

Table 5-3: Summary of NSW EPA Online Records

Source	Details
CLM Act 1997[11]	No notices for the site under Section 58 of the Act.
NSW EPA List of Contaminated Sites[12]	The site is not listed on the NSW EPA register.
POEO Register[13]	No notices for the site on the POEO register.

5.6 Integrity of Site History Information

The site history information has generally been obtained from government organisations including: NSW Land Titles Office, local council archives, Department of Lands, NSW WorkCover records and NSW EPA records. The veracity of the information from these sources is considered to be high, however, given the age of the development, the gap of up to 19 years between aerial photographs and the lack of information available on specific site activities prior to the 1930s, a certain degree of information loss can be expected.

Non verifiable anecdotal information has not been utilised for this assessment. Therefore, there is considered to be a high level of integrity associated with information revised for the assessment.

5.7 Summary of Site History

A summary of the historical information is presented in the following table:

Table 5-4: Site History Summary

Source	Summary
Land Title Records	The records did not indicate any particular land use that may have resulted in significant site contamination. The site formed part of a property owned by the church since at least the early 1900s.
Aerial Photos	The majority of the site appeared grassed in the 1930 to 1943 photographs, and formed part of a larger property. Two small structures (possibly sheds) were demolished at the site during this period. The layout of Molly Dive Field was evident in 1951. The site layout generally appeared similar to the existing (2012) PLC layout from the 1986 photograph onwards.

[11] http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx, visited on 14 August 2012
[12] http://www.environment.nsw.gov.au/clm/publiclist.htm, visited on 14 August 2012
[13] http://www.environment.nsw.gov.au/prpoeoapp/, visited on 14 August 2012

Source	Summary
Local Council Records	The records did not indicate any particular land use or development that may have resulted in significant site contamination. The s149 planning certificate indicated that: • The site does not include or comprise critical habitat; and • The site is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of CLM Act 1997.
WorkCover Records	The records did not indicate the existence of any licences, including USTs, at the site. Two depots for pool chemicals and petroleum products were located in down-gradient, off-site areas.
NSW EPA Records	There are no EPA notices for the site. The site is not listed on the CLM register.
Anecdotal Information	The WorkCover records confirmed the anecdotal information regarding the storage of small quantities of fuel and pool chemicals in off-site depots, down-gradient of the subject site.

6 CONCEPTUAL SITE MODEL (CSM)

6.1 Contamination Sources and Potential Contaminants of Concern (PCC)

The potential contamination sources and PCC identified at the site are outlined in the following table:

Table 6-1: PCC

Source	Land Use	PCC
Fill material	**On-site:** Fill material historically imported to achieve existing site levels may contain elevated concentrations of contaminants. Elevated contaminants have the potential to impact the groundwater by leaching. It is possible that the deeper fill soils on the western side of Molly Dive Field were sourced from the cut areas to the east. However, this cannot be confirmed. **Off-site:** Fill material contaminated by mobile contaminants in off-site, up-gradient areas may impact on the soils and groundwater at the site.	HM, TPH, BTEX, VOCs, PAHs, OCPs, OPPs, PCBs and asbestos PCC in groundwater (if present) would be based on the soil contaminants present.
Demolition of former buildings	**On-site:** Two small sheds were demolished at the site sometime between 1930 and 1943. The construction materials for the sheds may have contained asbestos/fibre cement. **Off-site:** No adjacent land uses were identified.	Asbestos

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

6.2 Contamination Fate and Transport

The fate of the PCC identified above is summarised in the following table:

Table 6-2: Fate and Transport of PCC

PCC	Fate and Transport
Non-volatile contaminants including metals, heavy fraction PAHs, OCPs, OPPs, PCBs and asbestos	Non-volatile contaminants are expected to be bound within the fill matrix and are hence less mobile. Heavy fraction PAHs (and even TPH) can be associated with the presence of ash and slag in fill. Slag is usually formed as a by-product of combustion at high temperatures which 'lock in' the contaminants within the matrix. Heavy metals like lead can be encountered in ash. The mobility of these contaminants would depend on a range of factors including age of the fill, soil porosity, solubility in water and surface water infiltration. Heavy metals can also impact on plant growth. High concentrations of heavy metals in soils within the root zone can be taken up by plants which can result in phyto-toxicity. Asbestos may be encountered bonded in fibre cement sheeting, however, if this material is buried and subject to weathering, the asbestos may be considered friable. A number of studies have found that soils effectively filter out asbestos fibres and retain them near the surface. The studies concluded that there is no significant migration of asbestos fibres, either through soil or groundwater. Therefore, the transport mechanism for asbestos would be during site excavation works.
Volatile contaminants including TPH, BTEX, VOCs and light fraction PAHs	Volatile contaminants are usually more mobile when compared to the non-volatile compounds. The potential for migration of volatile contaminants such as light fraction PAHs and TPH is relatively high in sandy soil with a high water table. At this site, the presence of clayey soils and a deeper water table would limit the migration potential of these contaminants. Volatile contaminants break down rapidly as a result of microbial activity and availability of nutrients including nitrogen, oxygen etc. The mobile contaminants would be expected to move down to the rock surface or groundwater table and migrate down gradient from the source. The mobility would depend on a range of factors like the porosity, confining layers within the aquifer, solubility in groundwater etc.

6.3 Potential Receptors and Exposure Pathways

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

Table 6-3: Potential Receptors and Exposure Pathways

Location	Receptor	Pathway
On-site	On-site human receptors include: - Site occupants and site users - Site visitors - Contractors and workers - Future site occupants On-site environmental receptors include: - The existing and proposed landscaped areas	- Exposure by direct contact via dermal, ingestion and inhalation - Inhalation of airborne asbestos fibres - Migration of and exposure to contaminated groundwater - Migration of soluble contaminants with surface water flows
Off-site	Off-site human receptors include: - Adjacent landowners - Off-site visitors and students within the wider parts of PLC - Contractors and workers in the adjoining area Off-site environmental receptors include: - The registered groundwater bores used for irrigation down-gradient of the site - The dammed creek located towards the southern section of Rofe Park, approximately 1km to the west of the site	- Inhalation of airborne asbestos fibres migrating off-site - Migration of contaminated groundwater - Migration of contaminants via surface water flows - Extraction and use of groundwater down-gradient from the site

7 DISCUSSION

7.1 Assessment of Risk and Recommendations

Based on the scope of work undertaken for this assessment, EIS consider that the potential for significant, widespread soil and/or groundwater contamination at the site is relatively low. No specific, on-site or off-site, point sources of contamination were identified. The primary contamination sources at the site are considered to be: potentially contaminated imported fill soils; and asbestos associated with the demolition of two sheds formerly located at the site.

In general, the potential risks and exposure to the PCC would be expected to increase as a result of the proposed development works (i.e. due to exposure of the soils during demolition and excavation). On this basis, an intrusive investigation should be undertaken prior to the commencement of earthworks in order to better assess the risk of contaminants being present at the site.

The investigation should include soil sampling from a minimum of 12 locations distributed across the site. Soil samples from each location should be analysed for the PCC identified during this Stage 1 ESA (see **Section 6.1**). The data should be assessed against the appropriate health and ecological investigation levels for the proposed land use. A report should be prepared generally in accordance with documents referenced in **Table 1.1** of this report and any recommendations made within the report should be addressed.

The investigation in the vicinity of the former sheds (i.e. the central and eastern portions of the existing Molly Dive Field) should include excavation of test pits as this allows for a more thorough assessment of potential asbestos contamination.

An assessment of the groundwater contamination conditions is not considered necessary at this stage.

7.1.1 Disposal and Re-use of Excavated Material

In the event that the intrusive investigation does not identify soil contamination at the site, the excavated material may be considered suitable for on-site re-use during the proposed development works (from an environmental perspective).

In the event that there will be a surplus of excavated material, a waste classification will be required prior to off-site disposal. There are a number of different waste classifications that can be assigned to excavated material depending on the source of the material and the chemical composition. The cost associated with disposal of the

different waste streams varies significantly and consideration should be given to this prior to the commencement of the proposed works.

A detailed discussion regarding waste classification, soil re-use and disposal options should be detailed in the environmental investigation report.

7.1.2 Dewatering During Development

Based on the results of the JK Geotechnics investigation, it is considered unlikely that groundwater will be encountered during the proposed works. However in the unexpected event that groundwater is intercepted during the works, or if there is a significant period of rain, dewatering may be required. Council and other relevant approvals should be obtained prior to the discharge of any water from the site.

8 CONCLUSION

EIS consider that the objectives of this assessment (detailed in **Section 1.2**) have been met. Based on the scope of work undertaken, EIS consider that the site can be made suitable for the proposed development provided that the recommendations made within this report are suitably addressed.

8.1 Regulatory Requirement

The regulatory requirements applicable to the ESA are outlined in the following table:

Table 8-1: Regulatory Requirement

Guideline	Applicability
Duty to Report Contamination 2008	The requirement to report to the NSW EPA should be assessed once the results of the intrusive investigation works have been reviewed. At this stage, there is no requirement to notify the NSW EPA of any actual or potential site contamination issues at the site.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner.

9 LIMITATIONS

The sampling locations for the investigation have enabled an assessment to be made of the risk of the existence of significant, large quantities of contamination.

EIS adopts no responsibility whatsoever for any problems such as USTs, buried items or contaminated material that may be encountered at the site. Development activities at the site should be planned on this basis, and any unexpected problems that may be encountered should be immediately inspected by experienced environmental personnel. This should ensure that such problems are dealt with in an appropriate manner, with minimal disruption to the project timetable and budget.

The conclusions developed in this report are based on site conditions which existed at the time of the assessment and the scope of work outlined in the report. They are based on visual observations of the site and immediate surrounds, together with the interpretation of available historical information and documents reviewed as described in this report.

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

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.

Subsurface soil and rock conditions encountered between investigation locations (JK Geotechnics investigation) may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes.

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

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

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

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

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

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

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 are modified;
- the proposed development levels are altered, eg addition of basement levels; or
- ownership of the site changes.

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

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

This 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.

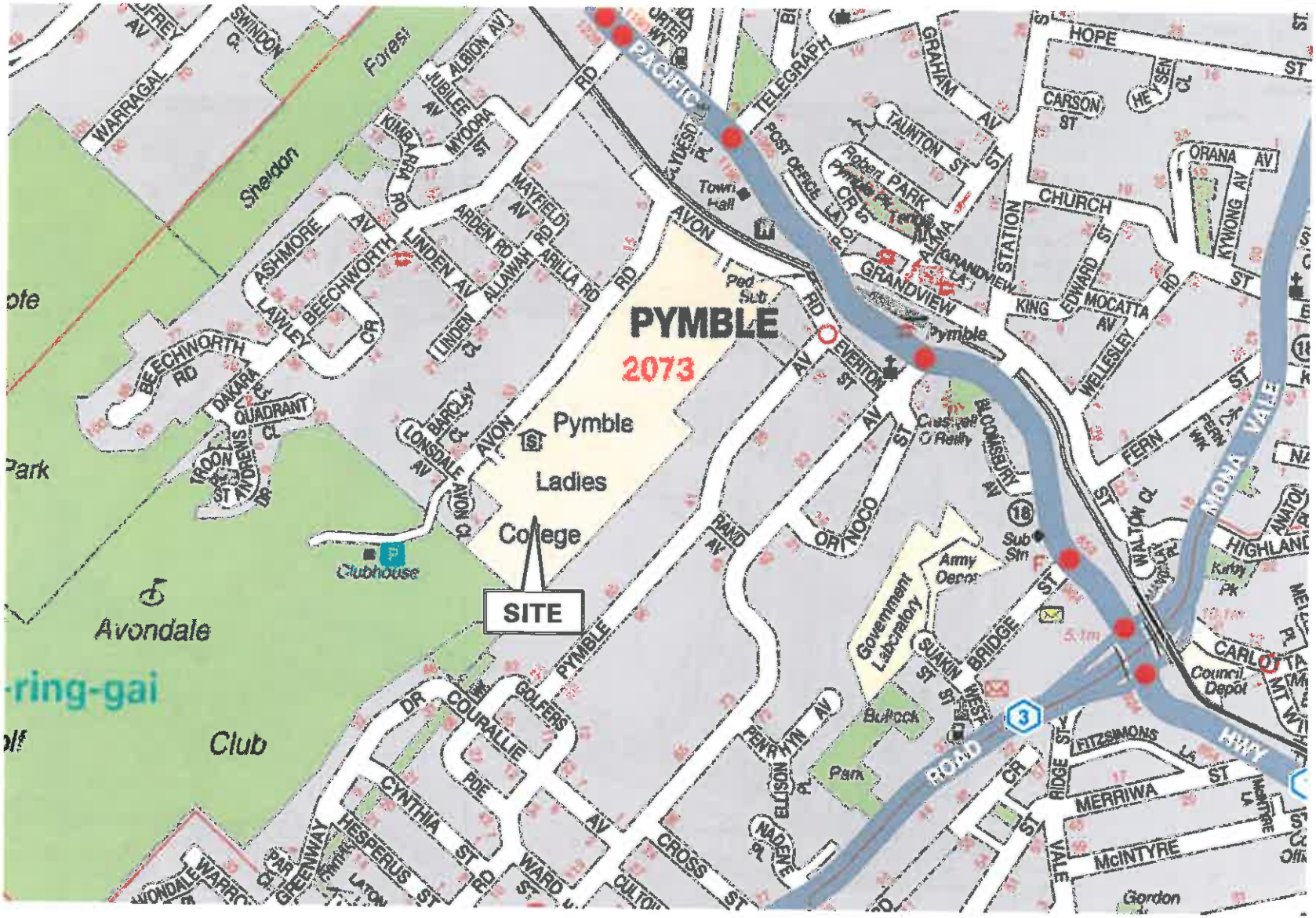
Misinterpretation of Site Assessments by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with 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 problems, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the test of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

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

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

FIGURES

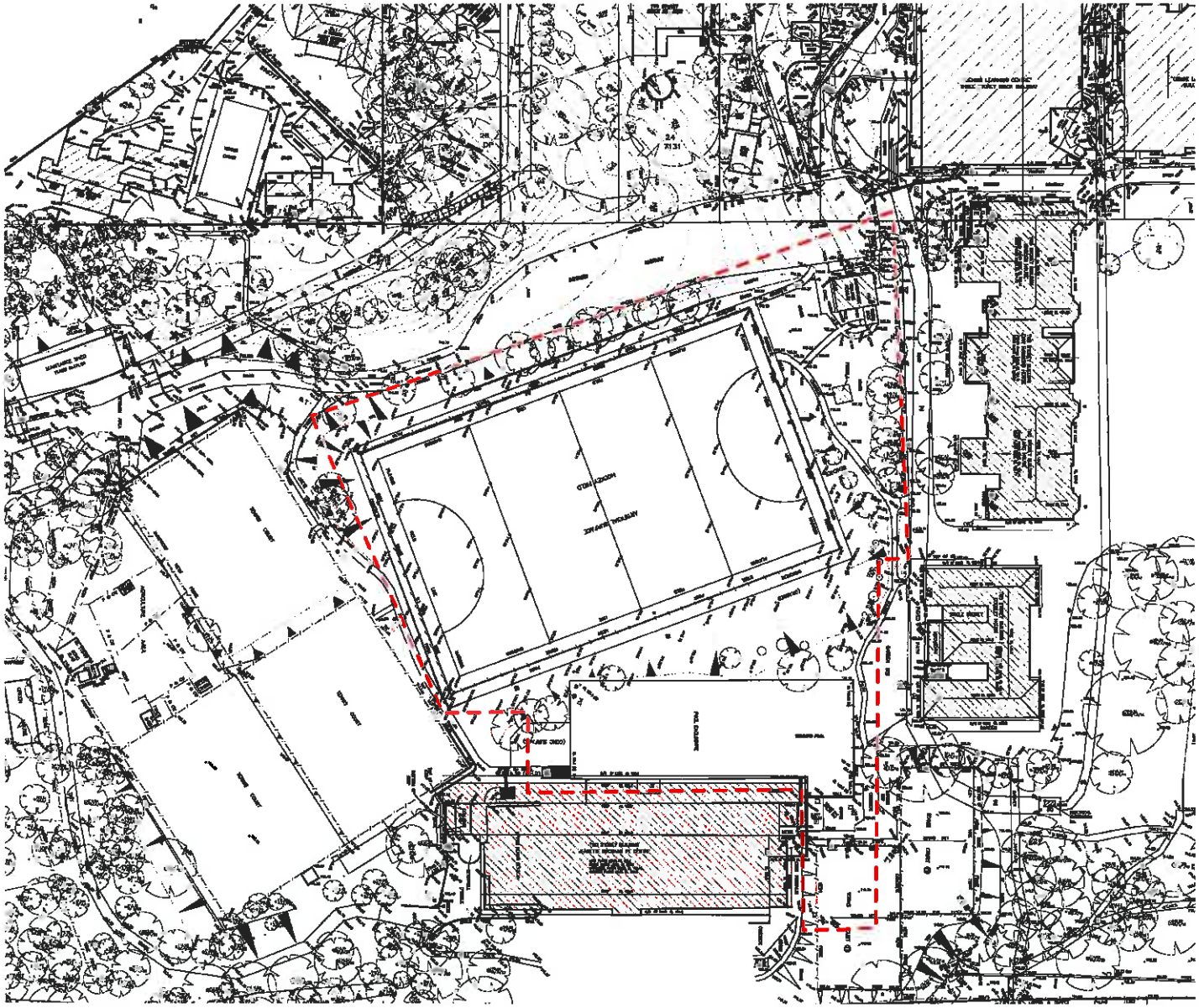


NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

UBD Map ref: 174 F4

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

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E25921KP	Title: SITE LOCATION PLAN
	Figure: 1	Address: 20-64 AVON ROAD, PYMBLE, NSW



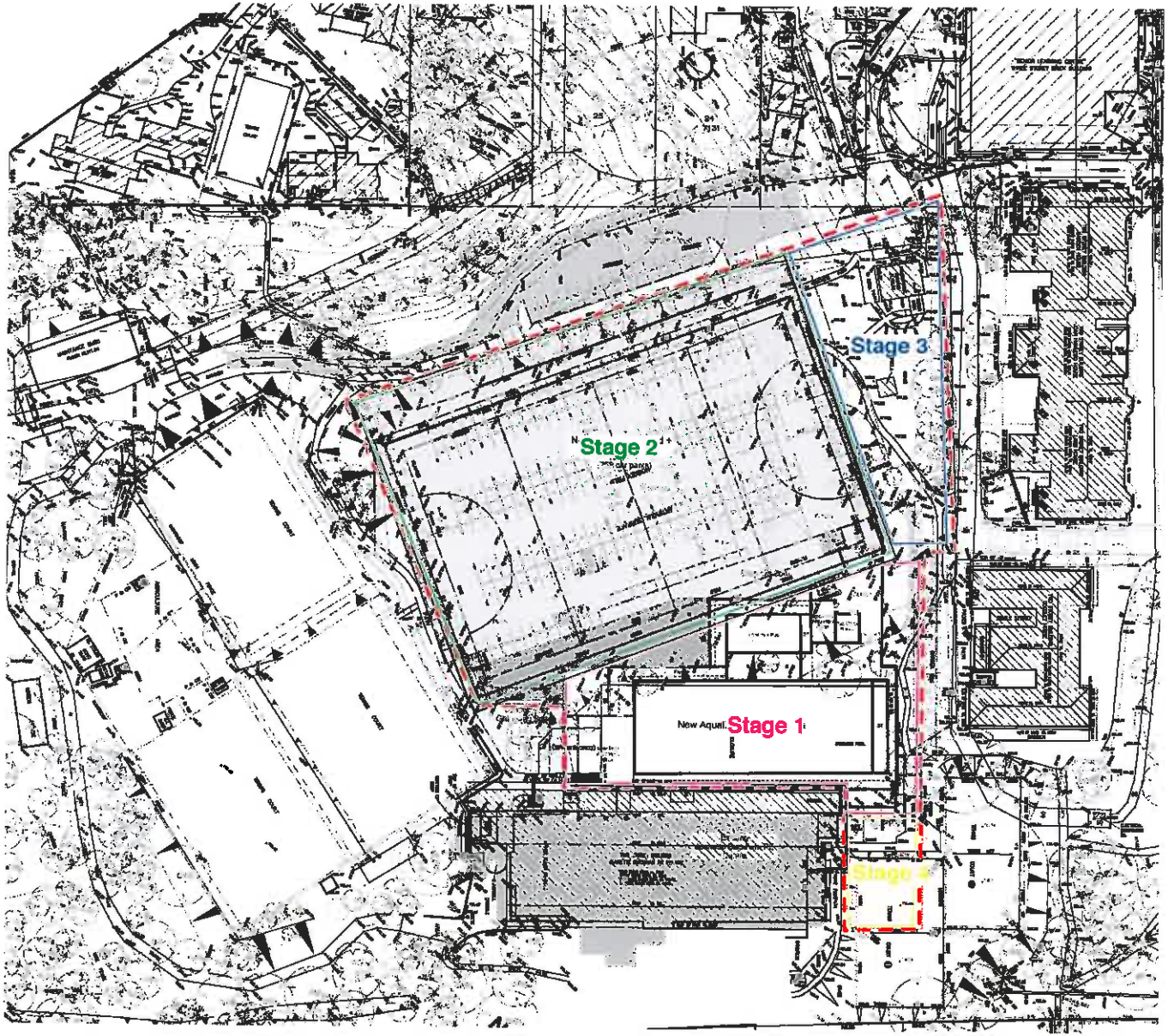
LEGEND:

Approximate site boundary

NOTES:
Figure 2 has been recreated from survey provided by Geoff Ninnes, Fong & Partners

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

Approximate Scale (m): 0 10 20 30 40 50	ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E25921KP	Title: SITE LAYOUT PLAN
		Figure: 2	Address: 20-64 AVON ROAD, PYMBLE, NSW



N

LEGEND:

Approximate site boundary

NOTES:
Figure 3 has been recreated from survey provided by Geoff Ninnes, Fong & Partners.

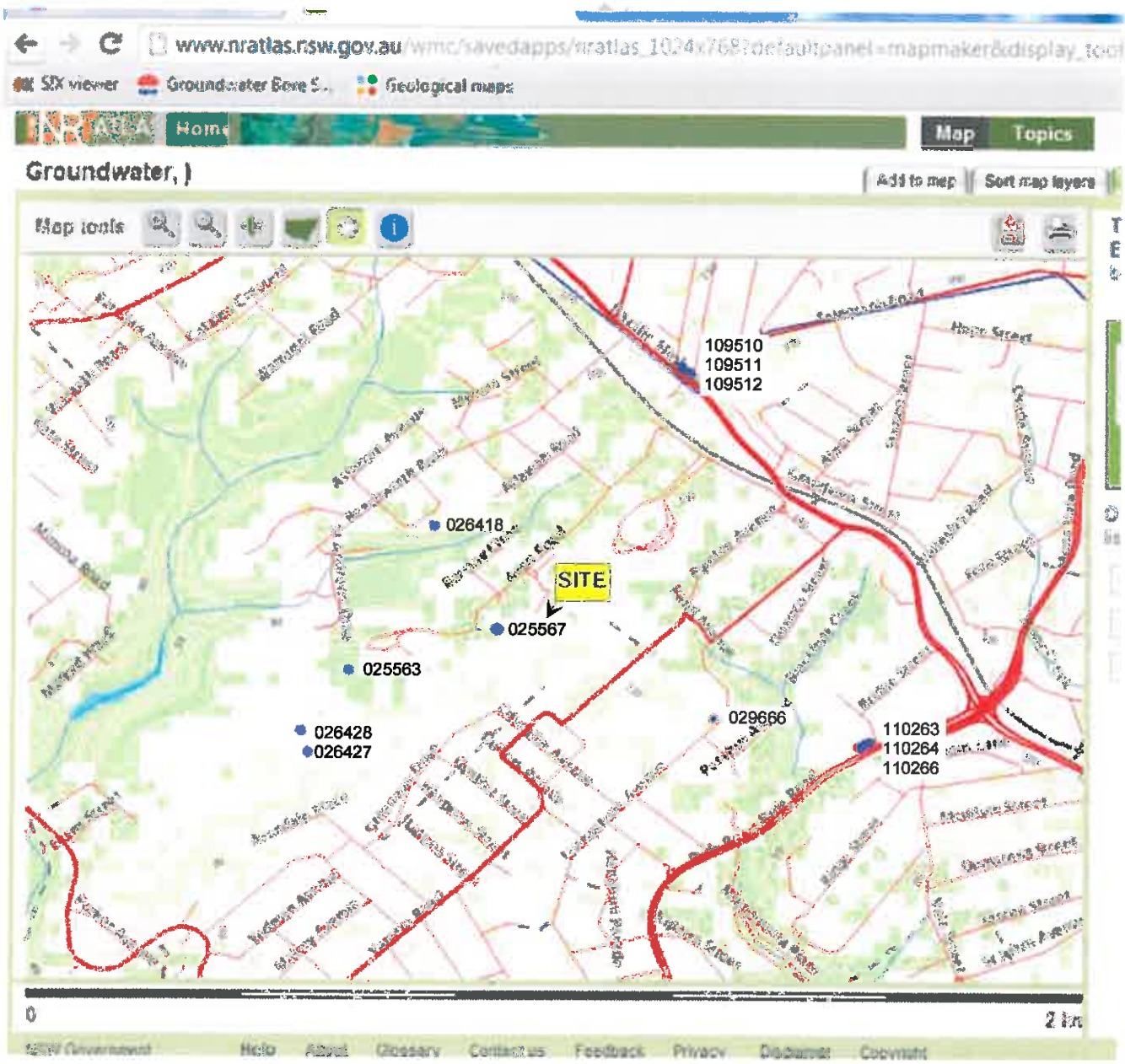
The development stages are indicative only.

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

Approximate Scale (m): 0 10 20 30 40 50	ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E25921KP	Title: PROPOSED DEVELOPMENT LAYOUT
		Figure: 3	Address: 20-64 AVON ROAD, PYMBLE, NSW

APPENDIX A1

Site History Documents – Groundwater Bore Records



● Groundwater bore

Project E25921KP
Pymble Ladies College
20-64 Avon Road, Pymble

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW025563

Works Details (top)

GROUNDWATER NUMBER	GW025563
LIC-NUM	10BL015095
AUTHORISED-PURPOSES	IRRIGATION
INTENDED-PURPOSES	IRRIGATION
WORK-TYPE	Bore open thru rock
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1965-04-01
FINAL-DEPTH (metres)	120.00
DRILLED-DEPTH (metres)	120.10
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	212 - HAWKESBURY RIVER
AREA-DISTRICT	
CMA-MAP	9130-3N
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6264005.00
EASTING	326669.00
LATITUDE	33 44' 60"

LONGITUDE	151 7' 43"
GS-MAP	0055A4
AMG-ZONE	56
COORD-SOURCE	GD.,PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	442

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	69 752031

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Nil	0.00	0.00	0			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
57.90	57.90	0.00	(Unknown)	27.40		0.08			(Unknown)
111.20	111.20	0.00	(Unknown)	27.40		0.08			(Unknown)

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.30	0.30	Soil		
0.30	57.91	57.61	Sandstone Grey		
57.91	64.00	6.09	Clay Grey Sandy		
64.00	99.06	35.06	Sandstone Grey		
99.06	109.72	10.66	Clay Sandy		
109.72	111.25	1.53	Sandstone		
111.25	120.09	8.84	Clay Sandy		

111.25	120.09	8.84	Shale Seams

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW025567

Works Details (top)

GROUNDWATER NUMBER	GW025567
LIC-NUM	10BL015757
AUTHORISED-PURPOSES	RECREATION (GROUNDWATER)
INTENDED-PURPOSES	IRRIGATION
WORK-TYPE	Bore open thru rock
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1965-07-01
FINAL-DEPTH (metres)	61.50
DRILLED-DEPTH (metres)	61.60
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-3N
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6264145.00
EASTING	327074.00
LATITUDE	33 44' 55"

LONGITUDE	151 7' 59"
GS-MAP	0055A4
AMG-ZONE	56
COORD-SOURCE	GD.,PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	99999

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	N/A

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	0.00	0.90	203			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
45.70	46.90	1.20	(Unknown)	14.60					(Unknown)
54.80	55.70	0.90	(Unknown)	10.00		0.63			(Unknown)

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.60	0.60	Topsoil		
0.60	45.11	44.51	Sandstone		
45.11	46.32	1.21	Shale Gravel Water Supply		
46.32	54.86	8.54	Sandstone Water Supply		
54.86	55.77	0.91	Shale Sandy Water Supply		
55.77	61.56	5.79	Sandstone		

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

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW026418

Works Details (top)

GROUNDWATER NUMBER	GW026418
LIC-NUM	10BL018997
AUTHORISED-PURPOSES	IRRIGATION
INTENDED-PURPOSES	IRRIGATION
WORK-TYPE	Bore open thru rock
WORK-STATUS	Test Hole
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1966-10-01
FINAL-DEPTH (metres)	19.20
DRILLED-DEPTH (metres)	19.20
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6264477.00
EASTING	326892.00
LATITUDE	33 44' 44"

LONGITUDE	151 7' 52"
GS-MAP	0055A3
AMG-ZONE	56
COORD-SOURCE	GD.,PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	99999

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	N/A

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Nil	0.00	0.00	0			(Unknown)

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.21	1.21	Soil		
1.21	2.59	1.38	Driller		
2.59	17.37	14.78	Sandstone Red		
17.37	19.20	1.83	Sandstone White		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW026427

Works Details (top)

GROUNDWATER NUMBER	GW026427
LIC-NUM	10BL018999
AUTHORISED-PURPOSES	IRRIGATION
INTENDED-PURPOSES	IRRIGATION
WORK-TYPE	Bore open thru rock
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1966-11-01
FINAL-DEPTH (metres)	48.70
DRILLED-DEPTH (metres)	48.80
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-3N
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6263737.00
EASTING	326564.00
LATITUDE	33 45' 8"

LONGITUDE	151 7' 39"
GS-MAP	0055A4
AMG-ZONE	56
COORD-SOURCE	GD.,PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	442

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	N/A

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	0.00	1.80	203			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
10.60	10.90	0.30	Unconsolidated	1.20					Potable
19.20	20.10	0.90	Unconsolidated	1.20		0.38			Potable
47.80	48.10	0.30	Unconsolidated	1.20		0.32			Potable

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.52	1.52	Soil		
1.52	10.66	9.14	Sandstone White		
10.66	10.97	0.31	Clay White Sandy Water Supply		
10.97	19.20	8.23	Sandstone White		
19.20	20.11	0.91	Clay Soft Sandy Water Supply		

20.11	29.87	9.76	Shale Light Grey Sandy
29.87	37.18	7.31	Sandstone Grey
37.18	47.85	10.67	Sandstone White
47.85	48.15	0.30	Sand Water Supply
48.15	48.76	0.61	Sandstone White Hard

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW026428

Works Details (top)

GROUNDWATER NUMBER	GW026428
LIC-NUM	10BL018998
AUTHORISED-PURPOSES	IRRIGATION
INTENDED-PURPOSES	IRRIGATION
WORK-TYPE	Bore open thru rock
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1966-10-01
FINAL-DEPTH (metres)	18.50
DRILLED-DEPTH (metres)	18.60
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-3N
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6263805.00
EASTING	326544.00
LATITUDE	33 45' 6"

LONGITUDE	151 7' 38"
GS-MAP	0055A4
AMG-ZONE	56
COORD-SOURCE	GD.,PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	442

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	N/A

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	0.00	1.20	203			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
14.30	14.40	0.10	Unconsolidated	2.40		0.32			Fresh

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.21	1.21	Soil		
1.21	13.71	12.50	Sandstone Red		
13.71	14.47	0.76	Clay Sandy Water Supply		
14.47	18.59	4.12	Sandstone White		

should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW029666

Works Details (top)

GROUNDWATER NUMBER	GW029666
LIC-NUM	10WA108136
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	GENERAL USE
WORK-TYPE	Bore open thru rock
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	(Unknown)
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1966-09-01
FINAL-DEPTH (metres)	25.90
DRILLED-DEPTH (metres)	25.90
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	603 - SYDNEY BASIN
GW-ZONE	
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-3N
GRID-ZONE	56'1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6263865.00
EASTING	327664.00
LATITUDE	33 45' 5"

LONGITUDE	151 8' 22"
GS-MAP	0055A4
AMG-ZONE	56
COORD-SOURCE	GD..PR. MAP
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	99999

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	N/A

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	-0.90	4.50	152			Suspended in Clamps

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
4.50	10.50	6.00	Fractured	4.50		0.71			invalid code

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.52	1.52	Loam		
1.52	4.57	3.05	Sandstone		
4.57	10.66	6.09	Water Supply		
10.66	25.90	15.24	Sandstone		

use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109510

Works Details (top)

GROUNDWATER NUMBER	GW109510
LIC-NUM	10BL602098
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-07-04
FINAL-DEPTH (metres)	13.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	CALTEX PETROLEUM AUST PTY LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6264999.00
EASTING	327552.00
LATITUDE	33 44' 28"

LONGITUDE	151 8' 18"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1//87096

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1 87096

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109511

Works Details (top)

GROUNDWATER NUMBER	GW109511
LIC-NUM	10BL602098
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-07-04
FINAL-DEPTH (metres)	13.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	CALTEX PETROLEUM AUST PTY LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6265011.00
EASTING	327549.00
LATITUDE	33 44' 27"

LONGITUDE	151 8' 18"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1//87096

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1 87096

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109512

Works Details (top)

GROUNDWATER NUMBER	GW109512
LIC-NUM	10BL602098
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-07-05
FINAL-DEPTH (metres)	14.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	CALTEX PETROLEUM AUST PTY LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6264991.00
EASTING	327575.00
LATITUDE	33 44' 28"

LONGITUDE	151 8' 19"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1//87096

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	1 87096

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110264

Works Details (top)

GROUNDWATER NUMBER	GW110264
LIC-NUM	10BL603070
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2009-05-22
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	SHELL COMPANY OF AUSTRALIA LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	8.20
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6263795.00
EASTING	328076.00
LATITUDE	33 45' 7"

LONGITUDE	151 8' 38"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3//1006211

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3 1006211

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	0.35	150			Rotary Air
1		Hole	Hole	0.35	4.00	125			Auger - Solid Flight
1		Hole	Hole	4.00	10.00	100			Down Hole Hammer
1	1	Casing	(Unknown)	0.00	4.00	65			Screwed
1	1	Casing	(Unknown)	4.00	10.00	65			Screwed; Seated on Bottom
1	1	Opening	Screen	4.00	10.00	65			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
8.20	10.00	1.80		8.20					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.80	2.80	FILL,BROWN TO BLACK,SAND AND CLAY		
2.80	3.20	0.40	SANDY CLAY,DARK GREY TO BLACK,FINE TO MED.GRAINED		
3.20	10.00	6.80	SANDSTONE, BROWN,GREY AND RED,FINE TO MED GRAINED		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
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Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110266

Works Details (top)

GROUNDWATER NUMBER	GW110266
LIC-NUM	10BL603070
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2009-05-22
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	SHELL COMPANY OF AUSTRALIA LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.80
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6263781.00
EASTING	328069.00
LATITUDE	33 45' 8"

LONGITUDE	151 8' 37"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3 1006211

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3 1006211

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	0.35	150			Rotary Air
1		Hole	Hole	0.35	4.00	125			Auger - Solid Flight
1		Hole	Hole	4.00	10.00	100			Down Hole Hammer
1	1	Casing	(Unknown)	0.00	4.00	50			Screwed
1	1	Casing	(Unknown)	4.00	10.00	50			Screwed; Seated on Bottom
1	1	Opening	Screen	4.00	10.00	65			PVC Class 18; A: .4mm; Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.80	10.00	2.20		7.80					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.90	1.90	FILL, BROWN SAND,GRAVEL, RUBBLE AND CLAY		
1.90	2.40	0.50	SANDY CLAY BROWN,FINE TO MED. GRAINED		
2.40	10.00	7.60	SANDSTONE,BROWN,FINE TO MED GRAINED		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, August 13, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110263

Works Details (top)

GROUNDWATER NUMBER	GW110263
LIC-NUM	10BL603070
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2009-05-22
FINAL-DEPTH (metres)	10.00
DRILLED-DEPTH (metres)	10.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	SHELL COMPANY OF AUSTRALIA LTD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	7.50
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6263801.00
EASTING	328094.00
LATITUDE	33 45' 7"

LONGITUDE	151 8' 38"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3//1006211

Licensed (top)

COUNTY	CUMBERLAND
PARISH	GORDON
PORTION-LOT-DP	3 1006211

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	0.80	150			Rotary Air
1		Hole	Hole	0.80	4.00	125			Auger - Solid Flight
1		Hole	Hole	4.00	10.00	100			Down Hole Hammer
1	1	Casing	(Unknown)	0.00	4.00	65			
1	1	Casing	(Unknown)	4.00	10.00	65			Screwed; Seated on Bottom
1	1	Opening	Screen	4.00	10.00	65			PVC Class 18; A: .4mm: Screwed
1		Annulus	Waterworn/Rounded	0.00	0.00				Graded; GS: 1-2mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
7.50	10.00	2.50		7.50					

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.50	1.50	FILL, BROWN AND GREY CLAYEY SAND WITH GRAVEL		
1.50	2.50	1.00	SANDY CLAY, BROWN.FINE TO MEDIUM		
2.50	10.00	7.50	SANDSTONE BROWN,VERY WEATHERED		

APPENDIX A2

Site History Documents – Historical Land Title Records

BP

07 AUG 2012

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

3rd August, 2012

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

Attention: Brendan Page,

RE: **Pymble Ladies College**
20-64 Avon Road, Pymble
Job No. E25921KP

Current Search

Folio Identifier 1/59541 (Auto Consol 5156-173) (title attached)
DP 69541 (plan attached)
Dated 1st August, 2012
Registered Proprietor:
THE UNITING CHURCH IN AUSTRALIA PROPERTY TRUST (N.S.W.).

Title Tree
Lot 1 DP 69541 (Auto Consol 5156-173)

Folio Identifier 1/69541 (Auto Consol 5156-173)

Certificate of Title Volume 5156 Folio 173

Certificate of Title Volume 2719 Folio 12

PA 19541

*****

Summary of proprietor(s)
Lot 1 DP 69541 (Auto Consol 5156-173)

Year	Proprietor
	(Lot 1 DP 69541 – Auto Consol 5156-173)
1993 – todate	The Uniting Church in Australia Property Trust (N.S.W.)
(1993 – todate)	*(lease to Sydney County Council of substation No. 5340 to 2031, shown on folio identifier Auto-Consol5156-173)*
	(Lot 1 DP 69541 and other lands, part of Portion 414, Parish of Gordon – Area 35 Acres 1 Rood 20 Perches – CTVol 5156 Fol 173)
1981 – 1993	The Uniting Church in Australia Property Trust (N.S.W.)
1940 – 1981	The Presbyterian Church (New South Wales) Property Trust
	(That piece or parcel of land, part of Portion 414, Parish of Gordon – Area 35 Acres 1 Rood 20 Perches – CTVol 2719 Fol 2)
1940 – 1940	The Presbyterian Church (New South Wales) Property Trust
1916 – 1940	The Trustees of the Presbyterian Church of Australia in the State of New South Wales

****

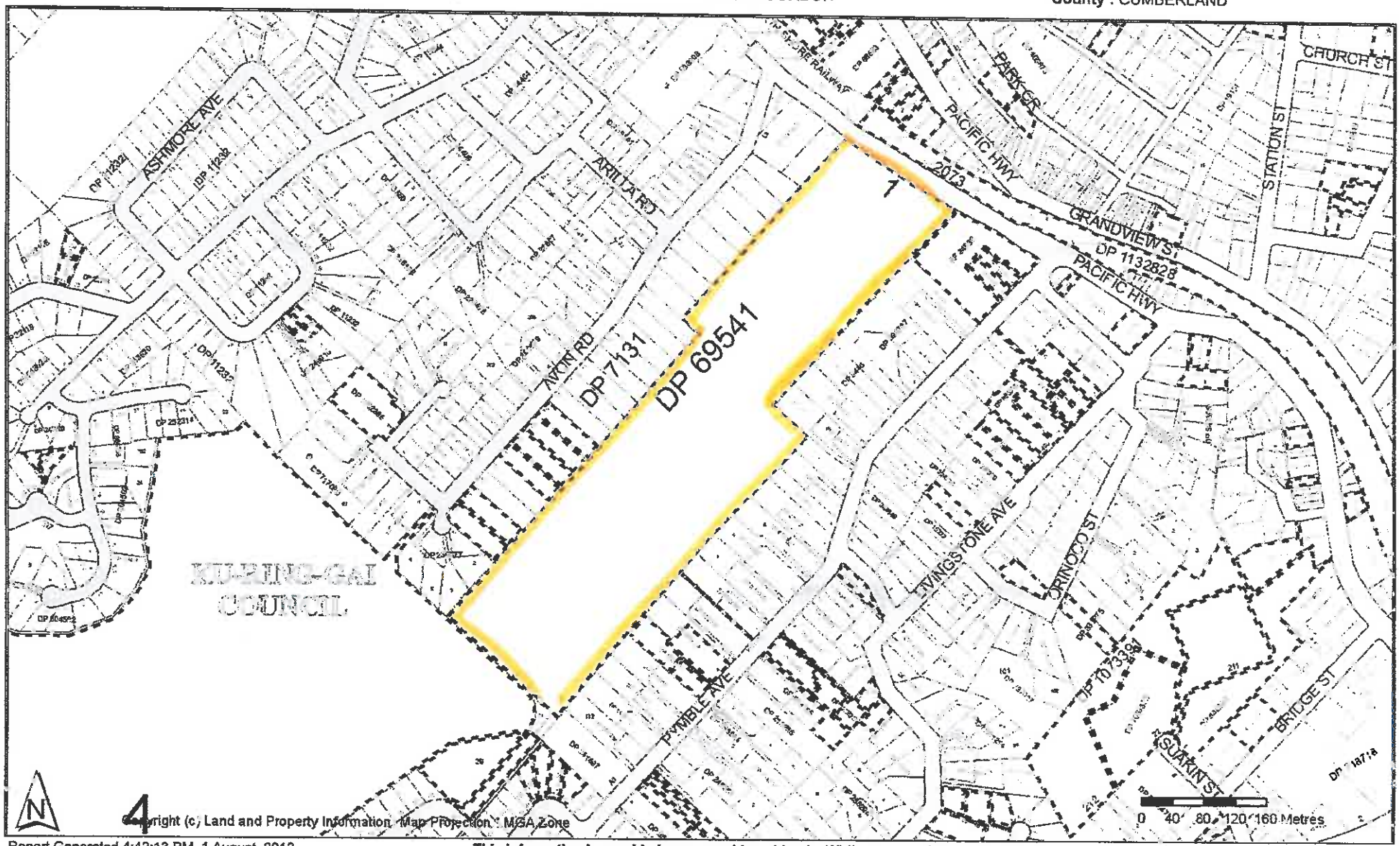
NSW Land & Property Information

Cadastral Records Enquiry Report

Ref : EIS - Pymble

Requested Parcel : Lot 1 DP 69541 **Identified Parcel :** Lot 1 DP 69541

Locality : PYMBLE **LGA :** KU-RING-GAI **Parish :** GORDON **County :** CUMBERLAND



Copyright (c) Land and Property Information Map Projection : MGA Zone

Report Generated 4:42:13 PM, 1 August, 2012

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

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 5156-173

SEARCH DATE	TIME	EDITION NO	DATE
1/8/2012	4:44 PM	1	21/4/1997

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT PYMBLE
LOCAL GOVERNMENT AREA KU-RING-GAI
PARISH OF GORDON COUNTY OF CUMBERLAND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

THE UNITING CHURCH IN AUSTRALIA PROPERTY TRUST (N.S.W.) (AP S429544)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 D562699 EASEMENT FOR DRAINAGE AFFECTING THE PART OF LOT 1 DP69541 SHOWN SO BURDENED IN VOL 5156 FOL 173
3 Q975526 EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND SHOWN SO BURDENED IN VOL 5156 FOL 173
4 T163464 LEASE TO SYDNEY COUNTY COUNCIL OF SUBSTATION PREMISES NO.5340 AFFECTING PART OF LOT 1 DP69541 TOGETHER WITH RIGHTS OF WAY AND EASEMENTS. EXPIRES 31.12.2031
5 2973276 EASEMENT FOR WATER SUPPLY WORKS 5.5 WIDE AS SET OUT IN MEMORANDUM 0535653 AFFECTING THE PART(S) SHOWN SO BURDENED IN DP265318
* 6 AA509917 POSITIVE COVENANT
* 7 AA509918 RESTRICTION AS TO USER (S.88E(3) CONVEYANCING ACT, 1919)

NOTATIONS

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

END OF PAGE 1 - CONTINUED OVER

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 5156-173 PAGE 2

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT 1 IN DP69541	DP69541
LOT A IN DP342267	DP342267.

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
1/8/2012 4:46PM

FOLIO: 1/699541

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 5156 FOL 173

Recorded	Number	Type of Instrument	C.T. Issue
8/3/1993	DP699541	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
9/3/1993		AMENDMENT: PARISH-COUNTY	
18/3/1993		CONVERTED TO AUTO CONSOL 5156-173	CONSOL CREATED CT NOT ISSUED

*** END OF SEARCH ***

AMENDMENTS AND/OR ADDITIONS MADE ON PLAN IN THE LAND TITLES OFFICE

10	20	30	40	50	60	70	80

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day 22nd March 1993

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 69541

FEET	INCHES	METRES
5	-	1.524
66	-	20.117
92	2 3/4	28.111
110	-	33.528
110	0 1/4	33.534
110	0 1/2	33.541
110	1	33.553
110	1 1/4	33.560
110	1 3/4	33.573
110	2	33.579
175	0 1/2	53.353
175	9 1/2	53.581
195	7	59.614
216	6	65.989
235	6	71.780
336	8	103.226
348	7	106.248
630	7	192.202
880	6	268.376
1022	9	311.734
1567	10	477.676

AC	RD	P	HA
35	1	20	14.32
60	-	-	24.28
100	-	-	40.47

R.P.A. 19541

DP69541

PLAN

OF

part of 100 acres granted to Wm Wright

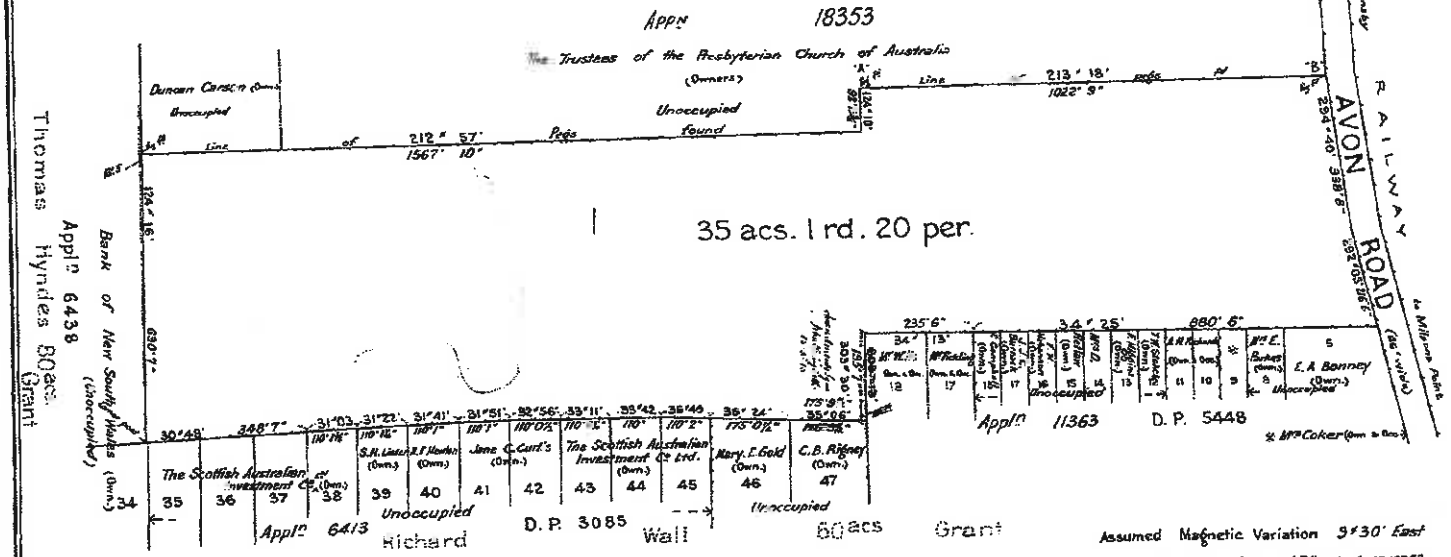
(Portion 127)

Parish of Gordon — County of Cumberland

— PYMBLE —

MUN — Kuring-gai ~~Shire~~

SCALE = 200 feet to An Inch



"A" This is the plan marked "A" referred to in the annexed Declaration of John Wingarth dated 20th July 1914.

Assumed Magnetic Variation 9°30' East

Azimuth taken from "AB" vide Appn 18353

Surveyed August 1913.

John Wingarth

Lic'd Surveyor under R.P.Act.

18.3.1993 7E

APPENDIX A3

Site History Documents – Council DA/BA Records

DEVELOPMENT APPLICATION

EXECUTIVE SUMMARY

Property	20 Avon Road PYMBLE NSW 2073
Lot & DP	Lot 5 DP 3532, Lot 1 DP 69541, Part Lot 26 DP 7131 & Lots 1-25 DP 7131
Proposal	Demolition of two existing buildings and construction of new building, car park, and alterations to existing library
Development application no.	DA0295/09
Ward	COMENARRA
Applicant	The Uniting Church of Australia Prop Trust
Owner	The Uniting Church of Australia Prop Trust
Date lodged	28 May 2009
Issues	Ecological and riparian issues
Submissions	No submissions received
Land & Environment Court	N/A
Recommendation	Approval
Assessment Officer	Brodee Gregory

LEGISLATIVE REQUIREMENTS:

Zoning	Special Uses 5(a) – School
Permissible under	KPSO
Relevant legislation	SEPP 1, SEPP 55 SREP (Sydney harbour Catchment) 2005 KPSO DCP 31 - Access DCP 40 – Waste Management

DCP 43 – Car Parking
DCP 47 – Water Management
Schools Development Control Code
Riparian Policy
Draft (Town Centres) LEP 2008

Integrated development YES – Rural Fires Act & Water Management Act

HISTORY

Site history:

The site has historically been used as an educational establishment (Pymble Ladies College).

Current application history:

- 28 May 2009 – The application was lodged with Council.
- 2 June 2009 – The applicant was asked to provide shadow diagrams, a SEPP 1 objection for building height, a noise assessment, advertising fee and detailed survey plan.
- 9 June 2009 – Shadow diagrams were submitted to Council. The applicant was advised by Council's Landscape Officer that a detailed survey plan was no longer required.
- 9 July 2009 – The applicant was asked to address Council's concerns regarding ecology, the riparian corridor and landscaping and engineering matters.
- 12 August 2009 - Amended landscape, carpark and Vegetation Management Plans were submitted, along with statements from a structural engineer and stormwater engineer.

THE SITE AND SURROUNDING AREA

The site:

Visual character study category:	Not specified
Easements/rights of way:	No
Heritage Item:	No
Heritage conservation area:	No
In the vicinity of a heritage item:	Yes – Nos. 1, 5, 11 & 19 Avon Road and No. 11 Arilla Road
Bush fire prone land:	Yes - Bushfire prone vegetation buffer
Endangered species:	Yes –Blue Gum High Forest in gully line below the proposed carpark & remnant Sydney Turpentine Ironbark Forest to the west of the proposed Senior Learning Centre
Urban bushland:	No
Contaminated land:	No

The site comprises an educational establishment known as Pymble Ladies College. Pymble Ladies College consists of a junior school and high school.

The site has an area of 20 hectacres and comprises lots 1 DP 69451 and lots 1-26 DP 7131. Vegetation on the site comprises a mixture of planted exotic trees, open turf lawn areas, remnant canopy trees and forest areas.

The site is located in the bushfire prone vegetation buffer zone.

Surrounding development:

The site is surrounded by a mixture of uses. The site is bounded by Avon Road to the immediate north-east and north-west. Further to the north-east is the railway corridor, and further to the north-west are residential properties.

To the south-east of the site are residential properties with access from Pymble

Avenue. To the south-west of the site is Avondale Golf Club.

THE PROPOSAL

The application is for demolition of two existing buildings, known as the 'Health Care Centre' and 'Jobson House.' The application proposes the following works:

IT Data Centre

It is proposed to convert the existing ground floor library carpark to a Data Centre (Figure 1). The works comprise enclosure of the existing carpark, additional plant within the building footprint and internal fitout to accommodate twelve support staff. Provision of new windows and grilles is also proposed.

Figure 1: Existing library building

Senior Learning Centre

It is proposed to construct a two (2) to three (3) storey Senior Learning Centre. The proposed building is to be located to the south-west of the library/IT Data Centre (Figure 2). The building comprises:

- Lower ground level: Lecture theatre, storeroom, staff facilities, four

classrooms and common area

- Ground level: Lecture theatre, staff facilities and offices, nine classrooms, seniors room, common areas and main entry
- First floor: Staff conference room, 9 classrooms, common area and bridge link to library

The Senior Learning Centre is to be constructed from a variety of materials including facebrick, rendered masonry, pre-finished fibre cement sheeting and aluminium louvres and performance glazing. The roof is to be a combination of tiles and metal sheeting. The Senior Learning Centre is to be linked to the existing library via a glazed bridge with metal roof.

Figure 2: Existing library and location of proposed Senior Learning Centre (existing hospital building to be demolished)

The proposed Senior Learning Centre is to be constructed within a developed horticultural landscape consisting of planted exotic trees and turf. To the west of the Senior Learning Centre is a remnant stand of indigenous canopy trees.

Carpark

Construction of a new carpark is also proposed. The proposed carpark is to be

located adjacent to an existing creek (Figure 3).

Figure 3: Existing creek

The carpark will accommodate the ten spaces displaced by the conversion of the existing library carpark and an additional 30 spaces. The proposed carpark will utilise an existing service road (Figures 4 and 5).

The applicant intends to introduce a school bus service which will utilise the proposed internal roads. (This service is not proposed pursuant to the current application).

The proposed carpark involves the removal of numerous immature native trees and a small area of disturbed habitat of Blue Gum High Forest.

Figure 4: Existing access road as viewed from within the site

Figure 5: Existing access road as viewed from Avon Road

COMMUNITY CONSULTATION

In accordance with Development Control Plan No. 56, owners of surrounding properties were given notice of the application. In response, no submissions were received.

Amended plans and additional information received 12 August 2009

The amended plans were not notified to surrounding residents as the proposed amendments do not result in a greater environmental impact than the original proposal.

INTERNAL REFERRALS

Landscaping

Council's Landscape and Tree Assessment Officer has commented on the amended proposal as follows:

> ***Recommendations***
>
> *Supported*
>
> *NB: Landscape Services has not provided consent conditions for issues relating to the riparian corridor, vegetation management plan or threatened species as these have been assessed by separate experts.*
>
> ***Site Characteristics***
>
> *It is proposed to demolish the existing school hospital building and Nancy Dobson House and construct a new three (3) storey Seniors Centre, demolish the existing Cricket Nets and construct a new forty space car park with bus/coach access from Avon Road, and relocate the cricket nets within the existing school grounds. The site is characterised by an open landscape character with perimeter native endemic and exotic tree plantings with pockets of remnant bushland.*
>
> ***Tree & Vegetation removal & impacts***
>
> *Seniors Centre*

The construction of the Seniors Centre will require the removal of numerous exotic tree species located within the proposed building footprint. The trees to be removed are either exempt tree species within Council's TPO, environmental weed species, and/or not considered significant within the broader landscape setting. Landscape Services raises no objections to the nominated tree removal.

The Seniors Centre is located within the root zone of a mature Eucalyptus saligna (Sydney Bluegum) located to the southwest of the proposed building on the opposite side to the existing internal road. The tree is considered to be significant within the landscape setting and is part of the critically endangered Sydney Bluegum High Forest plant community. The canopy spreads across the existing roofline of Nancy Dobson House, and will partially overhang the new Seniors Centre. The tree has a forest form, and no limbs spatially conflict with the proposed development. The proposed development is set back approximately 10m from the tree, outside of the identified structural root zone but within the optimal tree protection zone. It is noted that the proposed building has a greater setback from the tree than the existing building. Subject to tree protection measures being undertaken and maintained during construction, the tree should not be adversely impacted by the proposal.

Car park

The proposed car park will require the removal of numerous young native and/or endemic tree species to accommodate the proposed vehicular access, and other planted specimens within the riparian corridor. The majority of the trees to be removed are planted specimens in varying degrees of health of low landscape significance. From a landscape viewpoint, the nominated tree removal can be supported subject to additional tree replenishment being undertaken within the immediate vicinity, which can be conditioned.

Landscape Plan/Tree replenishment

A landscape plan has been submitted for landscape works surrounding the proposed senior's Centre. The proposed landscape works are consistent with the existing school landscape character, and can be supported by Landscape Services.

In addition, a landscape plan has also been submitted at Council's request for the area surrounding the proposed car park area. The landscape plan is inadequate and only proposes seven additional small trees. It will be conditioned for an amended landscape plan to include mass understorey planting within island garden beds and for additional trees adjacent to the northeast side of the carpark. In addition, the proposed species, although native, and endemic to the Sydney Bluegum High forest plant community, also seeds prolifically and given its natural form is not an appropriate species for the space and use intended. It will be conditioned for the species to be changed.

The landscape plan has not addressed level changes appropriately. There is a 2.4m height difference between the proposed car park and the relocated cricket nets over a 4m distance without retaining walls. This is too steep and requires additional retaining. This will be conditioned.

Fire

The site is identified as bushfire prone land (Flame and Buffer Zones). The applicant's fire consultant has recommended that all the grounds within the property (excluding remnant vegetation) not built upon be maintained as an APZ, and has noted that the grounds currently comply with this recommendation. It is therefore assumed by Landscape Services that no additional trees require removal for fire protection measures.

Stormwater Plan

No objections raised by Landscape Services.

Other issues and comments

Car park

Spot heights and levels have been shown on the proposed car park as previously requested. The additional information has highlighted the requirement for additional retaining walls, which have not been considered. It will be conditioned for additional retaining walls to be located immediately adjacent to the proposed car park edge adjacent to the western corner (between the graded road and carpark) and between the car park and proposed cricket nets.

Conclusion

The application can be supported by Landscape Services with conditions.

Engineering

Council's Development Engineer has commented on the amended proposal as follows:

The following comments are made with regard to engineering and stormwater issues.

Stormwater Disposal

The College is located towards the upper catchment of two (2) watercourses with the north western parts of the College draining to Avondale Creek and the south eastern parts of the College draining to Blackbutt Creek. Both these catchments drain stormwater flows in a series of open channels and interallotment piped systems.

For stormwater disposal it has been calculated that for the proposed building works (Senior Learning Centre) that a 36m^3 on-site detention system is to be provided with the intention of reducing the storage requirements by 30% and substituting this with rainwater reuse. It is also proposed that the existing detention volume of 10m^3 that is stored at

the carpark level of the existing building be relocated external to the building. Discharge of stormwater will occur via a connection to the existing stormwater drainage system and that is conveyed to the existing kerb inlet pit in Avon Road.

The redesign of the carpark has been in consultation with Council and has been designed in a matter that the post development stormwater flows from the site will not exceed the predevelopment flows.

The Stormwater Drainage as shown on plans 30362 DWG No. H01 & H02 issue's 'A' dated April 2009 prepared by Sydney All Services Pty Ltd is considered a satisfactory system for this type of development.

Full hydraulic design details of the stormwater disposal and detention / retention system to be prepared and approved by the PCA provided prior to issue of the construction certificate.

Site Access

Access to the site is via a new driveway crossover with the carpark designed with pervious road pavement. The pavement design has been prepared by Taylor & Herbert Structural P/L ensuring that pollutants will be adequately filtered prior to discharge.

The Arilla Road Carpark and Access Road

The turning path has been designed using a long rigid bus (wheel path radius of 15m). It is noted that there is no adjacent kerbs, fences or adjacent obstacles restricting the overhang of the bus from manoeuvring.

It was discussed that the carparking redesign provide for a 5.5m two-way aisle allowing roadway circulation for vehicles to safely enter and leave from Avon Road. The parking space dimensions and ramp

gradients (1 in 8.8 ~ 11.4%) complies with Australian Standard 2890.1 (2004) "Off-Street car parking".

Traffic Generation

A traffic report Ref:6775/4 dated May 2009 prepared by Colston Budd Hunt & Kafes Pty Ltd has been submitted detailing the traffic and parking implications for the proposed works.

The alterations and additions to the college will not result in an increase in student numbers and staff numbers. Therefore it is considered that no increase in traffic generation would be expected as a result of the proposed modifications.

The report outlines a proposed school bus service that will link surrounding areas currently not accessible to the college for students and staff. The service would operate during morning and afternoon periods. This proposal is outside of the scope of works proposed under this application.

Recommendations

From an engineering perspective there are no objections to approval of this application. The recommended conditions have been placed in Proclaim and should be placed on the development consent issued.

Ecology

Council's Ecological consultant has commented on the proposal as follows:

Introduction

An application has been received to build a Seniors Learning Centre and car park close to the western perimeter of Pymble Ladies College. Two (2) existing buildings will need to be demolished for the learning centre

and the car park is proposed to be built on an existing sports field. A review of the flora and fauna assessment for this proposal was prepared for Council in July (James July 2009) and the need for further information and assessment was identified. Additional information reviewed in this report includes:

- *Flora and fauna assessment prepared by Footprint Green Pty Ltd, 10 August, 2009.*

- *Vegetation management plan for riparian areas adjacent to proposed car park prepared by Footprint Green Pty Ltd, 10 August, 2009.*

- *Correspondence and roadwork/car park plan from Taylor And Herbert Structural Pty Ltd (dated 10 August, 2009).*

- *Correspondence from Sydney All Services re Stormwater Drainage (dated 10 August, 2009).*

- *Correspondence from glendinning minto & associates (dated 11 August, 2009).*

- *Revised Site and Landscape Plans (dated Feb & May 2009).*

Review of additional information

A review of the additional information is provided in relation to the recommendations of my previous report (section 7).

Recommendation 1

More detailed information is required relating to proposed car park and road surfaces and drainage/storm-water provisions for both proposals. There should be minimal alteration of the present hydrological regime.

Review: Adequate information is provided for the nature of development proposed. A significant alteration of the hydrological regime is unlikely to occur.

Recommendation 2

Address requirements of Council's Riparian Policy, including provision for a minimum 10 m wide riparian buffer from the top of the bank. Re-location of the proposed road adjacent to the creek-line is recommended.

Review: There has been some movement of the development back from the creek-line. The minimum width of the riparian buffer is still less than 10 m wide, however, considering the nature of the proposed development (particularly use and extent of pervious surfaces), the modified form of the creek bank and re-vegetation proposal, this is probably acceptable. I still have some concerns, however, in relation to potential edge effects on BGHF adjacent to the access road from Avon Road.

Recommendation 3

Revise impact assessment for the proposed car park addressing all direct, indirect and cumulative impacts on BGHF, a critically endangered community at both state and national levels.

Review: BGHF has been identified as occurring adjacent to the proposed car park and a seven-part test has been prepared for this community. Some references to Sydney Turpentine Ironbark Forest are still present but presumably these are just typographical errors. There is still no consideration of edge effects as an indirect impact.

Recommendation 4

Document STIF remnant adjacent to and below the proposed learning centre and assess potential indirect impacts.

Review: This has been provided. No significant adverse impacts are expected to occur.

Recommendation 5

In the absence of more detailed fauna survey the precautionary principle should be applied with seven-part tests undertaken for threatened fauna with potential habitat in the vicinity of the site.

Review: Seven-part tests are now provided for these species.

Recommendation 6

To achieve a long-lasting improvement in condition of BGHF at the site, weed control must also be undertaken beyond the site, at least upstream. The scope of the vegetation management plan should be increased to provide buffer zones and weed control strategies for the entire creek-line within the college grounds. Opportunities for involvement of the school in ongoing bush regeneration could be explored providing both good educational and conservation outcomes.

Review: The proposal to enter into a Voluntary Planning Agreement (VPA) with Council to provide for improved management (for conservation) of the entire creek-line is strongly supported and is critical to the protection and rehabilitation of BGHF and STIF within the school property.

Recommendation 7

Recommendations regarding tree protection measures and planting specifications (in tree report & vegetation management plan) relating to choice of species and use of local provenance material to be adopted. Choice of species to reflect natural composition and structure of BGHF present at the site and locally. All mowing and slashing within BGHF regeneration zone to cease. There should be no removal of Cedar Wattle Acacia elata or Euchiton sphaericus (both considered indigenous to BGHF at this site) and limited removal of the Illawarra Flame Tree.

Any native trees felled for the proposal to be retained on-site to provide fauna habitat within BGHF.

Review: VMP specifications regarding choice of species and use of local provenance material are included. No specifications or guidelines are provided for creation of fauna habitat (e.g. use of native timber felled). Some species are still identified as not being BGHF species or indigenous to the site e.g. Acacia elata, Gnaphalium sphaericus (now Euchiton sphaericus).

Summary

The additional information, assessment and proposals provided have addressed most of the issues raised in my earlier review and will assist in reducing likely impacts on the natural environment and improve the present condition of BGHF at the Site. A few inconsistencies/inadequacies still remain, however, these are not considered to be important in relation to key outcomes. The proposed VPA and VMP extending management along the creek-line is strongly supported and considered to be critical to mitigation of impacts and achieving good conservation outcomes.

Provision of a 10m wide riparian buffer zone throughout is still preferable, however, in view of the nature of the proposed development (particularly use and extent of pervious surfaces), the modified form of the creek bank and the re-vegetation proposal, there is some support for a reduction.

A few outstanding issues or additional points are identified below:

1. *Potential edge effects on BGHF adjacent to the access road from Avon Road. This is not considered in the 7-part test. To assist in mitigation of such impacts I recommend the construction of a permanent protective fence on both sides of the road (a fence is already proposed for upstream) and denser*

buffer plantings of BGHF groundcover species adjacent to the Peripheral Area.

2. *Include some specifications in the VMP in relation to fauna habitat to ensure both short and long-term retention of habitat trees and a relatively dense shrub layer (i.e. ensure removal of exotic species in shrub layer is gradual), and re-use of timber within the conservation area. The salvage of any seed or plants from native vegetation removed for the development should also be undertaken where appropriate.*

3. *The broader vegetation management plan proposal to extend management along the creek-line should be included as a condition of consent due to the significant contribution it makes to achieving successful conservation outcomes at the site.*

Based on the revised proposal and the recommendations provided, I conclude that the proposed development is unlikely to have a significant impact on threatened flora and fauna, including BGHF. No further assessment is required.

The proposed VPA and VMP extending management along the creek-line is strongly supported and considered to be critical to mitigation of impacts and achieving good conservation outcomes.

The following comments are made with regard to the outstanding issues raised:

- Temporary protective fencing is shown on either side of the access road. To protect the vegetation in this area, a permanent fence should be erected. The fence must be a dark recessive colour and be constructed in a manner to allow fauna to pass through. A height of 1.2m would be sufficient to prevent people and vehicles from damaging the flora in this area.
- A condition approving the submitted Vegetation Management Plan is recommended. A condition is also recommended requiring the suggested

amendments to the plan prior to issue of the Construction Certificate.

- The proposed Voluntary Planning Agreement involves rehabilitation of the entire creekline. It is noted that Council's Consultant Ecologist supports the proposed Voluntary Planning Agreement. The proposed Voluntary Planning Agreement is discussed in detail and from a planning perspective later in this report.

Water and catchments

Council's Technical Officer for Water and Catchments has commented on the proposal as follows:

> *The amended plans appear to satisfy my main concerns being the lack of information relating to the riparian zone impact and the intended function of the permeable pavement on the proposed parking area.*
>
> *The extra detail for the permeable paving design appears good to me but you may want to make sure that it is also reviewed by Council's Development Engineer.*
>
> *Although the parking area is partially within 10m of the top of the bank, it does not go closer than 5m and there is a conscious effort by the applicant to promote the long term continual improvement in the riparian condition through the voluntary vegetation management plan.*

Council's Technical Officer for Water and Catchments has not recommended that any specific conditions be imposed. It is noted that a condition requiring compliance with the submitted Vegetation Management Plan is recommended.

Heritage

Council's Heritage Adviser has commented on the proposal as follows:

> ***Heritage Status***

The site is not identified as a heritage item, but several buildings on the site are potentially of historic an aesthetic significance and could be considered for listing. The site is included within the National Trust Urban Conservation Area No 18. A National Trust UCA is not statutory however Council may consider the values identified by the Trust in its classification in its determination of an application.

There are several heritage items in Avon Road including Nos. 1, 5, 11 and 19. Of these, Nos. 1 & 5 are under the control of the Minister of Planning and may be demolished. No 11, "Macquarie Cottage" is a fine Georgian Revival house designed by Hardy Wilson. No 19 is a simple timber cottage, now rare for the area.

Proposed Works

A new car park off Avon Road, demolition of existing hospital building and school building, removal of demountable classroom, new two (2) storey school building linked to the existing library and alterations/additions to existing library building.

Comments

The existing hospital building is c.1930 restrained brick building. It has no apparent aesthetic values but is considered representative of the period and style. As a facility the hospital building illustrates historic and social significance to the school site. Similarly, the Nancy Jobson building is also a restrained brick school building that has limited aesthetic values but has historic and social significance to the school site. Demolition of the hospital building and Jobson building is acceptable but it is recommended to undertake archival photographic recording before demolition to Condition CG 15 (Figures 6 and 7).

Figure 6: Existing hospital building to be demolished

Figure 7: Existing Nancy Jobson building to be demolished

The proposed car park area is located off an existing gate along Avon Road. The proposed location adjoins an existing oval and is separated from the roadway and screened from surrounding dwellings by existing vegetation. Its construction would require removal of a number of trees. While these trees contribute to the character of the school site and

values of the UCA, their removal is a secondary heritage issue and would not impact on the nearby heritage items. The nearby heritage items are a reasonable distance from the carpark site and in my opinion there would be no adverse heritage impact through loss of views or setting.

The proposed new buildings are of an institutional character as expected for a school site. The proposed new facilities are considered to have an limited impacts on the nearby heritage items in Avon Road, which are located a considerable distance from the proposed site. In general the school site is a significant site within UCA precinct No 18 and is a strongly contributes to the existing character and values of the area. The proposed development will result in a higher built character on the site but given the size of the site, it is acceptable. The colours and materials and generally recessive and should blend into the site. Several buildings on the school site should be considered for heritage listing. These buildings are not adversely affected by the proposed development and will remain unaffected.

Conclusions and Recommendations

The application is supported. It is considered the proposed development would have minimal impacts to the nearby heritage items and minimal impacts on the values of the National Trust UCA.

It is recommended that archival photographic recording be undertaken to the hospital building and the Nancy Johnson building before demolition occurs.

As per the advice of Heritage Adviser, it is recommended that a condition requiring archival recording be imposed.

Building

Council's Building Surveyor has commented on the proposal as follows:

An assessment of the proposal including a site visit has been undertaken in accordance with the Deemed to Satisfy provisions of the Building Code of Australia. (Volume One)

Class: 9b, 7b, 7a, 5
RIS: 3
Type of construction: A

Should consent be granted the following conditions should be placed on the consent,

CNDFH05, CNDGR05 and CNDGSO5

Please note it is considered that no upgrade works are required under Section 94 of the EP & A Regs 2000.

As per the advice of Council's Building Surveyor, it is recommended that the above conditions concerning prescribed conditions, mechanical ventilation and a fire safety certificate be imposed.

Environmental Health

Council's Environmental Health Officer has commented on the proposal as follows:

The application has included some information on the acoustic impacts of the proposed development. I note that specific potential noise sources, including noise from plant equipment, lift motors or any mechanical ventilation that may be installed, have not been included in the acoustic consultant's report as the consultant does not have specific information on this equipment at this stage.

Compliance with the noise criteria is likely to be achievable due to the distance to the nearest affected residents, however, details of the equipment and compliance with the noise criteria should be sought

at Construction Certificate stage and prior to release of the Occupation Certificate.

As per the advice of Council's Environmental Health Officer, conditions concerning noise levels have been recommended. The standard condition concerning mechanical ventilation has also been recommended, as required by both Council's Environmental Health Officer and Building Surveyor.

Environmental Health

Council's Environmental Health Officer has commented on the proposal as follows:

Comments:

The application has included some information on the acoustic impacts of the proposed development. I note that specific potential noise sources, including noise from plant equipment, lift motors or any mechanical ventilation that may be installed, have not been included in the acoustic consultant's report as the consultant does not have specific information on this equipment at this stage.

Compliance with the noise criteria is likely to be achievable due to the distance to the nearest affected residents, however, details of the equipment and compliance with the noise criteria should be sought at Construction Certificate stage and prior to release of the Occupation Certificate.

Council's Environmental Health Officer has suggested that conditions concerning noise generating equipment and mechanical ventilation. It is recommended that these conditions be imposed.

EXTERNAL REFERRALS

Rural Fire Services

Under the provisions of section 91 of the Environmental Planning and Assessment Act 1979, the proposal is Integrated Development on the basis that a bush safety authority from the Commissioner of the NSW Rural Fire Service is required under the provisions of s.100B of the Rural Fires Act 1997, due to the proposal involving subdivision of bush fire prone land for residential purposes.

Accordingly, the development has been referred to the Commissioner of the NSW Rural Fire Service which commented, as follows:

> *I refer to your letter dated 2 June 2009 seeking general terms of approval for the above Integrated Development in accordance with Section 91 of the 'Environmental Planning and Assessment Act 1979'.*
>
> *This response is to be deemed a bush fire safety authority as required under section 100B of the 'Rural Fires Act 1997' and is issued subject to the following numbered conditions:*
>
> ***Water and Utilities***
>
> *The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.*
>
> *1. Water, electricity and gas are to comply with sections 4.1.3 and 4.2.7 of 'Planning for Bush Fire Protection 2006'.*
>
> ***Access***
>
> *The intent of measures for internal roads is to provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.*

2. New internal roads shall comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'.

Evacuation and Emergency Management

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments.

3. Arrangements for emergency and evacuation are to comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'.

Roads and Traffic Authority

Clause 104 of SEPP Infrastructure states that development referred to in Schedule 3 of the SEPP must be referred to the RTA. Schedule 3 states that educational establishments with access to a road and with a capacity of 50 or more students must be referred to the RTA. Whilst the existing school has a capacity of more than 50 students, no increase in student or staff numbers is proposed under the current application. This matter was discussed with the Department of Planning who advised that if no increase in student numbers is proposed, the application does not need to be referred to the RTA.

Despite this, the subject application was inadvertently referred to the RTA. The RTA have commented on the proposal as follows:

I refer to your letter dated 2 June 2009 regarding the abovementioned development which was referred to the Roads and Traffic Authority for comments:

The RTA has assessed the submitted documentation and provides the following advisory comments for Council's consideration in its determination of the application.

1.The traffic report noted that during school peak times that queues can

develop on entry to the school access and along Avon Road. Council should ensure that the abovementioned Traffic Management Plan is submitted to Council prior to issue of a Construction Certificate.
2.Off street parking associated with the proposed development (including driveways, grades, aisle widths, aisle lengths, turning paths, sight distance requirements and parking bay dimensions) should be designed in accordance with AS 2890.1 -2004 and AS 2890.2 – 2002 for heavy vehicles (i.e. school buses).
3. Car parking provision is to be in accordance with Council's Development Control Plan.
4. Any proposed vegetation or fencing must not hinder sight distances to/from the proposed access driveway to motorists, pedestrians and/or cyclists. Sight distances are to comply with AS2890.1 – 2004.
5. Suitable provision should be made on site to accommodate all demolition/construction vehicles.
6. If not already in place, Council is to consider the provision of cyclist facilities inside the proposed development.
7. All vehicles to enter and exit the development in a forward direction.
8.All work associated with the development is to be carried out at no cost to the RTA.

The matters raised by the RTA are addressed as follows:

1. Council's Development Engineer has advised that a Traffic Management Plan is not required.
2. Council's Development Engineer has reviewed the proposed development and has advised that the proposal complies with AS2890. No further conditions are required in this regard.
3. The proposed development complies with DCP No. 43 – Car parking. No further conditions are required in this regard.
4. Council's Development Engineer has reviewed the proposed development and has advised that the proposal complies with AS2890. No further conditions are required in this regard.
5. Council's Development Engineer has advised that a construction management is not required in this instance.

6. DCP No. 43 does not require the provision of cyclist facilities for educational establishments. No further conditions are required in this regard.
7. It is evident that all vehicles will enter and exit the site in a forward direction.
8. It is evident that all work associated with the development will be carried out at no cost to the RTA.

Department of Water and Energy

Under the provisions of section 91 of the Environmental Planning and Assessment Act 1979, the proposal is integrated development on the basis that the proposal involves the carrying out of an activity on waterfront land. As such, a controlled activity approval under the *Water Management Act 2000* is required.

> *I refer to your recent letter regarding an Integrated Development Application (DA) proposal for the subject property. Attached, please find the Department's General Terms of Approval (GTA) for 'works' requiring a Controlled Activity Approval under the Water Management Act 2000 (WMA), as detailed in the subject DA.*
>
> *Please note Council's statutory obligations under section 91 A(3) of the Environmental Planning and Assessment Act (1979), which requires a consent, granted by a consent authority, to be consistent with the GTA proposed to be granted by the approval body.*
>
> *If the proposed development is approved by Council, the Department requests that these GTA be included (in their entirety) in Council's development consent. Please also note the following:*
>
> • *The Department should be notified if any plans or documents are amended and these amendments significantly change the proposed development or result in additional 'works' on waterfront land (i.e. in or within 40 metres from top of highest bank of a watercourse, foreshore, or lake). Once notified, the Department will ascertain if the amended*

plans require review or variation/s to the GTA. This requirement applies even if the proposed 'works' are part of Council's proposed consent conditions and the 'works' do not appear in the original documentation.

- *The Department should be notified if Council receives an application to modify the consent conditions. Failure to notify may render the consent invalid.*
- *The Department requests notification of any legal challenge to the consent.*
- *Under Section 91A(6) of the Environmental Planning and Assessment Act (1979), Council must provide the Department with a copy of any determination/s including refusals.*

Under Section 91A(6) of the Environmental Planning and Assessment Act 1979, Council must provide the Department with a copy of any determinations including refusals.

As a controlled activity (i.e. the 'works') cannot commence before the applicant obtains a Controlled Activity Approval, the Department recommends that the following condition be included in the development consent:

"The Construction Certificate will not be issued over any part of the site requiring a Controlled Activity Approval until a copy of the Approval has been provided to Council".

The attached GTA are not the Controlled Activity Approval. The applicant must apply (to the Department) for a Controlled Activity Approval after consent has been issued by Council but before the commencement of any 'works'.

Finalisation of a Controlled Activity Approval can take up to 8 weeks from the date the Department receives all documentation (to its satisfaction). Applicants must complete and submit (to the undersigned) an application form together with any required plans, documents, the

appropriate fee and security (i.e. bond, if applicable) and proof of Council's development consent.

Application forms for the Controlled Activity Approval are available from the undersigned or from the Department's website www.dwe.nsw.gov.au/water trade/rights_controlled.shtml

The Department requests that Council provide a copy of this letter to the applicant.

It is recommended that a condition be imposed requiring a copy of the Controlled Activity Approval to be provided to Council and the Principal Certifying Authority prior to issue of the Construction Certificate. Further, it is a recommended that a condition requiring compliance with the General Terms of Approval be included.

STATUTORY PROVISIONS

Environmental Planning and Assessment Act 1979

The applicant has proposed to enter into a Voluntary Planning Agreement with Council to provide for the gradual improvement of the entire riparian zone in accordance with an agreed plan over a period of 10 years. The proposed Voluntary Planning Agreement would be separate to the Vegetation Management Plan which concerns the area immediately adjoining the proposed carpark.

Section 93F of the Act allows a developer to enter into a Voluntary Planning Agreement with a planning authority where the developer is required to provide material that will be applied towards a public purpose (in this instance conservation/enhancement of the natural environment). Section 93G of the Act states that a planning agreement cannot be entered into unless public notice has been given of the proposed agreement and a copy of the proposed agreement has been available for inspection by the public for a period of 28 days.

Whilst a Voluntary Planning Agreement may have some benefit as it would facilitate rehabilitation of the entire creekline, the applicant to date has not

provided any such draft agreement for Council's consideration. This action is considered to unreasonably protract the assessment period. Further, it is questionable whether it would be reasonable to require such an agreement when the proposed carpark (properly constructed and managed) would not have a significant impact upon the creek. In this regard, rehabilitation of the entire creek would not relate to the development and as such should not be reasonably placed as a condition of consent.

State Environmental Planning Policy No. 55 – Remediation of Land

The provisions of SEPP 55 require Council to consider the potential for a site to be contaminated. The subject site has a history of residential use and as such, it is unlikely to contain any contamination and further investigation is not warranted in this instance.

POLICY PROVISIONS

Ku-ring-gai Planning Scheme Ordinance (KPSO)

Height of buildings – Clause 46(1)

Clause 46(1) of the KPSO states as follows:

> *Notwithstanding the provisions of Part III of this Ordinance, a building shall not be erected to a height, across any point of a site, which is greater than 7m without the consent of Council.*

The proposed building has a height of 12.4m. Council has sought legal advice as to whether the above standard is a development standard. The legal advice is as follows:

> *If the aim of clause 46(1) is to ensure that "exempt development" (if it is a "building") requires development consent if it is greater than a certain height, clause 46(1) is superfluous because DCP No. 46 achieves that aim. [...] Clause 46 in the present version of the KPSO has no "work to do" because DCP No. 46 contains stricter height controls than clause 46(1). Given the matters set out above, it is our view that the 7m height requirement in clause 46(1) is not a development standard. Historically, clause 46(1) acted to bring a form of development (dwelling houses) that would be exempt development, into a category for which development consent is required if the dwelling houses were more than 7m in height.*

Development in the vicinity of heritage items - Clause 61E:

Clause 61(E) states that consent must not be granted to an application to carry out development on land in the vicinity of a heritage item unless an assessment of the effect the carrying out of that development will have on the heritage significance of the item and its setting has been made.

The subject site is in the vicinity of a number of heritage items, being Nos. 1, 5, 11 and 19 Avon Road and No. 11 Arilla Road. Council's Heritage Adviser has reviewed the proposed development and is of the opinion that the proposal will not result in any adverse impacts to these properties.

Development Control Plan 31 – Access

Clause 11 of DCP No. 31 states that alterations and additions to existing buildings must not reduce the existing level of accessibility and must comply with the numerical requirements and/or the objectives of the BCA.

The applicant has provided an Accessibility Report prepared by Accessibility Solutions Pty Ltd dated May 2009. The Accessibility Report is summarised as follows:

- On-grade access is provided to the lower ground floor and ground floor of the Seniors Centre.
- The first floor of the Seniors Centre is accessible via a bridge link from the adjacent library building (which has a lift)
- On-grade access is provided to the IT Data Centre.
- The proposed development complies with part D3 of the BCA.

In addition, it is noted that Council's Building Surveyor has reviewed the proposed development and has raised no objections.

Development Control Plan 40 – Construction and Demolition Waste Management

A Waste Management Plan has been submitted with the application.

Development Control Plan No. 43 – Car Parking

Section 3.1 of DCP No. 43 sets out carparking requirements for primary and secondary schools. The DCP requires one (1) space per full-time employee and one (1) space per eight (8) year 12 students. The DCP also states that provision is to be made for bus services in all applications made by schools.

The school currently has 2150 students and 289 staff. No increase in staff or student numbers is proposed pursuant to the subject application. The proposed car park entails a total 40 car parking spaces, ten of which are to replace the car parking spaces under the existing library. The proposal therefore entails 30 spaces in excess of the requirement and is acceptable.

In association with the proposed carpark, the school intends to introduce a school bus service. The bus will utilise the crossover associated with the new carpark and internal roads. By introducing a bus service, the school will ensure greater compliance with the DCP.

Riparian Policy

The site is identified under Council's Riparian Policy as containing a Category 3 – Bed and Bank Stability watercourse. The Riparian Policy requires a 10m core riparian zone.

The proposed development is within 5m of the creek and does not comply with the numerical requirements outlined in the Riparian Policy. Nonetheless, Council's Technical Officer for Water and Catchments considers the proposed development to meet the objectives of the Policy. The creek is currently weed infested. The proposed development involves rehabilitation and re-vegetation of the creek which will significantly improve the quality of the riparian corridor. As such, the proposed development is supported.

Schools Development Control Code

Aims (cl.3)

Clause 3 of the Schools Development Control Code outlines the objectives of the Code. Objective (a) encourages schools to work towards a master plan for the overall development of the school at a standard in keeping with surrounding sites. Objective (c) discourages piecemeal growth and intensification of density where such growth would be to the detriment of facilities for the pupils and amenity of surrounding property owners/residents. Objective (e) encourages schools to consider the amenity of surrounding owners and the scale and density

of adjoining development.

The proposed additions are in keeping with the aforementioned objectives as they entail a high quality development which will not have an adverse impact on the amenity of surrounding property owners/residents.

Code for development of schools (cl4)

Clause 4(a) states that a school playground is to be provided at a minimum rate of 20.5m^2 of useable playground per student enrolled at the school. Whilst the proposed development results in a slight reduction in playground area, the site comprises 200,000m^2 and is of sufficient area. Clause 4(c) states that car parking is to be provided at a rate of one (1) space per employee, one (1) space per eight (8) students in year 12 and one (1) space per 100 students. The proposed development does not involve an increase in staff or student numbers but provides for an additional 30 car parking spaces. As such, the proposal complies with this requirement.

Clause 4(d) states that proposals for additions, alterations and new buildings shall be considered in light of their effect on adjoining properties. The proposed additions are well set back from adjoining properties and will not result in any adverse impacts with regard to privacy, noise or overshadowing.

Draft (Town Centres) LEP 2008

The subject site is zoned Infrastructure - School under Draft (Town Centres) LEP 2008. Schools are permissible with the consent of Council on the subject land. No maximum building height or floor space ratio is indicated in the LEP.

The LEP identifies the site as containing areas of biodiversity significance and ecologically significant riparian areas. Ecology and riparian issues have been considered during the assessment of the current application and the proposal is acceptable with regard to these matters.

LIKELY IMPACTS

The proposed building works are well set back from nearby residential properties and will not result in any adverse impacts with regard to privacy, overshadowing or visual impact. The height of the proposed buildings is consistent with development existing on site. Whilst the proposal is unlikely to result in any adverse noise impacts to adjoining properties, it is nonetheless recommended that a condition be imposed to ensure that noise impacts are within acceptable limits.

The proposed Seniors Learning Centre is to be constructed within a developed horticultural setting consisting of planted exotic trees and open turf areas. The proposed development will not result in any adverse impacts to the nearby stand of remnant trees characteristic of Sydney Turpentine Ironbark Forest.

The proposed carpark involves the removal of numerous immature native trees and a small area of disturbed habitat of Blue Gum High Forest. The proposed development will not have a significant impact on threatened species or populations, though a small loss of habitat and trees will occur. Provided that the Vegetation Management Plan is implemented, the proposed development will not have a significant impact on the Blue Gum High Forest Community.

The creekline is presently weed infested. The Vegetation Management Plan involves removal of weeds and revegetation of the bank and open forest areas. As such, the proposed development is likely to improve the condition of the riparian corridor.

SUITABILITY OF THE SITE

The site is zoned for special purposes and is suitable for the proposed development, being alterations and additions to a school.

ANY SUBMISSIONS

No submissions have been received.

PUBLIC INTEREST

The approval of the application is considered to be in the in the public interest.

ANY OTHER RELEVANT MATTERS/CONSIDERATIONS NOT ALREADY ADDRESSED

There are no other matters for discussion

CONCLUSION

Having regard to the provisions of section 79C of the Environmental Planning and Assessment Act 1979, the proposed development is considered to be satisfactory. Therefore, it is recommended that the application be approved.

RECOMMENDATION

PURSUANT TO SECTION 80(1) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

THAT the Council, as the consent authority, grant development consent to DA0295/09 for Demolition of two (2) existing buildings and construction of new building, car park and alterations to existing library on land at No. 20 Avon Road Pymble, for a period of two (2) years from the date of the Notice of Determination subject to the following conditions:

Brodee Gregory
Senior Development Assessment Officer

Richard Kinninmont
Team Leader Development Assessment

APPENDIX A4

Site History Documents – Section 149 Certificates

PLANNING CERTIFICATE

UNDER SECTION 149 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

818 Pacific Highway Gordon NSW 2072
Locked Bag 1056, Pymble NSW 2073
T 02 9424 0000 F 02 9424 0001
DX 8703 Gordon TTY 02 9424 0875
E [redacted]
W [redacted]
ABN 86 408 856 411

Ku-ring-gai Council

PROPERTY DETAILS

Address: 20 Avon Road PYMBLE NSW 2073

Lot Description: Lot 5 DP 3532, Lot 1 DP 69541, Lot 2 DP 567503, Lot 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and Part Lot 26 DP 7131

CERTIFICATE DETAILS

Certificate No: PC2287/12 **Certificate Date:** 6/08/2012

Certificate Type: Section 149(2) & (5)

Receipt No: 340037

APPLICANT'S DETAILS

REF: PLC

Environmental Investigation Services
PO Box 976
NORTH RYDE BC NSW 1670

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, a commercial building, etc.) may be used and the limits on its development. The certificate contains information Council is aware of through its records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.

1. WHICH ENVIRONMENTAL PLAN RESTRICTS THE USE OF THIS PROPERTY?

(Including planning proposals and draft local environmental plans exhibited prior to 1 July 2009 pursuant to section 66(1) b of the E. P. & A. Act)

Ku-ring-gai Planning Scheme Ordinance as prescribed in Government Gazette No.108 of 1 October 1971.

Draft Local Environmental Plan No.191 – Preservation of Trees.
Draft Local Environmental Plan No.195.
Draft Local Environmental Plan No.192 and Draft Development Control Plan No 46 – Exempt and Complying Development
Draft Ku-ring-gai Local Environmental Plan (Local Centres) 2012

Planning Proposal to amend the Ku-ring-gai Planning Scheme Ordinance to incorporate provisions for biodiversity, riparian land and heritage conservation areas.

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2. WHAT IS THE ZONING OF THIS PROPERTY and the relevant environmental plan?

(Zoning is a way of classifying land and limits the range of uses or activities that may be permitted on that land or property).

Special Uses 5(a) (School)

under the provisions of the Ku-ring-gai Planning Scheme Ordinance as prescribed in Government Gazette No.108 of 1 October 1971.

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3. WHAT DOES NOT REQUIRE DEVELOPMENT CONSENT under the above environmental plan(s)?

Exempt Development as described in Schedule 1 of Development Control Plan No 46 – Exempt and Complying Development and Clause 24 of the Ku-ring-gai Planning Scheme Ordinance.

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4. WHAT DOES REQUIRE DEVELOPMENT CONSENT under the above environmental plan(s)?

Demolition of a building or work (being demolition that is not exempt development) Development (other than exempt development) for the purpose of. utility installations other than generating works or gas holders; special events; schools.

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5. WHAT IS PROHIBITED by the above environmental plan(s)?

Any development other that permitted by 3 or 4 above.

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6. DO THE DIMENSIONS OF THE LAND PERMIT THE ERECTION OF A DWELLING HOUSE ON THIS PROPERTY?

Not applicable. Dwelling houses are not permitted within this zone.

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7. WHAT OTHER PLANNING INSTRUMENTS AFFECT THIS PROPERTY?

(State and deemed state environmental plans are prepared by the State Government and cover issues as varied as rivers, residential development employment, etc. If you have any further enquiries please contact the Department of Planning. Tel: 02 9228 6333 or email: information@planning.nsw.gov.au.

Draft State Environmental Planning Policy (Competition)

State Environmental Planning Policy No.1 - Development Standards.
State Environmental Planning Policy No 4 - Development without Consent and Miscellaneous Exempt and Complying Development.
State Environmental Planning Policy No.6 - Number of storeys in a building.
State Environmental Planning Policy No 19 - Bushland in Urban Areas.
State Environmental Planning Policy No.21 - Caravan Parks
State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land).
State Environmental Planning Policy No.33 - Hazardous & Offensive Development
State Environmental Planning Policy No 44 - Koala Habitat Protection
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No 60 - Exempt and Complying Development.
State Environmental Planning Policy No 62 - Sustainable Aquaculture.
State Environmental Planning Policy No 64 - Advertising and Signage.
State Environmental Planning Policy No 65 - Design Quality of Residential Flat Development.
State Environmental Planning Policy No.70 - Affordable Housing(Revised Schemes).
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining. Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Temporary Structures) 2007
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

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8. WHICH DEVELOPMENT CONTROL PLANS APPLY TO THE PROPERTY?

(A development control plan adds further detail to local environmental plans and may address issues such as building height, car parking etc. Copies of the Plans are available from Council).

Development Control Plan No.28 - Advertising Signs
Development Control Plan No.31 - Access
Development Control Plan No.40 - Construction and Demolition Waste Management
Development Control Plan No.42 - Regulation of Brothels
Development Control Plan No.43 - Car Parking for Development in Ku-ring-gai Council Area
Development Control Plan No.46 - Exempt and Complying Development
Development Control Plan No.47 - Water Management
Development Control Plan No.56 - Notification
Development Control Plan No.57 - Child Care Centres

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9. WHICH DEVELOPMENT CONTRIBUTION PLANS APPLY IF THIS PROPERTY IS DEVELOPED?

(A Development Contribution Plan – commonly known as a Section 94 Plan outlines the financial costs Council charges if a property is developed and Council believes the development will require additional services or facilities such as parks, roads etc. Copies of the Plans are available from Council)

Ku-ring-gai Contributions Plan 2010

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10. IS THE PROPERTY IDENTIFIED AS A HERITAGE ITEM by Council or State Government? (and if so, what is the status, e.g. local environmental plan, Heritage Act etc.)

No.

***SPECIAL NOTE**: Your attention is drawn to Clause 61E of the Ku-ring-gai Planning Scheme Ordinance which states that Council shall not grant consent to an application to carry out development on land in the vicinity of a heritage item unless it has made an assessment of the effect the carrying out of that development will have on the heritage significance of the item and its setting.*

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11. IS THE PROPERTY IN A CONSERVATION AREA?

No.

***SPECIAL NOTE**: A conservation area is a place of historic and aesthetic value to the community. It contains a number of elements of significance, such as a historic subdivision layout, a pattern of building 'footprints' within each street block, buildings of historic and architectual importance, road alignments, trees, gutters and kerb edges which all combine to create a sense of place that is worth keeping. Council's Heritage Conservation Planner can provide you with more information on this matter.*

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12. DOES THE PROPERTY INCLUDE OR COMPRISE CRITICAL HABITAT?

No.

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13. IS THE PROPERTY AFFECTED BY A ROAD WIDENING OR ROAD REALIGNMENT under the Roads Act, any environmental planning instrument or any Council resolution?

No.

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14. IS THE PROPERTY RESERVED FOR ACQUISITION BY A PUBLIC AUTHORITY UNDER ANY ENVIRONMENTAL PLAN OR PROPOSED ENVIRONMENTAL PLAN?

No.

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15. IS THE PROPERTY PART OF ANY APPLICATION DECLARED TO BE "STATE SIGNIFICANT DEVELOPMENT"?

(Development is judged to be "State significant" if the Minister for Planning declares it to be so based on substantial cost of development, significant numbers of employees or other criteria. If you have any further enquiries please contact the Department of Planning. Tel: 02 9228 6333 or email information@planning.nsw.gov.au).

No.

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16. IS THE PROPERTY AFFECTED BY SECTION 38 OR 39 OF THE COASTAL PROTECTION ACT?

No.

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17. IS THE PROPERTY WITHIN A "PROCLAIMED MINE SUBSIDENCE DISTRICT"?

No.

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18. IS THE PROPERTY AFFECTED BY ONE OF THE MATTERS PRESCRIBED BY SECTION 59(2) OF THE CONTAMINATED LAND MANAGEMENT ACT 1997?

No.

SPECIAL NOTE: If you have any concerns about land contamination beyond the information described in this certificate, you should contact the NSW Office of Environment & Heritage. Tel. 131 555 or email info@environment.nsw.gov.au.

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19. IS THE PROPERTY BUSH FIRE PRONE LAND?

The land is bush fire prone land.

"Bush fire prone land" is defined in section 4 of the Environmental Planning & Assessment Act 1979 as meaning "land recorded for the time being as bushfire prone land on a bush fire prone land map for the area."

"The "area" is the local government area of Ku-ring-gai."

"The bush fire prone land map referred to in the definition may be inspected at the office of the Council."

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20. IS THE PROPERTY, LAND TO WHICH A PROPERTY VEGETATION PLAN UNDER THE *NATIVE VEGETATION ACT 2003* APPLIES?

No.

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21. IS THE PROPERTY, LAND SUBJECT TO AN ORDER UNDER THE *TREE (DISPUTES BETWEEN NEIGHBOURS) ACT 2006*?

The land is not known to be subject to such order.

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22. IS THE PROPERTY SUBJECT TO DIRECTIONS UNDER PART 3A MAJOR INFRASTRUCTURE AND OTHER PROJECTS of the Environmental Planning & Assessment Act 1979 No.203?

No.

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23. IS THE PROPERTY SUBJECT TO A CURRENT SITE COMPATIBILITY CERTIFICATE AND CONDITIONS FOR SENIORS HOUSING under the provisions of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004?

No.

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24. IS THE PROPERTY SUBJECT TO A VALID SITE COMPATIBILITY CERTIFICATE FOR INFRASTRUCTURE issued under clause 19 of State Environmental Planning Policy (Infrastructure) 2007?

No.

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25. IS THE PROPERTY SUBJECT TO A VALID SITE COMPATIBILITY CERTIFICATE AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING issued under clause 37 of State Environmental Planning Policy (Affordable Rental Housing) 2009?

No.

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26. IS THE PROPERTY SUBJECT TO AN EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE NATIONAL BUILDING AND JOBS PLAN (*STATE INFRASTRUCTURE DELIVERY) ACT 2009*?

No.

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27. IS THE PROPERTY, LAND THAT IS BIODIVERSITY CERTIFIED LAND WITHIN THE MEANING OF PART 7AA OF THE THREATENED SPECIES CONSERVATION ACT 1995?

No.

Special Note. For further information about the Biodiversity Certified Land contact the NSW Office of Environment & Heritage. Tel.131 555 or email info@environment.nsw.gov.au.

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28. IS THE PROPERTY, LAND TO WHICH A BIOBANKING AGREEMENT UNDER PART 7A OF THE THREATENED SPECIES CONSERVATION ACT 1995 RELATES?

No.

Special Note: For further information about the Biobanking agreement contact the Biobanking Team at NSW Office of Environment & Heritage. Tel 131 555 or email [redacted]

29. IS THE PROPERTY, LAND ON WHICH COMPLYING DEVELOPMENT MAY BE CARRIED OUT UNDER EACH OF THE CODES FOR COMPLYING DEVELOPMENT IN *STATE ENVIRONMENTAL PLANNING POLICY (EXEMPT AND COMPLYING DEVELOPMENT CODES) 2008* AND, IF COMPLYING DEVELOPMENT MAY NOT BE CARRIED OUT ON THAT LAND BECAUSE OF ONE OR MORE OF THE REQUIREMENTS UNDER CLAUSES 1.17A(c) AND (d) AND 1.19 OF THAT POLICY, WHY IT MAY NOT BE CARRIED OUT ON THAT LAND?

General Housing Code

Complying development under the General Housing Code **may** be carried out on the land.

Housing Alterations Code

Complying development under the Housing Internal Alteration Code **may** be carried out on the land.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

General Commercial and Industrial Code

Complying development under the General Commercial and Industrial Code **may** be carried out on the land.

Subdivision Code

Complying development under the Subdivision Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

SPECIAL NOTE. The above question relates to whether or not the land falls within an exclusion area under Clauses 1.17A(c) and (d) and 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.

30. DO ANY ADOPTED COUNCIL POLICIES OR RESOLUTIONS OR ANY POLICIES ADOPTED BY A PUBLIC AUTHORITY REQUIRED TO BE REFERRED TO IN A PLANNING CERTIFICATE RESTRICT THE DEVELOPMENT OF THE PROPERTY DUE TO THE LIKELIHOOD OF LANDSLIP, BUSHFIRES, TIDAL INUNDATION, SUBSIDENCE, CONTAMINATION, ACID SULPHATE SOILS OR ANY OTHER RISK (OTHER THAN FLOODING)?

YES. "Development Control Plan No.38 – Residential Design Manual" contains details regarding bushfire risk. For further information on the requirements of DCP No.38 please contact Council's Development & Regulations, Tel. 9424-0000

Note: A review of Council's readily available records has been conducted to identify previous land uses that may have caused land contamination. This review did not reveal any reason for contamination of this property. However, prior to urban settlement, sizeable areas of Ku-ring-gai were covered by agricultural and horticultural activities. These uses are listed in the Managing Land Contamination Planning Guidelines as activities that may cause contamination. If you are concerned about possible contamination of the site you should make your own investigations regarding the condition of this property.

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31. DO ANY ADOPTED COUNCIL POLICIES OR RESOLUTIONS OR ANY POLICIES ADOPTED BY A PUBLIC AUTHORITY REQUIRED TO BE REFERRED TO IN A PLANNING CERTIFICATE EFFECT THE DEVELOPMENT OF THE PROPERTY DUE TO FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION?

Yes. Development Control Plan No.47 - Water Management.

The following additional information is issued under Section 149(5).

32. IS LAND SLIP OR SUBSIDENCE LIKELY TO RESTRICT DEVELOPMENT OF THE LAND?

No.

SPECIAL NOTE: Some lots in the Ku-ring-gai Local Government area contain filling and/or road batters which may be subject to settlement and require special consideration in the design of foundations.

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33. IS FLOODING LIKELY TO RESTRICT DEVELOPMENT OF THE LAND?

Some properties in the Ku-ring-gai Local Government area contain or adjoin natural drainage paths, pipelines, watercourses and depressions. During major rainfall or blockage of the drainage system surface water may affect the site or restrict future development.

SPECIAL NOTE The Department of Infrastructure, Planning & Natural Resources and the Department of Commerce have not indicated any private property which may be affected by flooding of major rivers or creeks in the Ku-ring-gai Local Government area.

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34. OTHER INFORMATION RELATING TO DEVELOPMENT OF THE SITE.

A Tree Preservation Order applies to all land in the Ku-ring-gai Local Government Area. The Order aims to conserve Ku-ring-gai's tree canopy. The Order prohibits the ring barking, cutting down, lopping, pruning, removing, injuring or wilful destruction of any tree with a height greater than 5 metres or a canopy spread greater than 4 metres, unless the owner has the written consent of Council. A penalty can be imposed if the requirements of the Order are not complied with. For more information on the Tree Preservation Order please contact Council's Customer Service on 9424-0000.

This land may contain threatened species, populations and ecological communities listed under the Threatened Species Conservation Act 1995 (NSW) and or the Environment Protection Biodiversity Conservation Act 1999 (Commonwealth). For more information contact the Department of Environment, Climate Change and Water, Tel: 99955000.

This land may contain one or more of the following endangered or critically endangered ecological communities as described in the final determination of the scientific committee to list the ecological communities under Part 3 of Schedule 1 or Part 2 of Schedule 1A of the Threatened Species Conservation Act 1995 (NSW) :

Blue Gum High Forest,
Duffys Forest Ecological Community in the Sydney Basin Bioregion,
Sydney Turpentine Ironbark Forest
Coastal Upland Swamp

For more information contact NSW Environment & Heritage. Tel:131 555 or email info@environment.nsw.gov.au

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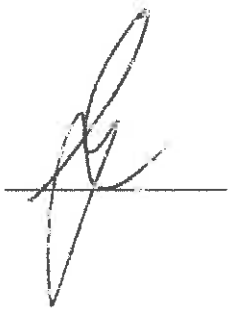
35. DO YOU NEED TO REFER TO ANY OTHER DOCUMENTS?

Yes. The Environmental Planning and Assessment Act 1997 commenced operation on 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998. Your solicitor will have a copy of this legislation or it may be obtained from the Government Information Office.

John McKee
General Manager,
Per



APPENDIX A5

Site History Documents – WorkCover Records

KM

WorkCover NSW
92-100 Donnison Street, Gosford NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

14 AUG 2012

Our Ref: D12/106604
Your Ref: Katie McGrath

13 August 2012

Attention: Katie McGrath
Environmental Investigation Services
PO BOX 976
North Ryde BC 1670 NSW

Dear Ms McGrath,

RE SITE: 20-64 Avon Rd Pymble NSW

I refer to your site search request received by WorkCover NSW on 7 August 2012 requesting information on licences to keep dangerous goods for the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licences 35/037713 relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Notification Team

...ION OF DANGEROUS GOODS ON PREMISES FORM

FDG01

...NTACT FOR NOTIFICATION INQUIRIES

Title: Mr / Miss / Ms / Mrs / Other (please specify) _____ Family name PYMBLE LADIES COLLEGE

Given name _____ Other names _____

Business phone (02) 9855 7799 Business fax number (02) 98557761

Business email address G.KERR@PYMBLELC.NSW.EDU.AU

Previous Licence Number or Acknowledgement Number (if known)

35/ NIL NEW 037713

Previous Occupier (if known)

Site on which dangerous goods are to be kept

Number Street

PO BOX 137 Avon Rd 15/5/07

Suburb/Town/Locality Postcode

PYMBLE 2073

Nearest cross Street

PYMBLE AV

Lot and DP if no street number

Is the site staffed? If yes state number of employees

Site staffing: Hours per day 24 Days per week 7

Site Emergency Contact

Phone number **Name**

(02) 98557735 GORDON KERR

Nature of site (eg petrol station, warehouse etc)

SCHOOL, PETROL SHED, STEEL CAGES, SWIMMING POOL

Nature of primary business activity

SCHOOL

ABN Number (if any) Website details (if any)

78619140464 WWW.PYMBLELC.NSW.EDU.AU

What is the ANSZIC code most applicable to your business? (see guide for list of codes and further information)

Code Description

Attach a site sketch(s) of the premises. Refer to the Guide GDG01 for information on the requirements for the site sketch.

Attach a legible photocopy page from a local Street Directory or other map showing the locality of the premises. Mark the location of the premises with an X.

...TION OF DANGEROUS GOODS ON PREMISES FORM

FDG01

...l the dangerous goods that will be stored and/or processed on these premises (refer to Guide GDG01). Copy this page and attach additional sheets if there is insufficient space.

PL

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
1	ROOFED STORE		400 LTS

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1203	PETROL	3		PREMIUM UNLEADED	3YE	BULK	400 LTS

LPL

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
2	ROOFED STORE		200 LTS

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1203	DIESEL	3		DIESEL	3YE	BULK	200 LTS

16/5/07

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
3	ROOFED STORE	8	2500 LTS

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1791	SODIUM HYPOCHLORITE SOLUTION 15%	8		HYPOCHLORITE	2X	BULK	2500 LTS

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
4	STEEL CAGE	2.1	36 KGS ≈ 72 L ?

LPL

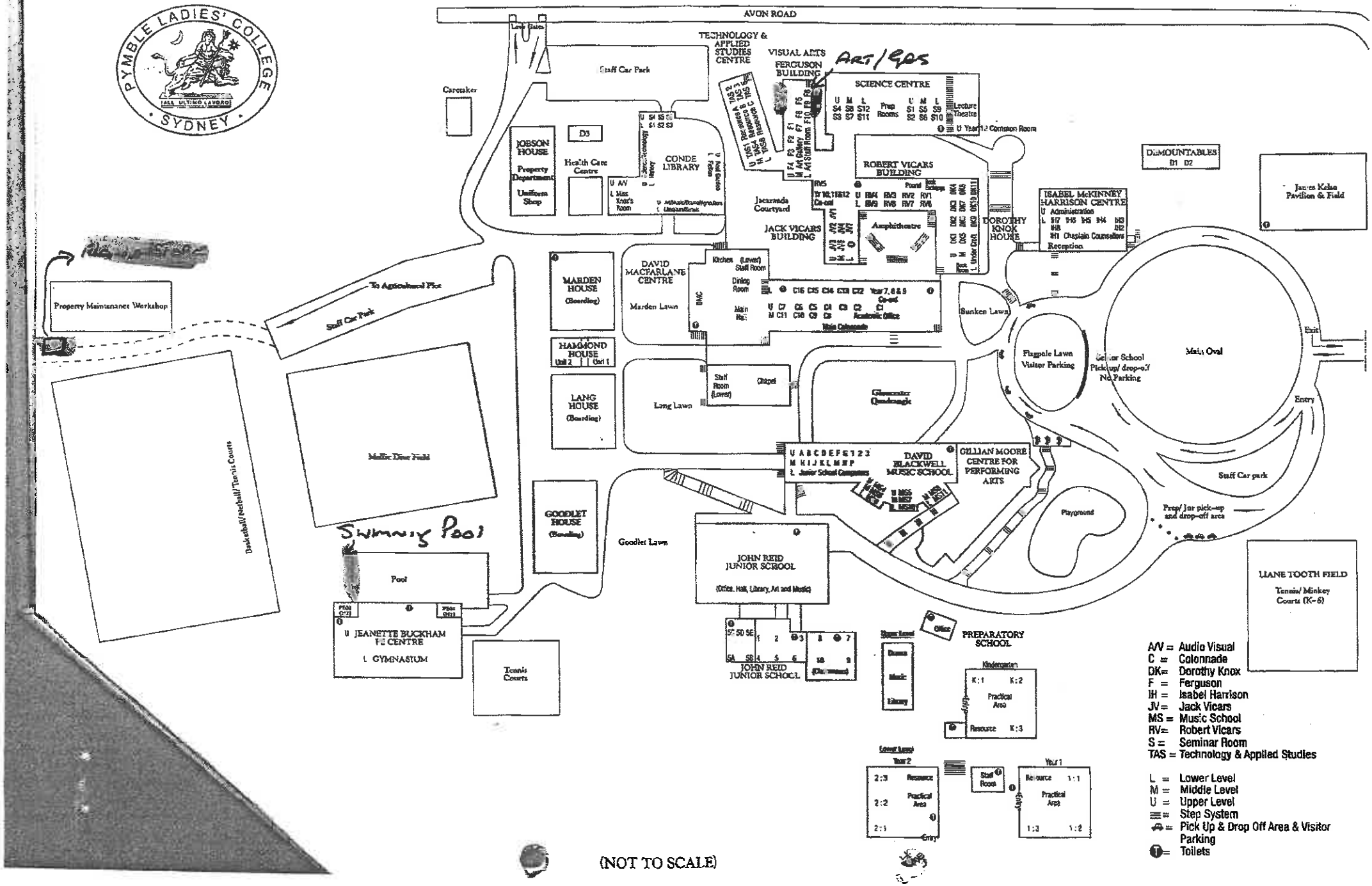
UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
1075	COMPRESSED PROPANE GAS	2.1		LPG	2WE		36KG

Depot No	Type of storage location or process	Class	Maximum Storage Capacity (L, kg)
5	CYLINDER TANK	2.2	130 KG ≈ 120L

LPL

UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	HazChem Code	Typical Qty	Unit eg L, kg
2187	REFRIGERATED LIQUID CARBON DIOXIDE	2.2	2	CO2 BEVERAGE	2RE		100KG

PYMBLE LADIES' COLLEGE
SYDNEY



(NOT TO SCALE)

APPENDIX B

Site Photographs

APPENDIX B - SITE PHOTOS
PLC, 20-64 Avon Road, Pymble
14 August 2012

APPENDIX B - SITE PHOTOS
PLC, 20-64 Avon Road, Pymble
14 August 2012

APPENDIX C

Abbreviations

ABBREVIATIONS

AGST	Above Ground Storage Tank
AHD	Australian Height Datum
ALTPQL	All Less than PQL
ANZECC	Australian and New Zealand Environment Conservation Council
ASS	Acid Sulfate Soil
BA/DA	Building Approval and Development Application
B(a)P	Benzo(a)pyrene
BGL	Below Ground Level
BH	Borehole
BOM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
COC	Chain of Custody documentation
CLM	Contaminated Land Management
CMP	Construction Management Plan
CSM	Conceptual Site Model
CT	Contamination Threshold
DBYD	Dial Before You Dig
DEC	Department of Environment and Conservation (now part of OEH)
DECC	Department of Environment and Climate Change (now part of OEH)
DECCW	Department of Environment, Climate Change and Water (now part of OEH)
DWE	NSW Department of Water and Energy
DO	Dissolved Oxygen
DP	Deposited Plan
DQIs	Data Quality Indicators
DQOs	Data Quality Objective
EC	Electrical Conductivity
Eh	Redox Potential
EILs	Ecological Investigation Levels
ENM	Excavated Natural Material
EMP	Environmental Management Plan
ESA	Environmental Site Assessment
FR	Field Rinsate
GAI	General Approvals of Immobilisation
GILs	Groundwater Investigation Levels
GPS	Global Positioning System
Hazmat	Hazardous Materials Assessment
HILs	Health Based Investigation Level
HM	Heavy Metals
HMTVs	Hardness Modified Trigger Values
LNAPLs	Light Non-Aqueous Phase Liquids
NATA	National Association of Testing Authorities
NDLR	Not Detected at Limit of Reporting
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NHMRC	National Health and Medical Research Council
NSW EPA	Environmental Protection Authority of NSW
MGA	Map Grid of Australia
OCPs	Organochlorine Pesticides
OEH	NSW Office of Environment and Heritage
OPPs	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential ASS

ABBREVIATIONS

PCC	Potential Contaminants of Concern
PCBs	Polychlorinated Biphenyls
PID	Photo-ionisation Detector
POEO	Protection of Environmental Operations
PPIL	Provisional Phyto-toxicity Investigation Levels
PQL	Practical Quantitation Limit
RAP	Remediation Action Plan
RL	Reduced Level
QA/QC	Quality Assurance and Quality Control
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria
SAQP	Sampling, Analysis and Quality Plan
SAS	Site Audit Statement
SCC	Specific Contamination Concentration
SD	Standard Deviation
SEPP	State Environmental Planning Policy
sPOCAS	suspension Peroxide Oxidation Combined Acidity and Sulfate
SPT	Standard Penetration Test
SVOCs	Semi-Volatile Organic Compounds
SWL	Standing Water Level
TB	Trip Blank
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TP	Test Pit
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
TS	Trip Spike
USEPA	United States Environmental Protection Agency
UCL	Upper Confidence Limit
UPSS	Underground Petroleum Storage Systems
UST	Underground Storage Tank
VENM	Virgin Excavated Natural Material
VOCs	Volatile Organic Compounds
WC	Waste Classification
WHS	Workplace, Health and Safety